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# Leveraging foreign diversification to build firm resilience: A conditional process perspective

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## ABSTRACT

Foreign diversification is crucial for risk management, but its role in building resilient international firms is underexplored. This research combines the organizational information processing theory with international business literature to examine how and when foreign diversification relates to firm resilience in the context of SME exporters. The study suggests that while foreign diversification may contribute to firm resilience, foreign market scanning mediates this effect under varying supply chain disruption conditions. An analysis of primary data from 272 SME exporters in Ghana reveals that foreign diversification alone does not explain firm resilience. Instead, the results support the arguments that foreign market scanning positively mediates the foreign diversification – firm resilience relationship, and that this indirect relationship is stronger in highly disruptive supply chain environments. Implications of these findings for international business research and practice are discussed.

## 1. Introduction

Firm resilience has become crucial for international firms, given the increasing frequency and costs of supply chain disruptions in foreign markets (Pitelis et al., 2023; Lee et al., 2022). Firm resilience refers to firms' ability to persist, adapt, or transform in the face of supply chain disruptions (Wieland and Durach, 2021). Extant literature suggests that supply chain disruptions often hurt corporate reputation, increase inefficiencies, and reduce sales revenue, market share, and profitability (Essuman et al., 2023; Manhart et al., 2020). Past studies indicate that resilient firms are more competitive and profitable (Iftikhar et al., 2021; Wong et al., 2020; Manhart et al., 2020). However, despite the scholarly advancements in understanding the factors that affect firm resilience, research that delves into how the unique characteristics of international firms impact their resiliency remains scarce (e.g., Li et al., 2023; Iftikhar et al., 2021; Manhart et al., 2020; Tukamuhabwa et al., 2015).

Recently, international business (IB) literature has directed its focus toward comprehending the significance of foreign diversification in the context of resilience-building (Puhr and Müllner, 2022; Kersan-Škabić, 2022; Kano and Oh, 2020). This line of inquiry stems from notable instances such as the U.S.-China trade wars, the Covid-19 pandemic, and the Russia-Ukraine conflict, which have underscored the vulnerability of firms with concentrated foreign market operations during supply chain disruptions (Duffy, 2023;

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Segal, 2022; Simchi-Levi and Haren, 2022). Foreign diversification refers to the extent to which a firm operates in multiple foreign markets (Fariborzi et al., 2022). Utilizing abnormal stock market returns to measure firm resilience to the Covid-19 pandemic, Puhr and Müllner (2022) discover that MNEs with a high foreign diversification exhibit stronger resilience. Nonetheless, the resilience of MNEs wanes as their counterparts become aware of the disruption and investors revise their valuations to align with the new post-disruption landscape. Such context-dependent association between foreign diversification and firm resilience underscores the necessity for additional empirical inquiries into this underexplored area (Puhr and Müllner, 2022).

While unique empirical settings and alternative operationalization of firm resilience can offer novel insights (Essuman et al., 2022; Puhr and Müllner, 2022), the assets-liabilities debates on foreign diversification particularly call for new approaches to theorizing and analyzing the relationship between foreign diversification and firm resilience (Huang et al., 2023). One perspective suggests that foreign diversification can help firms spread risks and access diverse international knowledge and resources that may be useful for managing supply chain disruptions (Puhr and Müllner, 2022; Fariborzi et al., 2022; Mondal et al., 2022). The other viewpoint argues that foreign diversification may introduce more complexities, uncertainties, and coordination costs, which may undermine resilience-building (Puhr and Müllner, 2022; Fariborzi et al., 2022; Mondal et al., 2022). In focusing on economic and market outcomes, past studies have employed contingency and nonlinear analyses to resolve these conflicting views on foreign diversification (e.g., Huang et al., 2023; Arte and Larimo, 2022; Schwens et al., 2018). Despite the rich insights from such theoretical and empirical perspectives, research that isolates the firm mechanisms and associated boundary conditions that link foreign diversification to specific organizational outcomes is limited (Huang et al., 2023). This limitation in the literature leaves international firms uncertain about the processes through which expanding foreign market operations may enhance their resilience under specific supply chain conditions.

This research seeks to answer the question: *how and when does foreign diversification contribute to firm resilience?* We begin answering this question by using a unique setting (i.e., international SMEs from a developing country) and an alternative operationalization of firm resilience (i.e., firms' ability to absorb, quickly recover from, adapt to, or transform during supply chain disruptions [Wieland and Durach, 2021]) to examine Puhr and Müllner's (2022) evidence that foreign diversification generates crucial resources that enhance MNEs' abnormal stock market returns during extreme shocks. Drawing on IB literature, we argue that the superior experiential knowledge, financial resources, and adaptive behaviors that often characterize internationally diversified firms may contribute to their resilience (Fariborzi et al., 2022; Puhr and Müllner, 2022).

Next, we develop a conditional-process perspective, grounded in the organizational information processing (OIP) theory, to articulate how foreign market scanning, independently and in complement with supply chain disruption, mediates the foreign diversification – firm resilience link. While complexity and uncertainty tend to increase with foreign diversification (Fariborzi et al., 2022; Mondal et al., 2022), we argue that such issues may encourage internationally diversified firms to emphasize foreign market scanning to enhance resilience (Tushman and Nadler, 1978; Srinivasan and Swink, 2018). Foreign market scanning reflects the degree to which international firms gather information about marketplace conditions (e.g., opportunities and threats) in their foreign markets (Bouquet et al., 2009). Foreign market scanning can improve visibility, minimize disruption forecasting errors, facilitate quicker disruption detection, and expand slack time for experimenting with and enacting disruption management solutions (Essuman et al., 2022).

However, foreign market scanning may not always be beneficial (Bouquet et al., 2009). OIP theory suggests that organizational effectiveness may increase when foreign market scanning is deployed in uncertain and unpredictable environments (Srinivasan and Swink, 2018; Tushman and Nadler, 1978). Therefore, we further propose supply chain disruption as an environmental condition that can enable firms to effectively exploit the potential of foreign market scanning to drive their resilience (Yang et al., 2021; Bode et al., 2011). Supply chain disruption refers to the frequency of exposure to unexpected events that interrupt the smooth flow of products and services in supply chains (Bode et al., 2011).

By utilizing primary data from 272 SME exporters in Ghana to test the foregoing propositions, this research makes three contributions to resilience and internationalization literature. First, the study moves the literature on the contexts and antecedents of firm resilience forward by demonstrating how foreign diversification, foreign market scanning, and supply chain disruption combine to explain the variability in the resilience of international firms. Second, the study extends Puhr and Müllner's (2022) work by using the context of international SMEs to advance the limited theoretical and empirical understanding of the role of foreign diversification in resilience-building. Unlike Puhr and Müllner's (2022) finding, evidence from this study suggests foreign diversification alone is unrelated to firm resilience. Third, the study develops and validates a conditional-process perspective to offer an alternative approach to clarifying the foreign diversification – firm resilience relationship. Specifically, the study identifies foreign market scanning as a crucial mechanism through which internationally diversified SMEs, especially those that face greater supply chain disruptions, can achieve superior resilience. Such conditional-process theorization and empirical insight contribute to resolving the debates on the bright- and dark-sides of foreign diversification (Huang et al., 2023).

## 2. Literature review and hypothesis development

### 2.1. Firm resilience and its antecedents

The resilience concept is well-researched at different levels of analysis and across multiple disciplines but remains conceptually vague (Orlando et al., 2022; Wieland and Durach, 2021). Different definitions of the concept exist in the broad business and management field. For example, Buyl et al. (2019) view firm resilience as a firm's ability to endure a major disruption and its capacity to bounce back. In contrast, DesJardine et al. (2019) consider the concept as the ability of the firm to persist despite disruptions and the ability to regenerate and maintain existing organization. In the supply chain context, Wieland and Durach (2021) define supply chain

resilience as the capability of a firm's supply chain to persist, adapt, or transform in the face of change, whereas [Ambulkar et al. \(2015\)](#) define firm resilience as firms' capability to be alert to, adapt to, and quickly respond to supply chain disruptions.

In this study, the firm is our unit of analysis of resilience, and we use supply chain disruption as a context to operationalize firm resilience. Because it is unfeasible to determine a system's resilience pre-disruptions, we follow an outcome-based approach to operationalize firm resilience post-disruption ([Jiang et al., 2023](#); [Essuman et al., 2020](#)). We specifically apply a stream of resilience theorization that incorporates the engineering and socio-ecological perspectives of the concept (e.g., [Wieland and Durach, 2021](#)) to define firm resilience as firms' ability to absorb, quickly recover from, adapt to, or transform during supply chain disruptions. This definition focuses on the stability and dynamic properties that resilient firms manifest during supply chain disruptions ([Wieland and Durach, 2021](#)).

