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Global Disruptions and SME Resilience: A Framework for Strategic Adaptation

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Abstract

In today's interconnected global economy, small and medium enterprises (SMEs) face increasing vulnerability to systemic disruptions. This thesis examines the impact of two major global disruptions: the COVID-19 pandemic and the Russia-Ukraine war on SMEs, specifically focusing on Bangladesh's ready-made garment (RMG) sector. This study concentrates on these two transformative crises that have reshaped global business operations. The research explores how SMEs navigate compound challenges including supply chain disruptions, energy price volatility, and cascading economic shocks.

The study employs Dynamic Capabilities Theory and the PESTEL framework to analyze how these global disruptions influence SME business strategies. Through qualitative analysis of survey and interview data, the research examines SME vulnerabilities. Subsequently, it proposes a tailored hybrid risk management framework designed specifically for resource-constrained enterprises.

The findings reveal that SMEs face distinct challenges when confronting pandemic-induced restrictions and war-related supply disruptions. These challenges include limited financial reserves, inflexible supply chains, insufficient market intelligence, and inadequate crisis preparedness. Moreover, the research identifies a disruption stacking phenomenon whereby SMEs recovering from COVID-19 impacts simultaneously encounter war-induced cost pressures, thereby overwhelming their adaptive capacities.

Furthermore, the study demonstrates that SMEs can enhance their resilience through specific strategies. These include implementing scenario planning for multiple crisis situations, diversifying supply networks beyond traditional sources, and monitoring regulatory changes related to health protocols and trade sanctions. Additionally, investing in information systems that track pandemic trends and conflict-related market developments proves beneficial.

Consequently, the research proposes a Risk Management Resilience Framework comprising three stages: risk identification, risk assessment, and risk response. This framework is specifically calibrated to address the dual challenges of health crises and geopolitical conflicts affecting SMEs.

The thesis contributes both theoretical and practical insights. Theoretically, it extends strategic management theories to SME responses during compound global disruptions. Practically, it

provides SMEs with evidence-based guidance for managing pandemic-style disruptions, addressing war-induced supply chain volatility, and capitalizing on crisis-generated opportunities.

The study offers policymakers and development organizations empirical evidence supporting targeted crisis management assistance for SMEs in disruption-prone economies. Ultimately, this research demonstrates that SMEs must proactively and systematically address challenges arising from interconnected global crises such as pandemics and regional conflicts. Therefore, by integrating these specific global disruptions into their strategic planning processes, SMEs can enhance their operational agility, improve long-term viability, and strengthen overall economic stability.

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1 Introduction

Global disruptions can be defined as systemic shocks with cross-border economic, political, or environmental impacts which have replaced isolated geopolitical risks as the primary threat to SME stability. The 2018 U.S.-China trade war, for instance, evolved from a bilateral tariff dispute into a global supply chain disruption, forcing SMEs in ASEAN manufacturing hubs to diversify suppliers (Hendrati et al., 2024). Similarly, Brexit's regulatory changes disrupted trade for many UK small businesses, while the Russo-Ukraine war unsettled energy markets and pushed up operating costs for numerous European firms (Bloom et al., 2019; Korosteleva 2022). Recognizing this, this section introduces a lens where few specific global disrupting events infuse geopolitical issues that can compel strategic changes in SME operations.

1.1 Background of the Study

In an increasingly interconnected world, no state, business, or individual operates in isolation. The forces of globalization have woven diverse actors into a complex network of economic, political, and social ties. Consequently, once confined to specific regions, global events such as Covid-19 and Russo-Ukraine war reverberate across global supply chains, financial markets, and regulatory environments (Sharif et al., 2020).

The COVID-19 pandemic demonstrated the dual nature of global disruptions, simultaneously impacting local operations and international supply chains (Dai et al., 2021). At the height of the crisis in 2020, many SMEs worldwide were forced to close temporarily, and developing economies such as Bangladesh saw a significant number of permanent business failures in the ready-made garment sector (Kabir et al., 2020). However, the pandemic's disruption extended beyond health impacts, triggering compound economic shocks, global trade contracted by 5.3% in 2020 (World Trade Organization [WTO], 2021), while hyper-localized lockdowns created 78% inventory shortages for SMEs reliant on just-in-time manufacturing (McKinsey & Company, 2020).

Global shocks continue to unfold. The 2022 Russo-Ukrainian war slashed Ukrainian GDP by nearly 50% and reduced neighboring EU markets, causing 31.7% of Ukrainian micro, small, and medium enterprises (MSMEs) to cease operations and those remaining to experience a 31.2% turnover decline (SME Envoy Network, 2022). Beyond Europe, American SMEs dependent on Chinese imports faced severe cost pressures from sudden tariff hikes, leading to cash-flow crises and suspended expansions (Reuters, 2025; New York Post, 2025). The cumulative effect created a disruption stacking phenomenon with 68% of SMEs recovering from pandemic impacts lacking financial buffers to absorb war-induced energy and input cost surges (Dai et al., 2021).

Apart from these, other global disruptions like the 2018 U.S.-China trade war led to heavy tariffs on a vast range of products, prompting companies to reevaluate their sourcing strategies and supply chain structures (Bown, 2025). Similarly, the United Kingdom's decision to leave the European Union in 2020 introduced new trade barriers and visa challenges that disproportionately affected small and medium enterprises (SMEs), with 56% of UK firms reporting difficulties adapting to post-Brexit rules (British Chambers of Commerce, 2021).

In general, SMEs lack the capacity to diversify their supply chains or invest in sophisticated risk-management systems (Knight & Cavusgil, 2004). These examples illustrate how geopolitical risks, ranging from trade wars and regulatory reforms to armed conflicts and pandemics pose existential threats to businesses, including SMEs (Didier, 2019). Unlike large corporations with diversified revenue streams and substantial financial reserves, SMEs operate under severe resource constraints that limit their capacity to absorb sudden economic shocks or implement comprehensive risk mitigation strategies (Okeke et al., 2024). The inherent lack of financial slack in SME operations means that disruptions requiring immediate capital injection, such as supply chain diversification, compliance with new regulations, or technology upgrades, can quickly overwhelm their financial capabilities (Omari et al., 2025). Furthermore, SMEs typically lack the technical expertise and sophisticated analytical tools necessary to anticipate and prepare for complex global and political developments, forcing them into reactive rather than proactive positions. Their limited access to capital markets restricts

their ability to secure emergency funding during crises, while their concentrated customer bases and narrow geographic focus amplify the impact of regional disruptions (Omari et al., 2025). Additionally, the operational inflexibility inherent in smaller organizations, stemming from limited human resources, single-location dependencies, and inability to rapidly scale operations, creates cascading vulnerabilities when global disruptions demand swift strategic pivots or operational adjustments (Albayraktaroglu, 2024). This structural disadvantage explains why SMEs experience higher failure rates during global crises, as they cannot leverage the economies of scale, risk diversification mechanisms, and institutional support systems available to larger enterprises (Krugman & Obstfeld, 2009). Despite growing awareness, most SMEs remain reactive, responding only after crises occur rather than anticipating and mitigating risks proactively (Arnaudova et al., 2024). Global disruptions risk assessment appears crucial for SMEs to identify threats like supply chain disruptions or regulatory changes. Without it, businesses may struggle to adapt to sudden shifts, such as new tariffs or sanctions (Bandura & McLean, 2023). For resource-constrained SMEs, understanding these risks can help prioritize actions to maintain stability and competitiveness, though the process can be complex and requires ongoing effort.