Recent literature reviews and meta-analytic studies reveal substantial conceptual and empirical works on why some firms or supply chains are more resilient (e.g., [Li et al., 2023](#); [Iftikhar et al., 2021](#); [Han et al., 2020](#); [Xu et al., 2020](#); [Manhart et al., 2020](#); [Hosseini et al., 2019](#); [Pettit et al., 2019](#); [Tukamuhabwa et al., 2015](#)). The proposed and empirically identified antecedents of firm/supply chain resilience are numerous, the majority of which are buffering resources (e.g., redundancies, slack resources, and multiple sourcing), bridging resources (e.g., collaboration, integration, and information sharing and technologies) ([Manhart et al., 2020](#)). Others include organizational/supply chain agility, visibility, flexibility, disruption orientation/preparedness, organizing paradox, learning ambidexterity, innovation, organizational attention (e.g., [Essuman et al., 2022](#); [Al-Atwi et al., 2021](#); [Orlando et al., 2022](#); [Yu et al., 2019](#); [Ambulkar et al., 2015](#)) and leadership and human resource factors (e.g., [Shin and Park, 2021](#); [Buyl et al., 2019](#)).

Meta-analysis studies also show that micro and macro external environmental factors are important boundary conditions, determining when and the extent to which certain firm-level variables affect firm resilience ([Iftikhar et al., 2021](#); [Manhart et al., 2020](#)). However, past studies are primarily based on data from domestic firms, leaving more to be learned about the antecedents of the resilience of international firms, whose operating contexts can be much different ([Iftikhar et al., 2021](#)). There is an ongoing discussion about how reshoring, localization, regionalization, and diversification can benefit the resilience of international firms ([Simchi-Levi and Haren, 2022](#); [Jiang et al., 2023](#); [Kersan-Škabić, 2022](#); [Kano and Oh, 2020](#)). Nonetheless, empirical insights to inform this discourse are currently lacking. [Puhr and Müllner's \(2022\)](#) study of multinational corporations suggests that the contribution of multinationality to firm resilience is context-dependent. As illustrated in [Fig. 1](#), the present study extends this line of inquiry by analyzing the relationship between foreign diversification and firm resilience in international SMEs. In particular, the study employs a conditional process perspective to propose and analyze the mediating role of foreign market scanning in the link between foreign diversification and firm resilience at differing levels of supply chain disruption.

## 2.2. Foreign diversification and firm resilience

Internationalization involves firms expanding their economic activities, such as production and sales, across countries or regions into different geographical markets or locations ([Fariborzi et al., 2022](#)). As such, foreign diversification constitutes a core aspect of interest in IB research ([Arte and Larimo, 2022](#)). It represents the extent to which a firm operates in multiple foreign markets and is often described using various conceptual labels, including international diversification, internationalization scope, geographic scope, and multinationality ([Arte and Larimo, 2022](#); [Puhr and Müllner, 2022](#); [Fariborzi et al., 2022](#); [Mondal et al., 2022](#)). While foreign diversification can bring about heightened complexity and vulnerability and greater coordination costs ([Puhr and Müllner, 2022](#); [Fariborzi et al., 2022](#)), recent meta-analysis studies indicate that it positively correlates with market and financial performance outcomes ([Arte and Larimo, 2022](#); [Schwens et al., 2018](#)). Moreover, [Puhr and Müllner \(2022\)](#) find that internationally diversified multinational corporations tend to exhibit higher resilience. Three reasons may explain why internationally diversified firms, including SMEs, may be more resilient.

Foreign diversification can provide firms with new market opportunities for improving revenue ([Schwens et al., 2018](#)). Again, the portfolio perspective suggests foreign diversification can help firms stabilize revenue streams by enabling them to share operational and market risks across multiple geographic locations and insulate them from fluctuations in specific locations. Moreover, from an economies of scale standpoint, foreign diversification may also help firms spread overhead costs and reduce unit costs of operations

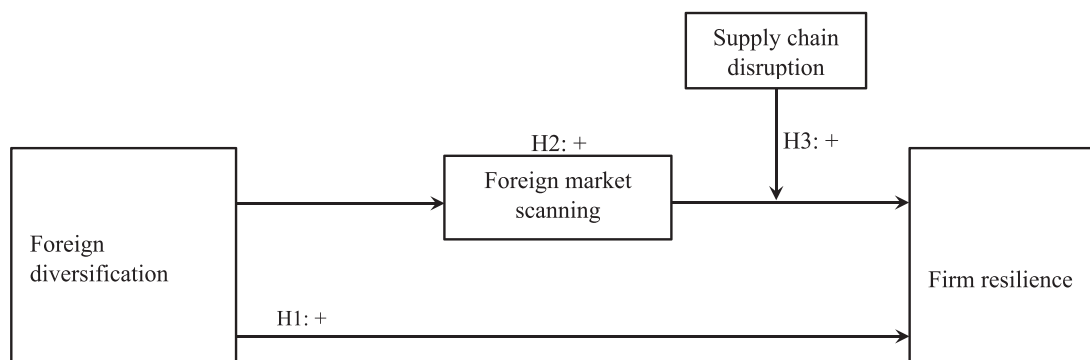


Fig. 1. Conceptual model.

(Puhr and Müllner, 2022; Fariborzi et al., 2022). The enhanced financial and market performance benefits stemming from international diversification can empower firms to create various buffers and redundancies (Puhr and Müllner, 2022). These may manifest as having multiple alternative suppliers, diversified logistics services, and maintaining excess inventory within their operations, which can help them absorb supply chain disruptions. Moreover, the enhanced financial resources that internationally diversified firms may accumulate can enable them to swiftly execute recovery and adaptive measures in the face of supply chain disruptions (Essuman et al., 2022; Wiedmer et al., 2021; Tognazzo et al., 2016).

Furthermore, multiple foreign market operations may offer firms opportunities to learn and reinforce learning (Huang et al., 2023). International experience and knowledge tend to increase in breadth with increases in foreign diversification (Arte and Larimo, 2022; Asmussen et al., 2022; Buckley et al., 2016). While these learning and knowledge resources are crucial for mitigating challenges related to liability of foreignness (Asmussen et al., 2022), they can also foster the development of resilience (Essuman et al., 2023; Bode et al., 2011). Other things being equal, as the scope of internationalization expands, firms are more likely to encounter and respond to a diverse array of disruptions (Huang et al., 2023). Since international firms often transfer knowledge from one market to another, their reservoir of experience can be fortified and mobilized to address disruptions specific to particular markets (Fariborzi et al., 2022; Arte and Larimo, 2022). Consequently, the experiential knowledge advantages of foreign diversification can enhance firm resilience.

Finally, engaging in operations across numerous foreign markets necessitates learning, risk-taking, and a willingness to modify organizational routines, capabilities, structures, and systems to achieve fit with new foreign market requirements (Huang et al., 2023; Puhr and Müllner, 2022; Mondal et al., 2022). Foreign firms with such adaptive behaviors may be better positioned to reconfigure themselves and become more agile in response to supply chain disruptions. They are specifically inclined to explore and experiment with new solutions for managing disruptions (Essuman et al., 2023). Accordingly, we propose that:

**H1.** Foreign diversification has a positive relationship with firm resilience.

### 2.3. *The mediating role of foreign market scanning*

A significant drawback of foreign diversification that may confound its resilience value is the issue of complexity and its concomitant problems of uncertainty and vulnerability (Puhr and Müllner, 2022; Fariborzi et al., 2022; Mondal et al., 2022). Internationally diversified firms are likely to interact and deal with more diverse and multiple environmental constituents (e.g., customer requirements, regulatory requirements, and economic systems and structures). Such structural and dynamic complexities associated with foreign diversification may heighten uncertainty and exposure to location-specific risks (Mondal et al., 2022; Fariborzi et al., 2022; Lee and Chung, 2022). From the OIP perspective, we propose foreign market scanning as an essential mechanism through which internationally diversified firms may effectively overcome these environmental problems to achieve resilience (Yang et al., 2021; Gu et al., 2021).

The OIP theory views firms as information-processing systems that must address uncertainty to succeed by minimizing information needs or intensifying information search and processing (Galbraith, 1974; Tushman and Nadler, 1978). Uncertainty occurs when the amount of information needed to complete a task is less than the available information. Complexities and fluctuations in internal and external environmental conditions are significant drivers of environmental uncertainty (Srinivasan and Swink, 2018; Galbraith, 1974). From an OIP perspective, such environmental issues can limit firms' ability to plan and operate deterministically (Tushman and Nadler, 1978; Galbraith, 1974) and threaten organizational stability (Bode et al., 2011; Manhart et al., 2020). According to this perspective, firms confronted with high uncertainty should broaden their information search and processing activities to achieve fit and effectiveness (Tushman and Nadler, 1978). Therefore, foreign market scanning, which involves identifying and gathering information and intelligence about issues (e.g., opportunities and threats) in overseas markets (Yu et al., 2019), may constitute a vital response mechanism that internationally diversified firms may enact to achieve fit with the external environment (Yang et al., 2021; Gu et al., 2021; Kano and Oh, 2020).

Foreign market scanning serves as a crucial vehicle for maintaining vigilance and acquiring the means to navigate uncertainty and liability of foreignness (Bouquet et al., 2009; Yu et al., 2019). Through increased engagement in foreign market scanning, firms can gain an improved understanding of emerging disruption patterns in their environment, profile their risk levels, and establish contingency measures for mitigating them (Essuman et al., 2022; Yu et al., 2019; Bouquet et al., 2009). Moreover, increased foreign market scanning may improve visibility and early detection of looming supply chain disruptions (Manhart et al., 2020; Bode et al., 2011). Firms that lack visibility or the ability to detect such events quickly are likely to be taken by costly surprises, which may reduce their time-survive and increase time-to-recover (Essuman et al., 2022). In support of this argument, past studies show that information search and processing activities and resources, such as information sharing and information technology, enhance firm/supply chain resilience (e.g., Gu et al., 2021; Manhart et al., 2020). Moreover, other studies show that organizational attention, which involves environmental scanning, enhances supply resilience (Lorentz et al., 2021) and operational resilience (Essuman et al., 2022). Accordingly, we posit that foreign market scanning can serve as a conduit through which internationally diversified firms gain resilience advantages.

**H2.** Foreign market scanning positively mediates the relationship between foreign diversification and firm resilience.

### 2.4. *Boundary condition role of supply chain disruption*

Foreign market scanning can play a crucial role in resilience-building in international environments but may not always benefit firm resilience (Essuman et al., 2022; Bouquet et al., 2009). As a contingency theory, the OIP theory underscores that the consequences

of organizational structure, process, and strategies depend on contextual factors internal or external to the firm (Tushman and Nadler, 1978). In particular, environmental uncertainty factors are critical contingencies that can moderate the effects of foreign market scanning (Srinivasan and Swink, 2018). According to OIP theory, increasing foreign market scanning under low uncertainty creates a ‘misfit’ situation, making organizations less effective (Tushman and Nadler, 1978; Srinivasan and Swink, 2018).

Supply chain disruptions are sources of uncertainty as firms cannot accurately predict how and when such events will occur or estimate their effects (Bode et al., 2011). Supply chain disruptions encompass unforeseen and unexpected events that disturb the regular flow of goods and materials within a supply chain (Wong et al., 2020). International firms face various supply chain disruptions, including but not limited to trade barriers, customs delays, terrorism, geopolitical tensions, wars, climate crises, natural disasters, market fluctuations, pandemics, regulatory changes, cyberattacks, telecommunication breakdowns, and currency exchange rate fluctuations (Jeong and Yang, 2023; Wong et al., 2020; Ambulkar et al., 2015).

Firms can utilize foreign market scanning to explore and exploit business opportunities (e.g., identifying new markets for existing products; generating innovative ideas to improve existing products or introduce new ones), or mitigate threats (e.g., understanding, detecting, and responding to disruptions). Greater exposure to supply chain disruptions signals a lack of firms' control of the external environment (Bode et al., 2011) and, therefore, weaknesses in their understanding of how disruptions emerge. Such conditions can compel firms to direct their foreign market scanning capabilities on disruption-centered information-gathering activities. Moreover, Bode et al. (2011) contend that a “...firm that has encountered many supply chain disruptions has more complete information regarding the options available to restore stability... and more confidence about using the full range of the response menu...” (p. 839). Greater supply chain disruptions create an experimental ground for firms to understand disruptions, enabling them to better appreciate the relationship between disruption response actions-outcomes (Bode et al., 2011). Therefore, we argue that such high disruption-specific experiential knowledge can enable firms to better interpret and act on information acquired through foreign market scanning (Essuman et al., 2022). By increasing foreign market scanning in high supply chain disruption conditions, firms can implement calculated contingency measures pre-disruptions while improvising effective solutions during disruptions.

Conversely, there is little urgency for firms in low supply chain disruption circumstances to focus foreign market scanning efforts on

**Table 1**  
Sample and informant characteristics.

Characteristics	Frequency	%	Min	Max	Mean	SD
Foreign market destination of the firm <sup>a</sup>						
Sub-Saharan African market	52	11				
Asia market	62	13.1				
European market (including the UK)	152	32.1				
Middle East market	131	27.7				
Central America and the Caribbean market	4	0.8				
South America market	7	1.5				
North America market	20	4.2				
Eastern European market (excluding all EU countries)	45	9.5				
Primary products that the firm deals in (industry)						
Agricultural/food products	234	86				
Toiletries	4	1.4				
Pharmaceutical products	3	1.1				
Minerals and metals	10	3.6				
Rubber and plastics	2	0.7				
Wood and furniture	16	5.7				
Chemicals	10	3.6				
Nature of products the firm deals in (value addition) <sup>a</sup>						
Unprocessed products	149	36.7				
Semi-processed products	189	46.6				
Finished products	68	16.7				
Informant's position						
CEO	20	7.4				
Other top executive manager	192	70.6				
Marketing manager	20	7.4				
Export manager	2	0.7				
Operations manager	18	6.6				
Logistics and supply chain manager	15	5.5				
Finance manager/accountant	6	2.2				
Informant's education level						
Postgraduate	23	8.5				
Bachelor	222	81.6				
High school/O/A level	27	9.9				
Foreign diversification (number of foreign markets that the firms operate in)			1	8	3.14	1.078
Firm size (number of full-time employees)			5	152	22.17	24.407
Firm age (number of years in operation)			3	37	15.32	7.086
Firm's international experience (number of years engaged in international business activities)			3	30	12.76	6.125
Informant's experience (years held current position)			2	37	9.62	4.763

<sup>a</sup> Multiple response.

supply chain disruption issues. As such situations pose little threat to organizational stability, firms are likely to channel foreign market scanning into opportunity exploration and exploitation endeavors, which may not directly benefit their resilience. Moreover, in low supply chain disruption conditions, firms lack experiential knowledge regarding how supply chain disruptions propagate and can be contained effectively. Firms that increase foreign market scanning in such situations may be overwhelmed with voluminous information because they lack the appropriate experience and knowledge capacity to interpret and act on it quickly. Accordingly, in clarifying the boundaries of the arguments for H2, we contend that high supply chain disruption conditions can amplify the capacity of foreign market scanning to transform foreign diversification into enhanced firm resilience.

**H3.** Supply chain disruption positively moderates the link between foreign market scanning and firm resilience, such that the indirect positive relationship between foreign diversification and firm resilience through foreign market scanning strengthens under increasing supply chain disruption situations.

### 3. Methodology

#### 3.1. Research design

Following the examples of previous resilience studies (e.g., Essuman et al., 2023; Orlando et al., 2022; Al-Atwi et al., 2021; Wong et al., 2020; Ambulkar et al., 2015), we used a cross-sectional design and data to capture the study's variables as we could not find appropriate secondary data from the empirical setting, i.e., international SMEs from a developing country (Kull et al., 2018). Our conceptual model is grounded in sound theory and includes mediator and moderator variables to enhance causal clarity; therefore, it can be tested on cross-sectional data (Rindfleisch et al., 2008).

We used a three-year window (i.e., during the last three years) to measure the predictor variable (foreign diversification), the mediating variable (foreign market scanning), and the moderating variable (supply chain disruption). As it may take time for indicators of firm resilience to manifest (especially those that tap dynamic resilience) (Wieland and Durach, 2021), we used a two-year window (i.e., during the last two years) to capture this construct. Again, considering that our sample comprises SMEs (Kull et al., 2018), we followed past firm/supply chain resilience research (e.g., Ali et al., 2023; Wong et al., 2020) and IB studies (e.g., Fariborz et al., 2022) to obtain data from one key informant (e.g., top managers) per firm (see Table 1).

#### 3.2. Measurement indicators and questionnaire development

To improve the reliability and validity of the data while minimizing common method bias, we drew on extant literature and feedback from expert assessments and a pilot study to identify indicators for the constructs. As detailed below, we extracted the indicators from previous empirical studies. Next, a panel of four scholars with extensive knowledge of the supply chain resilience literature and or international business literature analyzed and shared comments on the initial indicators and their scales. We revised the indicators and developed a draft questionnaire based on the panel's feedback. Following the panel's further examination of the structure and content of the questionnaire, we revised the questionnaire and piloted it on 11 target informants.

A physical inspection of the questionnaires and the data's descriptive statistics did not reveal major concerns. Therefore, we

**Table 2**

Results of confirmatory factor analysis.