As a part of addressing this gap in literature, this thesis offers a systematic, comprehensive framework by which international phenomenon analysis can be integrated into business strategy, helping SMEs to proactively anticipate and respond to global risks.

1.2 Problem Statement

The increasing frequency and severity of global disruptions exposes SMEs' systemic vulnerability. This gap leaves SMEs reliant on reactive strategies, responding to disruptions only after they occur, often at significant cost. For instance, during the COVID-19 pandemic, geopolitical blame-shifting exacerbated disruptions for SMEs lacking the leverage to navigate international tensions (Sinani & Zilja, 2024).

This vulnerability exists in an increasingly dispersed global landscape. Traditional multilateral agreements, such as those under the World Trade Organization, are

weakening under unilateralism and regionalism, exposing SMEs to heightened uncertainties (Asgary et al., 2020). Recent developments tariffs sparking U.S. lawsuits, the IMF's warning of 1–5% monthly stock-market corrections due to trade tensions, and Conference of the Parties (COP), in the last conference COP29 concerns over trade system fragmentation further illustrate the ongoing risks SMEs face (Reuters, 2024).

Without robust frameworks, these enterprises, which are crucial for employment and innovation, remain susceptible to supply chain interruptions, inflationary pressures, and various global shocks that can stall growth or force market exits, thereby threatening broader economic stability. The fundamental challenge is not merely the presence of global disruptions, but the structural lack of preparedness among SMEs, exacerbated by a risk management literature that largely overlooks their unique constraints and needs.

This thesis underscores the need for SMEs to integrate global disruption risk analysis into strategic planning. Through the research, it is found that businesses can equip themselves with global risk analysis to find and integrate into their strategic planning processes to proactively manage risks as well as take advantage of the opportunities brought about as a result of global disruptions.

1.3 Research Objectives

This thesis aims to develop a robust framework for integrating global impact risk analysis into business strategy, with a particular focus on SMEs. The specific objectives are to:

1. **Qualitative Resilience Framework for SMEs:**

To extend global disruption risk theory specifically to SMEs by refining Dynamic Capabilities Theory for SME resilience in volatile contexts, offering a framework with a qualitative analytical approach.

2. **Case-Driven Insights on SME Survivability:** The thesis also involves carrying out a survey showing how global disruption factors affected SMEs of developing country. This survey will provide empirical findings on how SMEs make strategic decisions in order to survive in adverse situations.

3. **Strategic Decision-Making Guideline:** Aims to deliver risk-mitigation assistance which will provide a roadmap to preempt disruptions, prioritize flexibility, and embed resilience into organizational culture.

1.4 Research Questions

To achieve the objectives outlined above, this study will address the following research questions:

1. What are the global disruption factors that companies are facing today with regard to the global disruptions they operate?
2. What businesses can do to lessen the risks, and manage the changes?
3. What strategies can SMEs employ to enhance their resilience, lessen the adverse impacts of global disruptions, and leverage opportunities arising from such changes?

1.5 Significance of the Study

- **Academic Contribution:** By addressing a notable gap in existing literature, this study extends global disruption risk theory to SMEs, a segment often overlooked in established frameworks. This provides valuable implications for SMEs, particularly for firms in emerging markets, which are inherently more susceptible to global disruptions.
- **Practical Impact for SMEs:** The tailored framework developed herein equips SMEs with a structured process to anticipate and manage global disruption threats, thereby reducing their vulnerability to external shocks. By outlining resource-efficient risk-assessment tools and mitigation tactics, the study empowers smaller firms to make informed strategic decisions and maintain a competitive advantage.
- **Policy Implications:** This research establishes a structured approach for embedding global disruption risk analysis into business strategy frameworks. It provides firms and policymakers with the capacity to anticipate risks, manage

exposure to instability, and leverage opportunities for growth, ultimately enhancing SME resilience in global markets.

- **Strategic Management Insights:** The study offers practical recommendations particularly relevant for SMEs, which typically lack the extensive resources and specialized understanding necessary to effectively manage global disruptions. The research identifies actionable strategies such as agility, scenario planning, and external partnerships that can help SMEs build resilience against these challenges.

Overall, this thesis not only bridges an important theoretical gap but also delivers a practical toolkit that can strengthen the stability and growth prospects of SMEs operating in volatile environments.

1.6 Structure of the Thesis

This thesis begins with

Chapter 1, where an introduction to the research is given in full. It encompasses the study background, the problem statement, the research objective, the research questions, the significance of the study, and a scope of a thesis structure itself.

Chapter 2 offers a detailed review of the existing literature on global disruptions and SME resilience, identifying important theoretical frameworks and risk management strategies.

Chapter 3 outlines the methodology, including the design of a survey to gather empirical data on SME resilience.

Chapter 4 presents and analyzes the findings, particularly from the survey, and integrates them with the theoretical frameworks.

The last chapter of the thesis concludes with a summary of the essential findings , and outlines areas for future research.

2 Literature Review

This section broadly provides a study on how the selective global events infuse systematic shocks for SMEs. This integrated perspective underlines the necessity of a comprehensive strategic framework in a spectrum of global disruptions, not just traditional geopolitical risks.