Construct/indicator/congeneric reliability ( $\rho_C$ )/average variance extracted (AVE)	Min	Max	Mean	SD	Standardized loadings (t-value)
<b>Supply chain disruption</b> ( $\rho_C = 0.863$ ; AVE = 0.612). <i>Since January 2020, we have encountered several unexpected events that interrupted our foreign market operations.</i>	1	7	4.98	1.381	0.725 (20.829)
<i>supply chain disruptions have become very rampant in our foreign markets.</i>	1	7	4.75	1.550	0.780 (25.313)
<i>our local supply chains have experienced frequent disruptive events.</i>	1	7	3.96	1.654	0.793 (26.951)
<i>our cross-border business operations have been interfered by several unexpected disruptions.</i>	1	7	4.46	1.550	0.829 (30.539)
<b>Firm resilience</b> ( $\rho_C = 0.856$ ; AVE = 0.598). <i>To what extent was your company able to demonstrate each of the following characteristics when it experienced supply chain disruptions (i.e., unexpected events that interrupt product and service flows in a supply chain) in the last two years?</i>					
<i>quickly returning business operations to a normal state.</i>	1	7	4.93	1.196	0.718 (20.201)
<i>maintaining the desired level of control over the structure and function of core business activities.</i>	1	7	5.03	1.168	0.771 (24.308)
<i>quickly adapting business processes to new, desirable states.</i>	1	7	4.93	1.110	0.829 (29.979)
<i>transforming existing business models rapidly.</i>	1	7	4.80	1.133	0.771 (24.524)
<b>Foreign market scanning</b> ( $\rho_C = 0.822$ ; AVE = 0.536). <i>Considering your company's operations in foreign markets (outside Ghana) within the last three years, kindly indicate the extent to which your company has focused significant time and effort on gathering data about...</i>					
<i>new market opportunities in foreign markets.</i>	1	7	4.36	1.381	0.751 (20.515)
<i>emerging issues that threaten business success in foreign markets.</i>	1	7	4.22	1.435	0.730 (19.296)
<i>resources (e.g., technologies, processes) for exploiting new market opportunities in foreign markets.</i>	1	7	3.82	1.398	0.744 (19.928)
<i>resources (e.g., technologies, processes) for mitigating threats in foreign markets.</i>	1	7	3.78	1.321	0.702 (17.680)

Notes: Model fit indices: Chi-square ( $\chi^2$ ) = 64.247, degree of freedom (DF) = 51,  $p = 0.101$ , normed  $\chi^2 = 1.260$ , root mean square error of approximation (RMSEA) = 0.031, comparative fit index (CFI) = 0.990, non-normed fit index (NNFI) = 0.987, standardized root mean square residual (SRMR) = 0.036.

finalized the questionnaire, the cover letter, and the consent form for the main survey. Table 2 presents the multi-indicators and their psychometric properties.

### 3.2.1. Substantive variables

**Foreign diversification.** Consistent with previous research, we measured foreign diversification in terms of the number of foreign markets in which a firm operates (Fariborzi et al., 2022). We asked the firms to indicate the number of foreign markets they have been exporting products to regularly in the last three years. The range of data for this indicator is one to eight, with most firms operating in three foreign markets (39.7 %).

**Foreign market scanning** is an attention focused activity that aims at understanding issues (e.g., opportunities and threats) within foreign markets. It involves identifying and collecting information about foreign market issues (Yu et al., 2019; Bouquet et al., 2009). Accordingly, we drew insights from environmental scanning literature (Yu et al., 2019) and international attention research (Bouquet et al., 2009) to identify four items to measure foreign market scanning. We asked the firms to consider their operations in foreign markets in the last three years and indicate the extent to which they have focused significant time and effort on gathering data about (1) new market opportunities in foreign markets, (2) emerging issues that threaten business success in foreign markets, (3) resources (e.g., technologies, processes) for exploiting new market opportunities in foreign markets, (4) resources (e.g., technologies, processes) for mitigating threats in foreign markets. Each item was anchored on a seven-point scale: 1 = “to no extent” to 7 = “to the greatest extent”.

**Firm resilience.** Consistent with recent conceptual works on firm/supply chain resilience (e.g., Wieland and Durach, 2021) and past empirical studies (e.g., Wong et al., 2020; Gu et al., 2021), we operationalized firm resilience as the ability of a firm to absorb, recover from, adapt or transform its business processes in the face of supply chain disruptions. Accordingly, we identified four items that reflect the four core properties of resilient firms (Wieland and Durach, 2021; Essuman et al., 2022): the ability to maintain structure and normal functioning of business operations amid supply chain disruptions; the ability to restore operations quickly following supply chain disruptions; the ability to adapt business processes to new, desirable states in the face of supply chain disruptions; the ability to transform existing business models quickly during supply chain disruptions. Consistent with Ambulkar et al. (2015), we used “supply chain disruptions” as a reference to operationalize the firm resilience construct. In doing so, we asked the firms to evaluate the extent to which they exhibited each of the four resilience characteristics when they faced supply chain disruptions in the last two years. Each item was anchored on a seven-point scale ranging from “not at all (=1)” to “to the largest extent (=7)”.

**Supply chain disruption** reflects the degree of exposure to supply chain disruptions. Bode et al. (2011) used a single-item count scale to capture this construct by asking firms to indicate the number of supply chain disruptions they experienced over the last year. Other studies, however, use rating scales together with reflective indicators (e.g., Wong et al., 2020) or formative indicators (e.g., Essuman et al., 2020) to measure the disruption construct. We noted that the causes or sources of supply chain disruptions are not only context-specific but might be non-exhaustive. Therefore, we measured the construct using reflective items that capture the degree of firm exposure to supply chain disruptions. To avoid ambiguity, we framed each item to tap the central ideal of supply chain disruption as an unexpected event that interrupts foreign, cross-border, and local business operations (Blackhurst et al., 2011). On a seven-point scale ranging from “strongly disagree (=1)” to “strongly agree (=7)”, the firms rated the following items: *since January 2020*, (1) we have encountered several unexpected events that interrupted our foreign market operations, (2) supply chain disruptions have become very rampant in our foreign markets, (3) our local supply chains have experienced frequent disruptive events, (4) our cross-border business operations have been interfered with by several unexpected disruptions.

### 3.2.2. Control variables

Extant literature indicates that firm-specific characteristics and external environmental factors may affect foreign market scanning and firm resilience (Manhart et al., 2020; Essuman et al., 2022). Accordingly, to mitigate potential endogeneity concerns, we included several control variables in the models of the mediator and dependent variables (Lu et al., 2018). We controlled for *international experience* (i.e., the natural logarithm of how long in years a firm has operated in foreign markets) (Fariborzi et al., 2022). The rich knowledge accompanying greater international experience can facilitate foreign market scanning and the quality of firms' responses to supply chain disruptions. It can equally result in overconfidence, restricting foreign market scanning and disruption-preparedness.

We additionally controlled for *foreign market unit* (i.e., whether a firm has dedicated staff to manage its foreign market operations = 1, otherwise = 0) and *firm size* (i.e., the natural logarithm of the number of full-time employees) (Fariborzi et al., 2022). Firms with foreign market units or larger firms may have input resource advantages (e.g., human resources) that enhance foreign market scanning or resilience-building. Similarly, we controlled for *financial slack* and *relational slack* since they can free up organizational attention and buffer business operations against disruptions (Essuman et al., 2022). The firms indicated their level of financial slack using a seven-point scale (1 = strongly disagree; 7 = strongly agree) to rate the item, “Since the year 2020, our company has built more financial slack” (Essuman et al., 2022). The firms used the same scale to indicate the level of relational slack in foreign markets by rating the following item, “Since the year 2020, our company has been exploring working with alternative business partners in the foreign markets” (Manhart et al., 2020).

The risk of exposure to threatening events or degree of environmental munificence (or opportunities) differs across geographical markets (Manhart et al., 2020; Essuman et al., 2023). In controlling for these foreign market issues, and line with the distribution of the data, we created two dummy variables tapping whether a firm operates in European markets (=1) or not (=0) or whether a firm operates in the Middle East markets (=1) or not (=0) (Arte and Larimo, 2022). Finally, controlled for *product characteristics*, whether a firm deals in low value-added (unprocessed) products (=1) or high value-added (semi/processed) products (=0), as they determine supply chain design and operational configurations and induce varying degrees of operational vulnerability (Essuman et al., 2023).



**Table 3**  
Correlations and descriptive statistics.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Firm resilience	1														
2. Supply chain disruption	-0.153*	1													
3. Foreign market scanning	0.196**	-0.033	1												
4. Foreign diversification	0.059	-0.117	0.264**	1											
5. Foreign market unit	0.000	-0.076	0.235**	0.405**	1										
6. Financial slack	0.021	0.208**	-0.004	0.005	0.131*	1									
7. Relational slack	0.098	0.179**	0.098	0.156**	0.107	0.334**	1								
8. Firm size (log)	-0.009	-0.159**	0.221**	0.316**	0.516**	0.024	0.026	1							
9. Firm age (log) <sup>a</sup>	-0.083	-0.180**	-0.069	0.278**	0.295**	-0.113	-0.064	0.322**	1						
10. International experience (log)	-0.100	-0.219**	-0.005	0.286**	0.283**	-0.080	-0.057	0.405**	0.842**	1					
11. European market	-0.016	-0.124*	0.215**	0.219**	0.115	0.011	0.050	0.139*	0.087	0.143*	1				
12. Middle East market	0.061	0.052	-0.113	0.073	0.065	-0.002	0.042	-0.078	0.069	0.016	-0.448**	1			
13. Low-value-added products	-0.039	0.074	0.025	0.029	-0.043	0.019	-0.015	0.024	0.094	0.018	-0.034	0.063	1		
14. Marker variable	-0.113	-0.080	0.027	0.040	0.014	-0.015	0.001	-0.002	-0.006	-0.002	0.029	-0.020	0.068	1	
15. Early responses	0.082	0.022	0.003	0.033	0.077	0.027	0.004	0.031	0.072	0.033	0.023	0.010	0.017	-0.009	1
Min	1	1	1	1	0	1	1	2	1	1	0	0	0	1	0
Max	7	7	7	8	1	7	7	5	4	3	1	1	1	6	1
Mean	4.92	4.54	4.05	3.14	0.33	3.92	4.35	2.73	2.61	2.42	0.56	0.48	0.55	1.89	0.53
Standard deviation	0.962	1.292	1.117	1.078	0.470	1.566	1.460	0.789	0.525	0.537	0.497	0.501	0.499	0.837	0.500
Skewness	-0.974	-0.500	-0.103	0.681	0.741	-0.080	-0.150	0.785	-0.692	-0.551	-0.238	0.074	-0.193	1.199	-0.119
Kurtosis	2.052	-0.498	-0.415	1.227	-1.462	-0.862	-0.564	0.111	0.231	-0.180	-1.958	-2.009	-1.977	1.934	-2.001

\*  $p < 0.05$ (2-tailed).

\*\*  $p < 0.01$ (2-tailed).

<sup>a</sup> Removed from the regression model due to high collinearity with international experience.

### 3.3. Sample and data gathering

This research develops a general conceptual model that can be tested in different international firm contexts. The empirical part of the study aims to falsify the model's predictions rather than seek empirical generalizations (Hulland et al., 2018; Rindfleisch et al., 2008). Accordingly, we tested the hypotheses on primary data from SME exporters in Ghana, a developing country. Export is SMEs' primary mode of internationalization (Hilmersson and Johanson, 2016). We believe that international SMEs from Ghana are a suitable context for testing our model, as these firms differ in foreign diversification, which our theoretical model suggests can directly or indirectly explain firm resilience. In the last decade, Ghana, in collaboration with local and international institutional partners, has initiated inclusive growth-based interventions (e.g., national export strategy to enhance non-traditional export diversification) that support international SME activities (International Trade Centre, 2016). These firms mainly engage in export operations that span multiple foreign countries and continents, including Africa, Europe, North America, Asia, and the Middle East (Adomako et al., 2022).

The study's sample comprises firms that employ between five and 200 full-time workers (Adomako et al., 2022). We focused on cases with at least three years of export experience. Other defining characteristics of the sample include SME exporters that operated as independent entities and had registered with the Ghana Export Promotion Authority (Adomako et al., 2022). We constructed a sample of 450 SME exporters from the Ghana Export Promotion Authority's database of exporters with characteristics that meet the study's sample inclusion criteria.

Because the infrastructure that supports mail and internet surveys is underdeveloped in Ghana, we employed a face-to-face data collection approach and fieldworkers to enhance the response rate (Essuman et al., 2022; Adomako et al., 2022). We successfully approached 391 target firms with the survey package (cover letter, consent form, and questionnaire) in August 2022, out of which 375 consented to participate in the study. The remaining 59 firms of the sample were not reachable. After several rounds of follow-up, we retrieved 283 completed questionnaires. However, an analysis of the questionnaires reveals 11 were incomplete or filled by non-key informants. Accordingly, we retained 272 questionnaires for the study, accounting for a 69.57 % effective response rate.

Table 1 shows the characteristics of the sample. Notably, the average firm's international experience is 12.76 years (standard deviation = 6.13), whereas firm size, in terms of the number of full-time employees, is 22 (standard deviation = 24, approx.). Most of the sample operates on multiple continents, especially in Europe and the Middle East. They primarily export food and agricultural products, with 63.33 % of such products being in semi-processed or finished forms. These characteristics reflect those of the sample we constructed from the Ghana Export Promotion Authority's database of exporters. Moreover, as shown in Table 3, we found no significant differences in data provided by early respondents (questionnaires received within 15 days after delivery) and late respondents (questionnaires received during the next 15 days).

The informants were senior managers with an average of 9.62 years of experience in their current position. As many as 78 % hold CEO or other top executive positions, and 90.1 % hold at least a bachelor's degree. In line with previous studies (e.g., Essuman et al., 2020), we adapted three items anchored on a seven-point scale (1 = strongly disagree; 7 = strongly agree) to evaluate the informant's competence level: knowledge about the issues covered in the survey (mean = 6.23, standard deviation = 0.750), confidence in the responses provided (mean = 6.19, standard deviation = 0.765), and confident that the responses reflect organizational situation (mean = 6.11, standard deviation = 0.739). A *t*-test revealed that the average competence scale is significantly >5.00. These results, together with the informants' position, high educational background, and high positional experience, contribute to the reliability and validity of the data (Podsakoff et al., 2003).

## 4. Data analysis and results

We validated the multi-indicators before constructing variables to test the hypotheses (Bode et al., 2011). Before that, we examined the item-level descriptive statistics and checked for missing value concerns (Essuman et al., 2022). Using the Missing Value Analysis module in IBM SPSS, we found that item-level missing values were <1 %. We, therefore, applied Expectation-Maximization (EM) algorithm to replace the missing values for continuous variables (Hair et al., 2019). The descriptive analyses reveal that the mean scores of the item cluster around the median point of the scales we used to measure the items and that the standard deviation values ranged between 1.110 and 1.654, suggesting substantial variations in data. Again, we computed the skewness and kurtosis values for the constructs and found that the data are satisfactorily normal, given that the highest skewness and kurtosis values are 1.199 and 2.052, respectively (Kline, 2011).

### 4.1. Measurement validation

We used reflective indicators to measure the three latent constructs in the study (firm resilience, foreign market scanning, and supply chain disruption). Thus, we implemented covariance-based confirmatory factor analysis (CFA) and maximum likelihood estimator in Mplus 7.4 to assess the reliability and validity of the indicators (Muthén and Muthén, 1998-2017). We estimated a three-factor CFA model, allowing us to evaluate the psychometric properties of the indicators simultaneously. The results show that our proposed three-factor CFA model has an excellent fit to data: Chi-square ( $\chi^2$ ) = 64.247, degree of freedom (DF) = 51,  $p$  = 0.101, normed  $\chi^2$  = 1.260, root mean square error of approximation (RMSEA) = 0.031, comparative fit index (CFI) = 0.990, non-normed fit index (NNFI) = 0.987, standardized root mean square residual (SRMR) = 0.036 (Bagozzi and Yi, 2012; Hair et al., 2019).

Other results reveal that the indicators exhibit acceptable convergent and discriminant validity results (see Table 2). For example, the factor loadings are >0.70 and are significant at 1.0 %. Again, the lowest congeneric reliability and average variance extracted (AVE) values are 0.822 and 0.536, greater than the minimum thresholds of 0.60 and 0.50, respectively (Bagozzi and Yi, 2012).

Voorhees et al. (2016) demonstrate the AVE-shared variance approach as a robust strategy for examining discriminant validity. In applying this approach, we found that the highest shared variance between the three constructs (i.e., 0.038) is less than the lowest AVE value (=0.536). This result reveals the measures exhibit high discriminant validity (Voorhees et al., 2016).

#### 4.2. Common method bias controls and assessment

Following Podsakoff et al. (2003) recommendations, we implemented relevant procedural measures at the questionnaire development and administration stages to minimize common method bias (CMB) concerns. For example, as discussed in Section 3.2, we followed a thorough process to improve the clarity and appropriateness of the indicators and their scales. Also, we included several other indicators in the questionnaire to separate the indicators for the constructs of interest in this research. Additionally, we avoided sharing information about the relationships between variables tested in the study. Moreover, we collected the data from competent informants. Further, we used a cover letter to explain how the work would benefit managers, assure anonymity, and provide guidelines for completing the questionnaire.

Notwithstanding, we used multiple statistical strategies (CFA procedures and Lindell and Whitney's marker variable technique) to investigate CMB (Podsakoff et al., 2003). Focusing on the multi-item reflective scales, we estimated a one-factor CFA model (Model 1) that tests whether an unmeasured common factor accounts for the variations in the data (Podsakoff et al., 2003). Model 1, which links all items onto an unmeasured common factor, does not fit the data:  $\chi^2 = 630.646$ ,  $DF = 54$ , normed  $\chi^2 = 11.679$ ,  $p < 0.001$ , RMSEA = 0.198, CFI = 0.459, NNFI = 0.339, SRMR = 0.166. To control for the potential effect of Model 1, we estimated a method and trait model (Model 2). Model 2 has our theoretically specified CFA model (Model 3, see Section 4.1) as the baseline and includes an unmeasured common factor, specified to load equally on all items and set to be uncorrected with the theoretical constructs (Bode et al., 2010). Model 2 fits the data ( $\chi^2 = 74.808$ ,  $DF = 50$ , normed  $\chi^2 = 11.679$ ,  $p = 0.013$ , RMSEA = 0.043, CFI = 0.977, NNFI = 0.969, SRMR = 0.047), but Model 3 is significantly better:  $\Delta\chi^2 = 10.561$ ,  $\Delta DF = 1$ ,  $p \leq 0.01$ . These results suggest CMB is less likely to characterize the data (Bode et al., 2011).