2.1 The Evolution from Geopolitical Risk to Global Disruption for SMEs

Global disruptions encompass a range of events, including pandemics, geopolitical conflicts, and economic crises, that puts SME operations under severe risks. These risks encompass a wide spectrum of issues, including international conflicts, trade disputes, sanctions regimes, territorial conflicts, so on (Bandura & McLean, 2023). Over recent decades, globalization has not only deepened firms' interconnectedness but also heightened their exposure to political, economic, and regulatory shocks. Consequently, corporate strategists must now reckon with "polity stress factors" like instability, trade wars, and sanctions (Ikenberry, 2018) all of which inject substantial uncertainty into market environments (Ghemawat, 2001). The contemporary permacrisis landscape, marked by persistent conflicts, inflationary pressures, and political volatility, underscores the urgency for businesses to prioritize global and political resilience. Historical precedents illustrate this trend; For example, according to (Hearn, 2014). The 2008 global financial crisis exposed weaknesses in financial markets, while the Arab Spring uprisings in the Middle East and North Africa sent shock waves through supply chains and investment flows (Celestin & Sujatha, 2024). More recently, the 2018 U.S.-China trade war demonstrated how political tensions can rupture established trade alliances and force companies to adapt swiftly to new regulatory landscapes (Evenett, 2019).

For small and medium-sized enterprises (SMEs), the significance of understanding and addressing geopolitical risks in the contemporary global landscape cannot be overstated. Unlike large multinationals, SMEs often lack the specialized expertise and financial buffers needed to manage complex global shocks, making them disproportionately vulnerable (Asgary et al., 2020). Global tensions can disrupt operations and supply chains, reduce market access and undermine financial stability (Bloom et al., 2019). For

instance, Recent studies emphasize that UK-based SMEs, particularly those in high-tech sectors reliant on innovation and international markets, face acute vulnerabilities due to strained diplomatic relations and shifting political legitimacy norms (The Sixsess Consultancy, 2023; Sinani & Zilja, 2024). Ongoing conflicts, such as the Russo-Ukrainian war and the escalation of U.S.-China trade tensions, have disrupted SME supply chains, delayed critical shipments, and restricted market access (OECD, 2022; UNCTAD, 2023). Compounding these external pressures are internal weaknesses, limited capital, managerial inexperience, and inadequate contingency planning, which heighten SMEs' exposure to global shocks (Karadag, 2016).

The COVID-19 pandemic further highlighted SMEs' susceptibility to global disruptions (Allain et al., 2020). As international cooperation fractured during the pandemic, border closures, export restrictions, and supply chain breakdowns triggered cascading social, financial, and political repercussions. This crisis underscored the imperative for SMEs to embed global disruption analysis into core strategic planning rather than treating it as a peripheral concern (Meester et al., 2021).

Given these pressures, SMEs must adopt an integrated approach to global disruption risk management. This involves not only identifying the specific threats they face but also building proactive frameworks that both mitigate downside risk and capitalize on emerging political shifts. In this literature review section, we explore global occurrences shape strategic decision-making for small and medium-sized enterprises (SMEs) (Karadag, 2016). It will begin by defining global disruption risks within the specific context of SME business strategy. Subsequently, it will integrate insights from multiple established theoretical frameworks to provide a comprehensive understanding of how global tensions reshape competitive landscapes and what strategies SMEs can employ to enhance resilience. Key findings indicate that political instability, trade wars, sanctions, and regulatory shifts impose direct costs, disrupting supply chains, raising compliance burdens, and constraining investments, particularly for resource-constrained SMEs (Brown et al., 2019). Common internal failure factors (e.g., limited capital, managerial inexperience, poor planning) compound these external threats, underscoring the need for tailored risk-management strategies (Karadag, 2016;

Sinani & Zilja, 2024). Effective approaches include risk management strategies including scenario planning to anticipate multiple futures, diversifying supply networks (including friend-shoring), and investing in global event risk intelligence to turn uncertainty into actionable insights can significantly improve their ability to navigate complex international environments and transform challenges into strategic opportunities (Gereffi, 2020).

2.2 Global Disruptions Management for SMEs

From a business perspective, global disruptions entails political, economic, military and social dangers that arise when nations engage in global affairs. Such risks include government interference, wars or civil unrest, terrorist attacks, embargoes or sanctions, and even climate-related shocks. All of these events can undermine a company's performance by raising costs, interrupting operations or provoking stakeholder anxiety. Key geopolitical issues, such as the Russia-Ukraine war, escalating trade tensions, and regional instability are discussed here as examples of global disruptions. For small and medium-sized enterprises (SMEs), significant global events poses a distinct challenge to their continuity and growth (United Nations Development Programme, 2024). Unlike large multinationals, SMEs generally rely on narrower supply chains and serve more concentrated markets (Wang et al., 2022). As a result, a disruption in a single region, whether caused by trade barriers, diplomatic breakdowns, or security incidents, can swiftly erode their revenues. Moreover, global disruptions can escalate operational costs, restrict trade activities, trigger stakeholder anxiety, and isolate SMEs from critical markets. For instance, abrupt sanctions or export controls may sever access to suppliers, while civil unrest can endanger personnel and assets (World Economic Forum, 2020). As a result, limited financial reserves often leave SMEs unable to absorb sudden cost increases or to fund extensive risk-mitigation programs (Meester et al., 2021). Compounding these challenges, SMEs frequently lack dedicated risk teams or advanced intelligence networks to anticipate and respond to such shocks. Their smaller scale and resource constraints amplify vulnerability compared to multinational firms, which can redistribute risks across broader portfolios (Ghemawat, 2001).

The COVID-19 pandemic and the Russia-Ukraine war were chosen as key events for this study. This selection is based on their significant global and local impacts, especially on SMEs. The COVID-19 pandemic, starting in 2020, caused widespread disruptions (Weder & Baldwin, 2020; Zhang & Duchesne, 2022). For RMG SMEs, it led to factory closures, order delays, and financial strain (Kabir et al., 2020; Islam & Halim, 2022).

Similarly, in the beginning of 2022, the Russo-Ukraine war affected global markets. It caused energy price increases and logistical problems, which raised costs for manufacturing sectors like RMG (World Economic Forum, 2020). In Bangladesh, these changes made it harder for SMEs to compete (Munim et al., 2022). Both events are relevant because they highlight different types of global disruptions; one a health crisis, the other a conflict.

2.2.1 The COVID-19 Pandemic

The COVID-19 pandemic caused widespread temporary closures and operational disruptions for a significant majority of small and medium enterprises worldwide in 2020. The global trade sector experienced a notable contraction as the pandemic severely affected the economy. Businesses relying on just-in-time manufacturing faced critical supply chain shocks, resulting in widespread inventory shortages and the need to rethink inventory management strategies (International Trade Centre, 2020). SMEs also disproportionately suffered from financial constraints and country-industry-specific factors. Common financial problems included difficulties with staff wages, social security charges, rent, loan repayments, and invoice payments. The pandemic negatively affected supply chains, demand, liquidity, labor supply, consumption of goods and services, and the income of both consumers and producers (Mousavi Shiri & Salehi, 2025).

2.2.2 The Russia-Ukraine Conflict

The Russia-Ukraine conflict sent significant shockwaves across the global economy, necessitating varied adaptation strategies for SMEs (Hill, 2008). The conflict led to severe disruptions in logistics chains, forced displacement of populations, and changes in trade and transportation routes. Russia and Ukraine are major exporters of critical raw materials such as crude oil, food, and metals, leading to widespread shortages across

various industries. Hence, from European region to distant countries like Bangladesh felt the ripple effect of the conflict. SMEs faced a discernible decrease in these exports occurred during the initial quarter of the escalating conflict. Increased energy prices and disrupted supply chains posed significant challenges for Bangladesh's export-oriented industries. The conflict introduced potential for reduced demand, increased costs, and logistical complications for the RMG industry (Saleheen et al., 2024).

These events align with the study's focus on the RMG sector. The pandemic disrupted supply chains, while the war affected raw material costs, both critical for apparel production (Chowdhury, 2023). By analyzing these events, the research captures a range of risks SMEs must address. Thus, their inclusion in the data collection is supported by their real-world significance and academic documentation.

2.3 SME Resilience in the Face of Global Disruptions

In an increasingly interconnected and volatile global landscape, the concept of resilience has become paramount for Small and Medium-sized Enterprises (SMEs). Despite their critical role in economic growth and employment worldwide, SMEs frequently exhibit heightened vulnerability to crises and market disruptions. Recent surveys and reports emphasize the resilience of SMEs amid major crises. For example, a recent OECD study on the Ukraine war found that 84% of firms suspended at the war's onset had resumed operations within six months (OECD, 2024). Hence, cultivating resilience is not merely beneficial but essential for SMEs to effectively navigate turbulent times, minimize the adverse impacts of crises, and ensure their long-term sustainability and growth (Esty & Winston, 2009).

At its core, business resilience signifies an organization's fundamental capacity to anticipate, adapt, and effectively recover from unexpected events, significant disruptions, or profound environmental shifts (Williams et al., 2017). For SMEs, this ability to be resilient is particularly crucial given their comparatively limited financial resources, smaller operational scale, and reduced market power compared to larger corporations (Laeven et al., 2010). By fostering resilience, these enterprises gain the crucial agility to withstand sudden shocks, pivot their strategies rapidly in response to

changing circumstances, and strategically leverage emerging opportunities to drive both growth and innovation, even amidst adversity (Lengnick-Hall et al., 2011).

As global disruptions, ranging from supply chain shocks and economic downturns to the impacts of climate events and shifting regulatory landscapes, continue to reshape international trade; the impact for SMEs in developing countries like Bangladesh is drastic (Islam et al., 2023). Resilience empowers these businesses to not only bounce back from such challenges but also to emerge stronger and more resourceful. This involves developing strategies that enable them to maintain operational continuity, secure supply chains, manage financial stability, and adapt to evolving market demands in the face of widespread global instability (Bukola et al., 2023). Therefore, investing in resilience transforms a business's vulnerability into a strategic advantage, enabling it to endure and thrive in an inherently unpredictable global economy (Kukkamala & Koporčić, 2024; Hokmabadi et al., 2024).

Table 1 provides findings on how several SMEs sustained their business within the shock of Covid -19 and Russo-Ukraine war.

Study	Resilience Variation Type	Key Findings on SME Adaptation	Region
United Nations Economic Commission for Africa. (2024)	Financial & Operational Resilience	MSMEs widely faced cash flow pressures and workforce reductions, but strategies like mobile money adoption and supply chain diversification helped reduce dependence on imports.	Zimbabwe (Multi-sector)
Abu & Lagerkvist (2024)	Geographic & Sectoral Resilience	Identified 6 risk clusters among Egyptian agri-food SMEs: Enterprises in Nile Delta (high Ukrainian grain dependence) showed lower resilience than Upper Egypt SMEs using localized inputs.	Egypt (Agri-food sector)
Ge et al., (2022)	Labor Adaptation Resilience	Firms in China with strong work-from-home capacity saw less revenue volatility during lockdowns yet faced a slower rebound. Their skilled remote workforce accelerated digital supply-chain adoption even as it postponed operational normalization.	China (Manufacturing & Services)
Bandura & McLean, (2023)	Crisis Response Resilience	Ukrainian SMEs maintained pre-war activity levels through relocation and sector pivoting	Ukraine (Cross-sector)

		(e.g., IT firms shifted to cybersecurity) mostly. Agriculture SMEs showed a higher survival rates than manufacturing due to EU trade flexibility.	
Bas (2025)	Strategic Reorientation Resilience	Firms combining local sourcing with selective global niches proved more resistant to wheat price swings than traditional globalized SMEs, which faced greater business stress	EU/Latin America (Agri-food sector)

Table 1 Variations in SME Resilience to Global Shocks

2.4 Existing Frameworks

This section explores key enterprise agility frameworks, including Kuusisto's public-sector adaptation and Sharifi & Zhang's (1999) foundational manufacturing concept. Our work is significantly inspired by Kuusisto's approach to contextualizing agility, which initially guided our framework's development.

2.4.1 Kuusisto's Enterprise-Agility Framework: Navigating Public Sector Disruptions

Emmi Kuusisto (2022) innovative research provides a strong framework for public institutions dealing with sudden, unexpected problems like the COVID-19 epidemic. VUCA theory (Volatility, Uncertainty, Complexity, Ambiguity) and well-known agility models are expertly combined in her Theoretical Framework which aims to promote resilience in the face of high-velocity disruptions. According to Kuusisto, VUCA drivers serve as a burning platform, requiring immediate organizational reform.

The paradigm is built upon four primary agility capabilities: responsiveness, flexibility, competence, and quickness. These are directly drawn from the foundational work of (Sharifi & Zhang, 1999), which outlines the basic characteristics that an organization must cultivate in order to be agile. Kuusisto defines Agility Providers as six important

organizational facilitators. These include Governance, Processes, People, Structure, Technology, and Customer Relations. Each provider is detailed with embedded practices; for instance, rapid decision-making loops fall under Processes, while coaching leadership is a key practice within People.