Next, we used Lindell and Whitney's (2001) marker variable approach to investigate CMB further. We included a three-item scale that taps the informants' negative affectivity level. The items, evaluated on a seven-point scale (1 = strongly disagree; 7 = strongly agree), are (1) minor setbacks tend to irritate me too much; (2) often, I get irritated at little annoyances; (3) there are days when I am

**Table 4**  
Main and mediation results (H1 and H2).

	$\beta$	(B)SE	p	BLLCI	BULCI
<b>HYPOTHESIZED PATHS</b>					
Foreign diversification (FD) → Foreign market scanning (FMS)	0.187	0.069	0.007		
FD → Firm resilience	0.025	0.062	0.683		
FMS → Firm resilience	0.176	0.055	0.002		
FD → FMS → Firm resilience	0.033	0.016		0.007	0.069
<b>CONTROL PATHS:</b>					
Supply chain disruption (SCD) → FMS	0.002	0.053	0.966		
SCD → Firm resilience	-0.153	0.047	0.001		
Foreign market unit → FMS	0.307	0.169	0.071		
Foreign market unit → Firm resilience	-0.108	0.151	0.477		
Financial slack → FMS	-0.044	0.044	0.321		
Financial slack → Firm resilience	0.019	0.039	0.631		
Relational slack → FMS	0.045	0.048	0.341		
Relational slack → Firm resilience	0.064	0.042	0.134		
Firm size → FMS	0.202	0.101	0.047		
Firm size → Firm resilience	-0.013	0.090	0.884		
International experience → FMS	-0.356	0.135	0.009		
International experience → Firm resilience	-0.215	0.122	0.077		
European market → FMS	0.305	0.151	0.044		
European market → Firm resilience	-0.075	0.135	0.581		
Middle East market → FMS	-0.145	0.147	0.324		
Middle East market → Firm resilience	0.151	0.131	0.250		
Low-value-added products → FMS	0.080	0.129	0.536		
Low-value-added products → Firm resilience	-0.068	0.115	0.554		
<b>Model fit indices</b>					
	$R^2$		F		p
Model of foreign market scanning	0.154		4.746		<0.001
Model of firm resilience	0.102		2.692		0.003

#### Notes:

1.  $\beta$  = unstandardized regression coefficient.
2. SE = standard error; BSE = bootstrap SE.
3. BLLCI = 95 % bootstrap low confidence interval; BULCI = 95 % bootstrap upper confidence interval.
4. Number of bootstrap samples = 5000.

“on-edge” all of the time (Menguc et al., 2014). Negative affectivity is theoretically unrelated to the study's constructs, and its items demonstrate an acceptable reliability level (Cronbach's alpha = 0.724), suggesting it is an ideal marker variable (Lindell and Whitney, 2001). As shown in Table 3, we found that the negative affectivity scale does not correlate with any of the variables in the study. These results indicate that CMB is unlikely to bias the study results (Podsakoff et al., 2003).

#### 4.3. Hypothesis testing

Table 3 shows the descriptive statistics and correlations for the study's variables. We utilized PROCESS 3.5 in SPSS to test our direct (H1), indirect (H2), and conditional indirect (H3) effect hypotheses. PROCESS allowed us to test the indirect and conditional indirect relationships using bootstrapping procedures (Hayes, 2018). Using PROCESS Model 4, we first estimated a partial indirect effect model to test the direct and indirect relationships between foreign diversification, through foreign market scanning, with firm resilience. For this analysis, we controlled for the potential effects of the moderator (supply chain disruption) and the study's covariates on foreign market scanning and firm resilience. Then, we used the results from this analysis to evaluate H1 and H2.

As shown in Table 4, the study finds that foreign diversification has an insignificant relationship with firm resilience:  $\beta = 0.025$ ,  $SE = 0.062$ ,  $p = 0.683$ ; thus, H1 was rejected. However, the results show that foreign diversification has a significant positive relationship with foreign market scanning ( $\beta = 0.187$ ,  $SE = 0.069$ ,  $p = 0.007$ ), and foreign market scanning, in turn, has a significant positive relationship with firm resilience ( $\beta = 0.176$ ,  $SE = 0.055$ ,  $p = 0.002$ ). Moreover, a bootstrapping analysis with 5000 samples shows that foreign diversification has a significant positive indirect relationship with firm resilience through foreign market scanning: indirect  $\beta = 0.033$ , 95 % CI [0.007, 0.069]. These results support H2.

We used PROCESS Model 14, which estimates a conditional indirect relationship model with a single moderating variable, to test

**Table 5**  
Moderated mediation results (H3).

	Level of moderator	$\beta$	(B)SE	p	BLLCI	BULCI
<b>HYPOTHESIZED PATHS</b>						
Foreign diversification (FD) → Firm resilience						
		0.036	0.062	0.562		
FD → Foreign market scanning (FMS)						
		0.187	0.069	0.007		
FMS → Firm resilience						
		0.157	0.055	0.005		
FMS × SCD → Firm resilience						
		0.105	0.040	0.010		
FMS → Firm resilience						
	-1SD SCD	0.022	0.080	0.784		
	Mean SCD	0.157	0.055	0.005		
	+1SD SCD	0.293	0.070	<0.001		
FD → FMS × SCD → Firm resilience						
		0.020	0.012		0.006	0.045
<b>H3: FD → FMS → Firm resilience</b>						
	-1SD SCD	0.004	0.019		-0.033	0.044
	Mean SCD	0.029	0.016		0.005	0.066
	+1SD SCD	0.055	0.024		0.014	0.107
<b>CONTROL PATHS</b>						
Supply chain disruption (SCD) → Firm resilience						
		-0.158	0.046	0.001		
Foreign market unit → FMS						
		0.307	0.169	0.070		
Foreign market unit → Firm resilience						
		-0.144	0.150	0.340		
Financial slack → FMS						
		-0.044	0.044	0.318		
Financial slack → Firm resilience						
		0.014	0.039	0.724		
Relational slack → FMS						
		0.046	0.047	0.333		
Relational slack → Firm resilience						
		0.048	0.042	0.253		
Firm size → FMS						
		0.201	0.101	0.046		
Firm size → Firm resilience						
		0.004	0.090	0.967		
International experience → FMS						
		-0.356	0.134	0.008		
International experience → Firm resilience						
		-0.185	0.121	0.126		
European market → FMS						
		0.304	0.150	0.043		
European market → Firm resilience						
		-0.082	0.133	0.539		
Middle East market → FMS						
		-0.145	0.147	0.323		
Middle East market → Firm resilience						
		-0.082	0.133	0.539		
Low-value-added products → FMS						
		0.080	0.128	0.532		
Low-value-added products → Firm resilience						
		-0.047	0.114	0.679		
<b>Model fit indices</b>						
		R <sup>2</sup>	F	p		
Model of foreign market scanning		0.154	5.293	<0.001		
Model of firm resilience		0.125	3.087	<0.001		

#### Notes:

1.  $\beta$  = unstandardized regression coefficient.
2. SE = standard error; BSE = bootstrap SE; p = p-value.
3. BLLCI = 95 % bootstrap low confidence interval; BULCI = 95 % bootstrap upper confidence interval.
4. Number of bootstrap samples = 5000.

H3. We mean-centered the mediating and the moderator variables to enable us appropriately to interpret the direct and indirect results. As detailed in Table 5, we included all covariates in the models of the foreign market scanning and firm resilience. The results reveal that supply chain disruption positively moderates the foreign market scanning–firm resilience relationship ( $\beta = 0.105$ ,  $SE = 0.040$ ,  $p = 0.010$ ). As graphed in Fig. 2, a simple slope analysis reveals that foreign market scanning has a stronger and significant positive relationship with firm resilience at +1 standard deviation of supply chain disruption ( $\beta = 0.293$ ,  $SE = 0.070$ ,  $p < 0.001$ ). However, foreign market scanning has a weaker and insignificant relationship with firm resilience at –1 standard deviation of supply chain disruption ( $\beta = 0.022$ ,  $SE = 0.080$ ,  $p = 0.784$ ).

Using the index of moderated mediation associated with the above results (Hayes, 2018), we find that the indirect effect of foreign diversification on firm resilience through foreign market scanning has a significant positive association with supply chain disruption: index of moderated mediation = 0.020, 95 % CI [0.006, 0.045]. We probed these results further by analyzing the indirect effect at varying levels of supply chain disruption (Hayes, 2018). The results reveal that the indirect relationship is positive and stronger at +1 standard deviation of supply chain disruption (indirect  $\beta = 0.055$ , 95 % CI [0.014, 0.107]) but insignificant at –1 standard deviation of supply chain disruption (indirect  $\beta = 0.004$ , 95 % CI [–0.033, 0.044]). These results support H3.