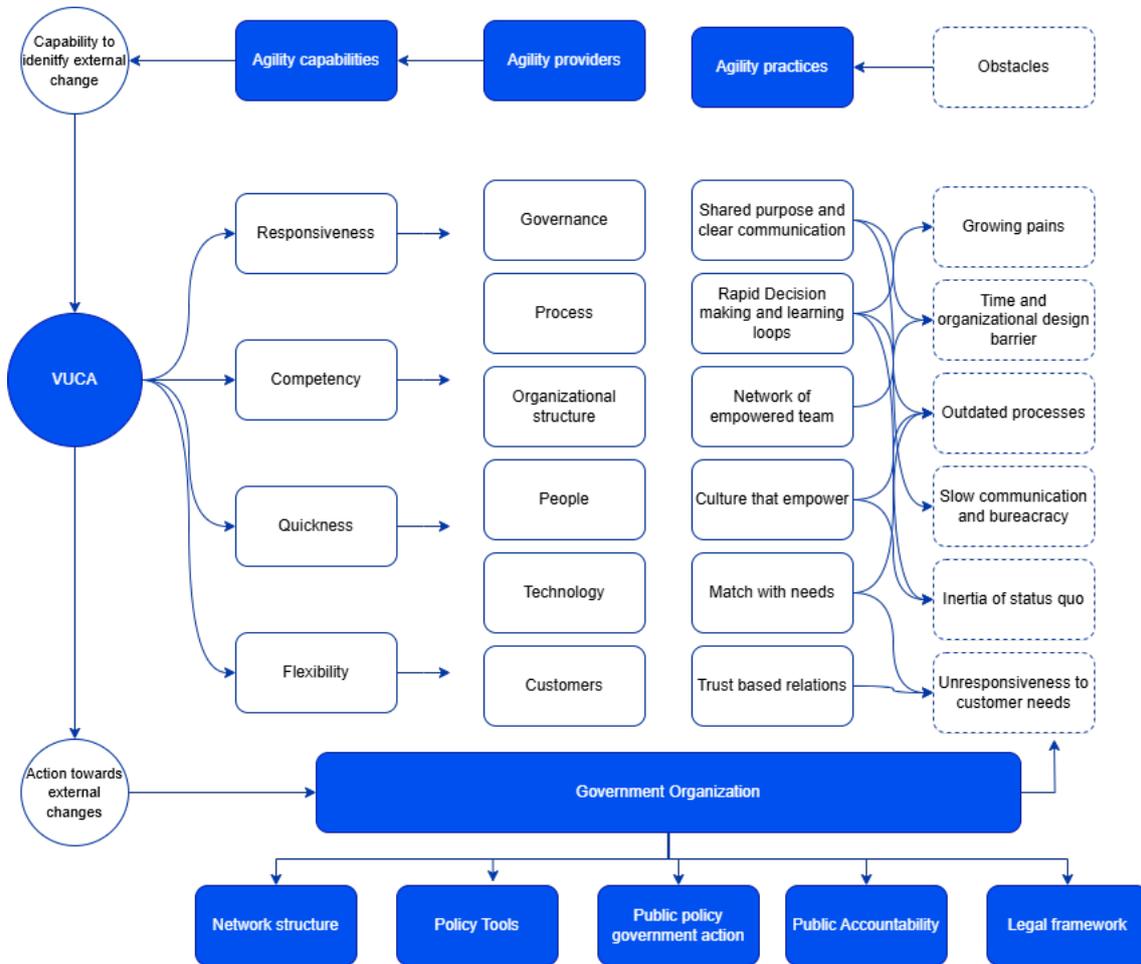


Figure 1 VUCA Framework by Kuusisto (2022)

Crucially, Kuusisto incorporates public-sector contextual features into her theory. These include legal and institutional limits, the difficulties of multi-agency coordination, an increased awareness of risk, and the need for accountability. These aspects influence how agility can be efficiently implemented inside government bodies while understanding the specific environment in which they operate. Her Business Finland case study clearly exemplifies this paradigm in action, revealing how a risk-accepting culture mixed with cross-functional teams successfully removed typical hierarchical impediments. This change resulted in the conversion of once-rigid procedures into agile,

iterative feedback loops, which improved both immediate crisis response and long-term organizational resilience.

2.4.2 Sharifi's Agile-Manufacturing Concept: Foundational Agility

Sharifi & Zhang (1999) introduced one of the most cited agility models, the "Agility Concept" (Figure 4), originally for manufacturing firms. It identifies four interconnected dimensions: Agility Drivers (external forces like market shifts or technology breakthroughs), Strategic Abilities (the four core attributes: Responsiveness, Competency, Flexibility, Quickness), Agility Providers (organizational structures and resources like teamwork and information systems), and Agility Capabilities (concrete operational practices, e.g., "sensing and anticipating changes" or "product volume flexibility"). This holistic view, linking external stimuli to operational practices through a clear provider layer, underpins most subsequent enterprise-agility frameworks.

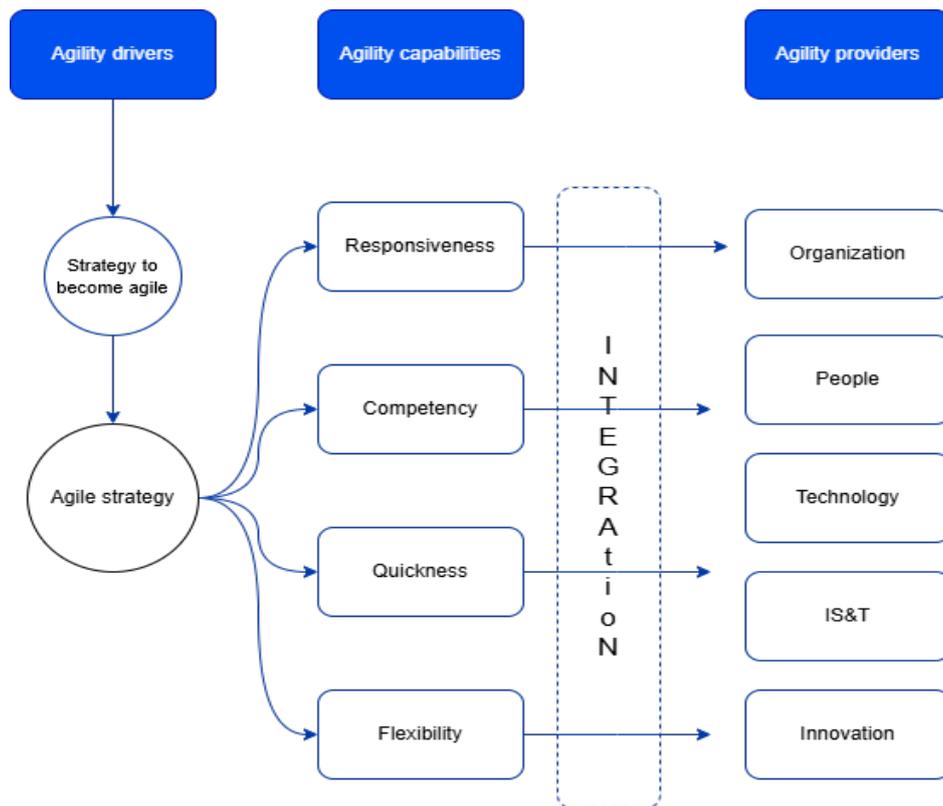


Figure 2 Sharifi et al.'s Agile-Manufacturing Concept

Our framework for SME resilience directly builds on Kuusisto's public-sector adaptation of Sharifi & Zhang (1999) model. Our work initially drew inspiration from Kuusisto's focus

on adapting agility to specific organizational contexts, which is the key to tailoring our framework for SMEs. We adopt Kuusisto's VUCA Drivers as the starting point for global shocks (e.g., pandemic lockdowns, trade disruptions).

From Kuusisto's six Agility Providers, we concentrate on the three most critical for SMEs: Processes, People, and Customer relations, while adapting "Governance" to a leaner, owner-manager decision style. Finally, like Kuusisto's contextual features, we introduce an Industry-Specific Lens (e.g., supply-chain interdependencies, buyer compliance) to reflect the RMG sector's unique constraints. By integrating Sharifi & Zhang's (1999) clear hierarchy with Kuusisto's attention to contextual enablers, our framework offers practical guidance for SMEs navigating complex global disruptions.

2.3 Risk Analysis: Theoretical Framework

To effectively analyze and respond to global disruptions, businesses require robust frameworks that provide structured approaches to understanding complex international dynamics. They offer insights on how companies are supposed to assess external risks and how current events are supposed to be integrated into their strategic decision-making processes. In this regard, three particularly relevant frameworks for SMEs include Porter's Competitive Strategy Framework, the PESTEL analysis, and Dynamic Capabilities Theory. Each framework offers unique insights into how disruptive factors shape the competitive landscape and strategic options available to smaller businesses

2.3.1 Porter's Competitive Strategy Framework

Porter's Five Forces framework (Porter, 1980) provides a powerful lens through which to examine how global tensions reshape competitive dynamics in international markets. The original intention was for the metric to gauge industry competition but it can also be used to assess the influence of disruptions on a company's strategic position. Each of these forces is influenced by global disruptions as they can restructure the regulatory landscape, work on the supply of critical resources, or build new barriers to entry (Ghemawat, 2001).

As an example, trade sanctions enforced during the U.S.-China trade war incidentally altered the bargaining power of suppliers and buyers by raising tariffs across a wide

variety of products (Reuters, 2025). Companies able to source product from China had to adapt and either absorb the extra costs or move their supply chains to other regions (Bown, 2025).

2.3.2 PESTEL Framework

The PESTEL framework offers a comprehensive approach to analyzing the external macro-environmental factors affecting organizations. This framework examines Political, Economic, Social, Technological, Legal, and Environmental dimensions, making it particularly valuable for unpacking the multifaceted nature of global events. For SMEs, PESTEL analysis provides a structured method to scan the broader environment for potential threats and opportunities arising from disruptions (Igbojiyibo, 2024). For SMEs with limited resources for specialized global disruption analysis, PESTEL offers an accessible entry point for systematic risk assessment.

Research indicates that SMEs in various national contexts successfully deploy PESTEL analysis alongside other tools like SWOT analysis and financial audits to identify potential risks to their operations. The structured nature of PESTEL analysis helps SMEs overcome common limitations in their risk assessment processes by ensuring comprehensive coverage of external factors that might otherwise be overlooked in more ad-hoc approaches to risk identification (Morita et al., 2023).

The Political and Legal components of PESTEL analysis are particularly relevant for analyzing macro environmental factors. These dimensions help SMEs evaluate how changing government policies, international relations, regulatory frameworks, and legal systems might affect their operations across different markets. Empirical evidence suggests that systematic application of these analytical frameworks significantly improves financial risk identification in SMEs, suggesting similar benefits for disruptive risk identification (Igbojiyibo, 2024).

Recent research emphasizes that PESTEL analysis enables SMEs to detect early signals of global event's shifts by monitoring seemingly unrelated developments across multiple domains. For example, technological innovations that raise national security concerns might preview future regulatory restrictions, while social movements could foreshadow

political changes affecting business environments. This holistic perspective helps SMEs develop a more nuanced understanding of how diverse external factors might converge to create risks due to disruptions or opportunities.

For SMEs operating internationally, PESTEL analysis facilitates comparative assessment of different markets, highlighting where risks infused by disruptive events might be elevated or diminished (PESTLE Analysis, n.d.). This capability is particularly valuable as SMEs consider market entry, expansion, or contraction decisions in response to evolving current conditions. The framework's versatility allows it to be applied at varying geographical scales, from local to regional to global, making it adaptable to the specific operational footprint of individual SMEs.

The economic and legal sides of the PESTEL framework also give broader insights on how businesses can be ready for the global disruptions. Such economic factors as changes of trade agreements and exchange rates in currency, as well as legal changes may bring a company new business opportunities or new compliance challenges. Using the PESTEL framework, businesses can use disruptive event management as a more comprehensive approach as external factors such as political, economic, socio cultural, technological and legal change affect their operations.

Components of PESTEL Analysis:

The PESTEL analysis enables businesses to systematically identify opportunities and threats in their external environment by the following categories: political, economic, social, technological, legal, and environmental factors. Hence it is important to understand each factors to assess risks optimally.

Political Factors: Political factors encompass government policies, political stability, tax regulations, trade restrictions, and other governmental influences that can impact business operations. These factors can create both opportunities and challenges for businesses, particularly when operating across different jurisdictions (Perera, 2017).

For SMEs, political factors might include local government support programs, changes in business regulations, or political stability in target markets. Political decisions can significantly influence market access, operational costs, and business viability, making this dimension particularly important for strategic planning. (Twambo & Sinkala, 2023).

Economic Factors: Economic factors include interest rates, inflation, economic growth patterns, unemployment rates, exchange rates, and other macroeconomic indicators that affect purchasing power and business costs. These elements directly impact consumer spending patterns, business investments, and overall market dynamics (Perera, 2017).

For SMEs, economic considerations such as high operational costs, inflation, and consumer purchasing power represent critical challenges that must be addressed in strategic planning. Economic downturns can particularly impact smaller businesses with limited financial buffers, while economic growth can present expansion opportunities (Constantinescu et al., 2011).

Social Factors: Social factors encompass demographic trends, cultural attitudes, lifestyle changes, consumer preferences, and population growth. These elements shape market demand, consumer behavior, and workforce availability (Belsare, 2025).