#### 4.4. Robustness checks

Though our sample comprises SME exporters, 82 % are small exporters (i.e., they have a full-time workforce between 5 and 30). Therefore, we repeated all analyses reported in Section 4.3 to check whether the results would differ for small exporters. Using this sample, we find that foreign diversification does not significantly relate to firm resilience ( $\beta = 0.092$ ,  $p = 0.212$ ). However, additional results indicate that foreign diversification has a significant positive relationship with foreign market scanning at a 10 % significance level ( $\beta = 0.148$ ,  $p = 0.060$ ), which has a significant positive relationship with firm resilience ( $\beta = 0.196$ ,  $p = 0.002$ ). In particular, the results reveal that foreign market scanning positively mediates the link between foreign diversification and firm resilience, indirect  $\beta = 0.029$ ; 95 % CI [0.0002, 0.0716]. Further analyses indicate that foreign market scanning has a stronger positive relationship with firm resilience at +1 standard deviation of supply chain disruption ( $\beta = 0.282$ ,  $p = 0.001$ ). However, this relationship is weaker and insignificant at –1 standard deviation of supply chain disruption ( $\beta = 0.069$ ,  $p = 0.513$ ). Also, the indirect relationship between foreign diversification and firm resilience through foreign market scanning is positive and stronger at +1 standard deviation of supply chain disruption (indirect  $\beta = 0.041$ , 95 % CI [0.0015, 0.0974]) but insignificant at –1 standard deviation of supply chain disruption (indirect  $\beta = 0.010$ , 95 % CI [–0.032, 0.060]). These findings are consistent with the results for the full sample.

Our arguments about how foreign diversification affects firm resilience and foreign market scanning decompose international firms

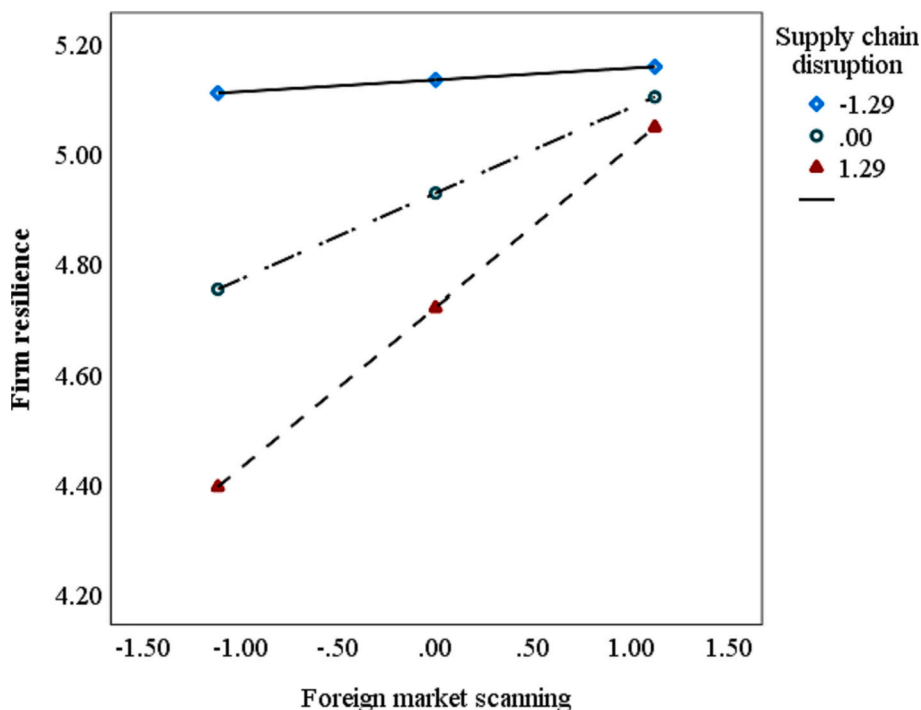


Fig. 2. Moderating effect of supply chain disruption.

Notes:

1. Levels of the moderator are –1 standard deviation, mean, and +1 standard deviation.
2. Mean-centered scales of the independent and the moderating variables are reported.

into groups according to their foreign market concentration or expansion levels. Therefore, we used one-way analysis of variance (ANOVA) and multiple comparisons (Bonferroni) analysis to explore whether firm resilience and foreign market scanning vary across such groups. Descriptive analysis revealed that 39.7 % of the sample do business in three foreign markets while the remaining firms operate in less (27.9 %) or more (32.4 %) foreign markets. Accordingly, we assessed whether resilience differs across low, moderate, and high foreign diversification firms. The results show marginal differences in firm resilience across the groups,  $F = 1.563, p = 0.211$ . The resilience levels for the low, moderate, and high foreign diversification firms are 4.763, 5.014, and 4.946. The multiple comparison analyses reveal insignificant differences in resilience levels between the groups. These results are consistent with the regression results. Moreover, consistent with the regression results, we find significant differences in foreign market scanning:  $F = 8.006, p < 0.001$ . Specifically, foreign market scanning is highest for high-foreign diversification firms (mean = 4.349), followed by moderate-foreign diversification firms (mean = 4.063), and then low-foreign diversification firms (mean = 3.668).

The cost-benefit perspectives on foreign diversification raise questions about whether the effect of this variable is nonlinear (Huang et al., 2023; Arte and Larimo, 2022). We examined this question by estimating a quadratic regression model that regresses firm resilience on foreign diversification (FD), its mean-centered product term ( $FD^2$ ), and all other variables in the study. The results show that neither FD ( $\beta = 0.053, SE = 0.067, p = 0.427$ ) nor  $FD^2$  ( $\beta = -0.039, SE = 0.031, p = 0.209$ ) has a significant effect on firm resilience, suggesting that foreign diversification does not have direct or U-shaped relationship with firm resilience.

Moreover, extant literature suggests that extreme levels of foreign market scanning can result in information overload, which might undermine organizational effectiveness (Bouquet et al., 2009). Accordingly, we estimated a quadratic regression model that regresses firm resilience on foreign market scanning (FMS), the mean-centered product term of FMS ( $FMS^2$ ), and all other variables in the study. The results show that FMS has a significant positive relationship with firm resilience ( $\beta = 0.176, SE = 0.056, p = 0.002$ ), but  $FMS^2$  does not significantly relate to firm resilience ( $\beta = -0.034, SE = 0.038, p = 0.368$ ). Thus, foreign market scanning does not have a quadratic relationship with firm resilience.

## 5. Discussion

### 5.1. Contributions and implications for international business and resilience studies

Some scholars and experts suggest that foreign diversification can protect international firms against supply chain disruptions (Simchi-Levi and Haren, 2022; Kersan-Skabić, 2022; Kano and Oh, 2020). However, this proposition lacks empirical analyses and nuanced theoretical specifications. This study addresses these knowledge gaps by using IB literature and OIP theory to develop and test a direct and conditional-indirect relationship model to examine the relationship between foreign diversification and firm resilience. The study argued that the strong experiential knowledge, financial resources, and adaptive behaviors that often characterize internationally diversified firms (Puhr and Müllner, 2022; Fariborzi et al., 2022) can enhance firm resilience (Tognazzo et al., 2016; Huang et al., 2023). Contrary to this argument, the study finds that foreign diversification is not directly associated with firm resilience. This finding not only contradicts the general contention and evidence from the resilience literature that operations and supply chain-specific diversification and buffers enhance firm resilience (Manhart et al., 2020), but it also contrasts with Puhr and Müllner's (2022) finding that diversified multinational corporations tend to exhibit higher resilience (as indicated by achieving greater abnormal stock market returns during severe shocks).

We contend that beyond differences in the operationalization of firm resilience (cf. Puhr and Müllner, 2022), the study's empirical setting may explain why foreign diversification does not directly contribute to firm resilience. We observe that 82 % of the sample in this study consists of small exporters, and further analysis indicates that foreign diversification alone does not enhance their resilience. Unlike multinational corporations, small or SME exporters tend to encounter more significant resource constraints and liabilities of foreignness (Fariborzi et al., 2022). For instance, these firms may encounter substantial challenges in managing the complexities associated with foreign diversification due to limited managerial competencies. This limitation may restrict the potential resilience benefits of foreign diversification for these firms (Fariborzi et al., 2022). Another contention is that the resilience-reducing factors associated with foreign diversification scope, such as complexity, uncertainty, and coordination problems (Wiedmer et al., 2021; Blackhurst et al., 2011), can offset its resilience-enhancing benefits (Puhr and Müllner, 2022). Therefore, we argue that failure to unearth and isolate the processes (e.g., resilience-enhancing or reducing consequences of internationalization) that link foreign diversification to firm resilience can mask the link between these variables. Therefore, further research needs to identify intervening mechanisms that allow firms to minimize the downsides to foreign diversification while leveraging its inherent benefits to achieve resilience.

Consequently, this research reveals foreign market scanning as a key mechanism that mediates the foreign diversification – firm resilience relationship. The empirical results support the study's argument that foreign diversification can enhance foreign market scanning and accordingly, firm resilience. These results align with the OIP notion that increased foreign market scanning can enable internationally diversified to achieve 'fit', driving their resilience (Tushman and Nadler, 1978; Manhart et al., 2020). Because greater complexity and uncertainty tend to threaten organizational survival, firms facing such issues in their task environment are more likely to increase information search and processing activities to achieve stability and continuity (Bode et al., 2011). Thus, foreign market scanning could become a crucial mechanism through which internationally diversified firms can navigate the problems of complexity and uncertainty to achieve resilience (Gu et al., 2021; Manhart et al., 2020).