Technological Factors: Technological factors include innovations, technological developments, automation, research and development activities, and digital transformation trends. The rapid pace of technological change creates both opportunities for innovation and threats of disruption (Casañ et al., 2021).

SMEs must stay abreast of technological developments relevant to their industry to remain competitive. This might include adopting e-commerce capabilities, implementing digital marketing strategies, or introducing technological innovations in product development and service delivery. The COVID-19 pandemic has accelerated digital transformation across sectors, making

technological adaptation increasingly important for SME survival (Walsh et al., 2019).

Environmental Factors: Environmental factors include climate change concerns, sustainability requirements, environmental regulations, and ecological considerations. As global emphasis on sustainability increases, environmental factors have gained significant importance in strategic planning (Perera, 2017).

SMEs face increasing pressure to adopt sustainable practices in response to both regulatory requirements and consumer expectations. Green marketing strategies, as exemplified by corporate approaches like Starbucks', demonstrate how businesses can respond to environmental factors while creating competitive advantage (Eichhorn et al., 2023). The unpredictability of natural elements also presents challenges for certain industries, particularly those dependent on natural resources.

Legal Factors: Legal factors encompass employment laws, consumer protection legislation, health and safety regulations, and intellectual property rights. Legal compliance is mandatory, and changes in legislation can significantly impact operational procedures and costs.

For SMEs, legal considerations might include industry-specific regulations, employment law compliance, or intellectual property protection. Clear contract design and understanding legal obligations are particularly important for smaller businesses with limited legal resources. Regulatory changes can create compliance costs but may also present opportunities for businesses able to adapt quickly.

In this thesis, PESTEL helps link survey responses to specific risk categories, making it a suitable tool for data collection and analysis. Furthermore, (Kar et al., 2025) utilized PESTEL to analyze sustainability of agricultural firm based on PESTEL analysis, providing methodological precedent for the present study's focus on Bangladesh's SME sector. For this study, focusing on Political, Economic, and Supply Chain & Logistics (incorporating socio-technological aspects) factors within the PESTEL framework is justified by their

direct relevance to the RMG SMEs in Bangladesh, especially in the context of events like global pandemics and international conflicts. Academic literature supports PESTEL analysis as a means to achieve a complete understanding of the external environment, which informs strategic decision-making and helps organizations adapt to dynamic market conditions. It aids in recognizing how political stability, economic fluctuations (inflation, exchange rates), and supply chain integrity directly impact business operations and resilience.

2.3.3 Dynamic Capabilities Theory

(Teece et al., 1997) introduced dynamic capabilities theory for the idea that a firm can adapt to rapidly changing environments. The relevance of this theory lies in its relevance for businesses that come into contact with geopolitical risks, to industries that require flexibility and agility, and can respond to external shocks. In keeping with (Teece et al., 1997), firms need to 'sense' changes in the amount of money, 'seize' new opportunities, and transform their operations to sustain their competitive edge (Teece et al., 1997).

In these environments, continually adapting what has been made can be critical to firms operating in volatile contexts or in the face of continuously changing industry factors. In particular, research by (Fainshmidt et al., 2017) indicates that dynamism (dynamic capability) serves as a form of 'insurance' to the riskiness of political instability (hyperinflation, political risk and so forth), regulatory changes, and trade disruption (cyclical instability).

2.3.4 Integrative Framework for SME Resilience

This study proposes an Integrative Framework for SME Resilience, which is specifically formulated to address the complex challenges encountered by small and medium-sized enterprises (SMEs) within the Bangladeshi ready-made garment (RMG) sector. This context is characterized by a landscape of persistent global disruptions, such as the COVID-19 pandemic, the Russia-Ukraine conflict. The framework is built upon the foundational principles of the PESTEL framework and Dynamic Capabilities Theory, synthesizing these established models into a cohesive structure for guiding strategic adaptation (International Trade Centre, 2020). The methodology draws inspiration from

Kuusisto's (2022) integration of VUCA, Dynamic Capabilities, and agility as a means to achieve SME resilience, which is adapted herein for the unique context of SMEs where resource scarcity and acute market exposure are defining characteristics. The qualitative approach is selected to facilitate an in-depth exploration of the complex, context-specific challenges and adaptive strategies employed by SMEs, such as financial instability, supply chain disruptions, and regulatory pressures, in response to significant global events including the COVID-19 pandemic, the Russo-Ukraine conflict.

The proposed framework is structured around two integral components: a PESTEL Analysis for the identification of external disruption factors and Dynamic Capabilities Theory (DCT) for the facilitation of adaptive strategies (Arndt & Pierce, 2018). The primary component, the PESTEL analysis, serves as the foundational diagnostic layer, enabling a systematic categorization of macro-environmental risks. These include political (e.g., trade policy shifts), economic (e.g., inflation), social (e.g., labor unrest), technological (e.g., digital transformation), environmental (e.g., sustainability mandates), and legal (e.g., compliance regulations) factors that demonstrably impact SMEs, as evidenced by the varied experiences obtained from the surveys. This application extends the utility of PESTEL as a strategic diagnostic tool, as advocated by (Yüksel, 2012), to capture the pronounced global disruptive volatility affecting the RMG sector.

Complementing the risk identification phase, the framework incorporates Dynamic Capabilities Theory to operationalize resilience through a tripartite process: Sensing, Seizing, and Transforming. The *Sensing* phase involves the detection and interpretation of external disruption signals. The *Seizing* phase entails the mobilization of resources to address these identified signals and capture opportunities. Finally, the Transforming phase requires the reconfiguration of organizational assets and capabilities to achieve long-term adaptation. This process, which is influenced by Kuusisto's application of Dynamic Capabilities to organizational agility, directly addresses the imperative for SMEs to evolve dynamically, thereby contesting the prevailing assumption that such firms are incapable of strategic transformation due to resource constraints.

The central tenet of this integrative framework is that SME resilience emerges from the synergy between environmental scanning and adaptive capability. PESTEL analysis furnishes a structured assessment of external disruption triggers, while DCT provides a corresponding, capability-oriented framework for response, mitigation, and adaptation. Figure 6 illustrates this integration as a cyclical process: PESTEL inputs inform the Sensing phase, which in turn drives subsequent Seizing and Transforming actions, creating feedback loops that refine strategy based on the empirical insights derived from Firms A–E. This holistic approach serves as a critique of more fragmented resilience models that often neglect the critical interplay between risk identification and adaptive capabilities. In doing so, it offers a comprehensive apparatus for navigating the volatile, uncertain, complex, and ambiguous (VUCA) environment in which modern SMEs operate.

Figure 3 shows the general framework, which will help SMEs to sustain in future and achieve resilience.