The study's evidence that foreign market scanning has a positive relationship with firm resilience follows the OIP argument that foreign market scanning can reduce uncertainty and vulnerability (Manhart et al., 2020). The finding reinforces the literature on the roles of supply chain/market information and knowledge in driving resilient capabilities (e.g., Gu et al., 2021; Essuman et al., 2022;

Lorentz et al., 2021). Foreign market scanning keeps firms abreast of emerging disruption patterns in their environment. Moreover, it facilitates quicker detection of disruptions, allowing firms more time to evaluate and enact appropriate response actions (Essuman et al., 2022).

Notwithstanding, the study also reveals supply chain disruption positively moderates the contribution of foreign market scanning to firm resilience and its mediation role in the foreign diversification – firm resilience relationship. As plotted in Fig. 2, the results show that the slope of the foreign market scanning – firm resilience relationship differs across low, moderate, and high supply chain disruption situations, with the slope taking on the highest positive value in high supply chain disruption situations. The results indicate that under low supply chain disruptions, firms may require less emphasis on foreign market scanning to be resilient. In contrast, the resilience benefit of increasing foreign market scanning tends to amplify in high supply chain disruption situations. Along these directions, the study also finds that the positive indirect effect of foreign diversification on firm resilience through foreign market scanning is stronger in high supply chain disruption conditions. These results are consistent with the OIP perspective that enhanced firm resilience may accrue to situations where foreign market scanning (i.e., uncertainty-reducing factor) matches information processing needs (disruptions) (Tushman and Nadler, 1978; Srinivasan and Swink, 2018). Firms operating in more disruptive supply chain circumstances have a greater stability motive and broader understanding of such events, which enables them to engage in foreign market scanning to build resilience effectively (Bode et al., 2011). Consistent with related previous studies (e.g., Essuman et al., 2022; Lorentz et al., 2021), this study's results imply the foreign market scanning mechanism underlying the foreign diversification – firm resilience relationship is context-dependent.

The above theoretical and empirical insights contribute to the literature on determinants of resilient organizations and supply chains, especially in the IB context (Orlando et al., 2022; Puhr and Müllner, 2022). The existing literature presents several theoretical models to understand why some firms/supply chains are more resilient than others. However, scholars primarily use data from local businesses and supply chains to test such models. In advancing the IB context of firm resilience, this study developed an OIP-grounded conditional-process model to demonstrate how foreign diversification, foreign market scanning, and supply chain disruption combine to explain firm resilience better. While focusing on firm resilience broadens the foreign diversification literature, which concentrates on economic outcomes (Arte and Larimo, 2022; Schwens et al., 2018), the study's conditional-process perspective offers a compelling alternative approach to clarifying the debates about the value of foreign diversification (Huang et al., 2023).

## 5.2. Implications for international SMEs

Supply chain disruptions are a significant risk for SME operations in today's international markets. To survive and thrive, these businesses need to increase their resilience. One way to do this is by expanding operations across multiple foreign markets. However, this can also expose businesses to disruptions and complicate their responses to such events. This study's evidence reveals that international SMEs can operate in multiple foreign markets and still achieve resilience advantages if they invest in foreign market scanning. Senior executives can lead this effort by prioritizing resilience-building and foreign market scanning strategies. By allocating monetary and other critical resources (e.g., managerial time and energy) to gather information about opportunities, threats, and resources emerging in foreign markets, international SMEs can develop a stock of knowledge to navigate supply chain disruptions. An improved understanding of foreign market issues can allow managers to preempt, develop appropriate contingency measures against, and quickly detect and respond to supply chain disruptions. Specifically, senior managers should invest in foreign market research and market intelligence gathering to stay abreast of issues in their markets. Perhaps, a less expensive strategy would involve international SMEs leveraging networks with foreign business partners and relying on the internet to access up-to-date information about their foreign markets.

Supply chain disruptions can harm businesses, and international SMEs should avoid them if possible. However, these events sometimes have a silver lining: they can enhance firms' understanding of and responses to disruptions. Moreover, as the Covid-19 pandemic revealed, disruptive events can help businesses to improve organizational creativity and innovativeness. International SMEs' ability to harness the opportunities that accrue to supply chain disruptions can enrich the efficacy of engaging and leveraging foreign market scanning to develop resilience. Evidence from this study shows that investment in foreign market scanning activities can improve resilience for international SMEs if they encounter more supply chain disruptions. Therefore, senior managers should take advantage of supply chain disruption situations to enhance their understanding of how supply chain disruptions spread and can be contained rapidly. Specifically, rather than seeing disruptions as impediments, they need to reorient their mindset to actively learn from supply chain disruptions and develop appropriate knowledge capacity to guide how they gather, interpret, and act on foreign market information.

## 6. Opportunities for research on international firm resilience

The study has offered an improved theoretical and empirical understanding of the relationship between foreign diversification and firm resilience to supply chain disruptions. However, the empirical results have some limitations. Despite the robustness of our theoretical model, the literature suggests that the drawbacks to internationalization have more substantial impacts on international SMEs (Fariborzi et al., 2022), raising questions about whether our results would replicate in other international firm contexts. Large international firms are more resourced to pursue market diversification and invest in resilience capabilities. But, again, they tend to have a more complex internal and external supply chain structure and operations and are more prone to rigidity traps (Shams et al., 2021). These peculiar characteristics of large international firms suggest the link between foreign diversification and firm resilience may take a different form in such firms (Lee et al., 2022; Shams et al., 2021). Another limitation of the study is that its sample

comprises international SMEs from a single developing country. We recognize that countries differ on several issues (e.g., institutional factors) that may foster or limit internationalization and resilience-building. The study's findings cannot be generalized to all international SMEs. Therefore, we encourage additional research to test our model using data from large or small & medium international firms in different countries. Furthermore, the literature suggests supplier and customer market expansion/concentration has different resilience implications (Jiang et al., 2023). This insight calls for analyzing whether foreign market types (supply versus customer) will moderate our conceptual model.

While the study did account for several firm-specific and foreign market factors (e.g., relational slack in the foreign market), it did not consider other equally important internationalization and foreign market issues, such as the mode of export. These variables could influence the mechanisms (e.g., knowledge acquisition) through which foreign diversification affects firm resilience. Future research should either control for these additional factors or incorporate them as moderators in the foreign diversification – firm resilience relationship.

This study shows how accounting for the mediating role of foreign market scanning clarifies the relationship between international diversification and firm resilience. Though foreign market scanning is an essential source of foreign market knowledge, firms may develop foreign market knowledge through other means, such as learning, inter-organizational information sharing, and information technology deployment. Therefore, future studies can replace our mediating variable with any of these knowledge-enhancing variables. Perhaps, a more insightful analysis would involve isolating and comparing the competing mechanisms that underlie the relationship between foreign diversification and firm resilience. As presented in this paper, the resilience-enhancing mechanisms may include knowledge/experiential and adaptive behaviors, whereas the resilience-reducing mechanisms may consist of operational complexity and coordination constraints.

Moreover, though supply chain disruption experience is a crucial foundation of disruption-specific knowledge, firms must create an appropriate organizational culture (e.g., supply chain disruption orientation) to develop disruption-specific knowledge (Ambulkar et al., 2015; Bode et al., 2011). Thus, additional research can examine how supply chain disruption orientation interacts with foreign market scanning to affect international firm resilience (e.g., Ambulkar et al., 2015; Bode et al., 2011).

The study's focus on foreign diversification is limited to the 'scope' aspect of internationalization. Further studies can explore how other elements of internationalization, such as pace, scale, and pattern, affect firm resilience. Perhaps, a more exciting line of inquiry would involve applying configuration logic to explore how internationalization should be orchestrated based on its element to drive firm resilience.

Unlike previous studies (e.g., Essuman et al., 2022; Wong et al., 2020; Ambulkar et al., 2015), our measurement of firm resilience incorporates static and dynamic resilience indicators. However, we treated the construct as unidimensional. Therefore, future studies may test our theoretical model by measuring and analyzing firm resilience at its dimensional levels. Further, we analyzed resilience at the firm-level rather than the supply chain-level. Supply chains are complex systems; therefore, developing resilience at the supply chain level may come with more significant challenges. However, how foreign diversification affects supply chain resilience remains unclear. Consequently, we call for more research to analyze a model of internationalization and resilience at the supply chain level.

Given the nature of our sample, we used primary data to test our model as we could not access secondary data. Our research design is consistent with resilience studies (e.g., Ali et al., 2023; Orlando et al., 2022; Al-Atwi et al., 2021; Wong et al., 2020) and international business research (e.g., Fariborzi et al., 2022), but has limitations (Manhart et al., 2020). Future studies focusing on large international firms/MNCs should attempt to identify secondary data to measure some of the study's variables (e.g., Jiang et al., 2023; Li et al., 2022; Buyl et al., 2019). Further, cross-sectional data limits our ability to make causal inferences from the study. Natural experiments (see, e.g., Li et al., 2022; Buyl et al., 2019) or longitudinal surveys can help researchers address these limitations.

## Data availability

Data will be made available on request.

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