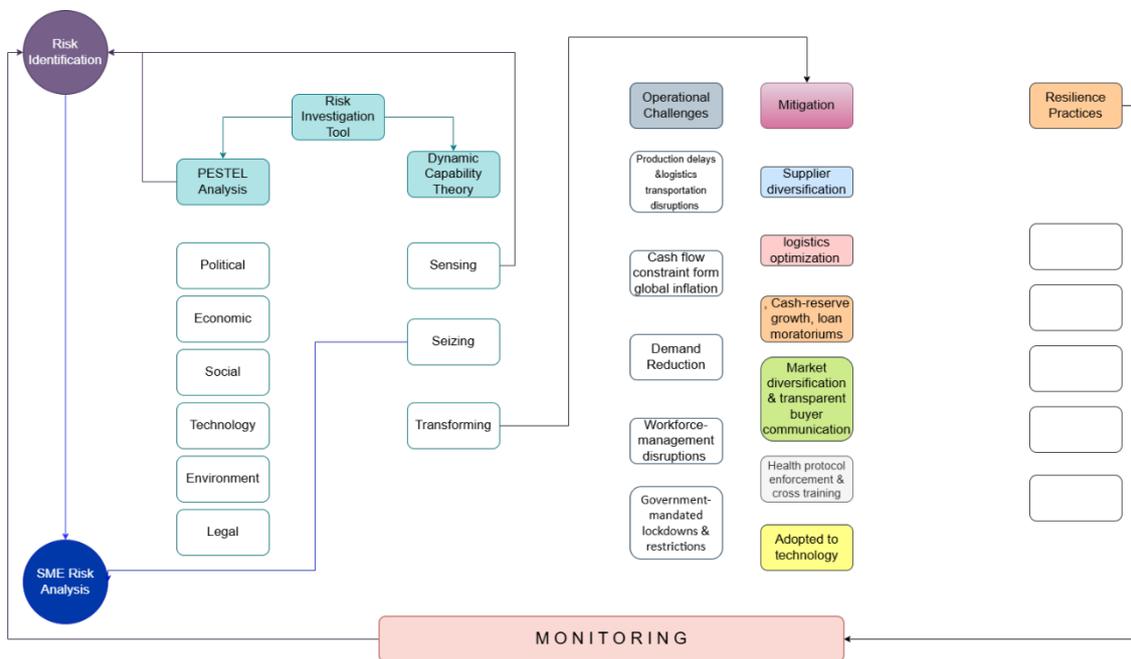


Figure 3 Proposed Framework

2.4 Case studies on Challenges faced by othe SMEs

Global disruptions exposed critical dependencies in SME supply networks. Egyptian agri-food SMEs clustered into six risk groups based on Ukrainian input dependencies, with

78% facing production halts due to fertilizer shortages (Bas, 2025). This dependency triggered food price inflation (21%) across Africa and the Middle East. In response, *glocalization* emerged as a hybrid strategy: Ukrainian grain exporters shifted to regional European markets using river transport while developing drought-resistant crops for local consumption (Bas, 2025).

Journal	Summary of Findings
Bas (2025)	Examines how SMEs in agro-food sectors struggled with supply chain disruptions, price inflation, and market dependence due to the Russia-Ukraine war and COVID-19, advocating for glocalization strategies to improve resilience
UNECA (2024)	Highlights liquidity constraints, workforce reductions, and supply chain disruptions in Zimbabwean SMEs, with adaptive strategies like digital transformation and supply diversification emerging as key responses 4.
Rojas et al., (2023)	Focuses on last-mile delivery inefficiencies for SMEs post-pandemic and during the Ukraine war, proposing Lean Logistics and Big Data integration to optimize supply chains
Leal et al. (2022)	Discusses food price inflation and supply shortages impacting SME food producers, particularly in regions dependent on Ukrainian wheat and fertilizers
Riaz et al. (2025)	Analyzes how supply chain disruptions from global tensions and pandemics negatively affect SME-heavy sectors like utilities and telecom, reducing profitability
Grondys. (2020)	Polish SMEs experienced heightened market, economic, and financial risks during the pandemic. The study highlights how risk perception varied by firm size and employment levels.
Allam (2022)	Links supply chain disruptions to rising costs of green technology, making sustainability transitions harder for SMEs in developing economies.

Table 2 a brief view on how global disruptions (COVID-19, Russia-Ukraine war) impact SMEs.

2.5 Other Global Disruptions

Global disruptions manifest in various forms, each with distinct implications for SMEs. Understanding the primary categories of these risks like political instability and conflict, trade wars and economic sanctions, and regulatory changes, provides a foundation for effective risk management strategies (Laudon & Laudon, 2004). In the following sections, the most common types of international event and how they affect business are explored.

2.5.1 Political Instability and Conflict

Political turmoil and armed conflict often strike without warning, disrupting trade routes, closing ports and highways, and halting the flow of goods and people (Miklian & Hoelscher, 2022). For SMEs that depend on reliable logistics, such interruptions translate into delayed deliveries, lost sales and frustrated customers. For example, unrest in Yemen forced the shutdown of key ports, triggering shortages of inputs and inflating costs for businesses in the region (Fainshmidt et al., 2017).

Moreover, sanctions imposed during the ongoing Russia–Ukraine conflict have stifled industries such as energy and transport in both countries, illustrating how political disputes can throttle critical sectors (Fainshmidt et al., 2017). In conflict zones especially, SMEs must also contend with threats to property and personal safety: firms may resort to informal protection arrangements, while employees face displacement or conscription, further disrupting operations.

Finally, political unrest drives up input costs fuel, labor and raw materials become more expensive as risk premiums rise, and deters foreign investment, shrinking the pool of capital available to SMEs. In extreme cases, business premises are damaged or destroyed, effectively halting operations and eroding firms' physical and human capital (Althaqafi, 2025). The war in Ukraine once again highlights these cascading effects: supply chains fracture, trade relationships falter and SMEs struggle to maintain continuity amid violence and uncertainty.

2.5.2 Trade Wars and Economic Sanctions

When countries impose tariffs, quotas or outright embargoes, the reverberations are felt across global supply chains, often hitting SMEs hardest. Tariffs raise the cost of imported inputs, squeezing already narrow profit margins. For instance, the 2018 U.S – China trade war triggered a series of reciprocal tariffs that forced many companies to either absorb higher duties or reconfigure their sourcing strategies entirely (Cao et al., 2025). Due to SMEs lacking the scale or political clout to secure exemptions, found themselves at a competitive disadvantage.

Economic sanctions represent an even more severe form of restriction. Sanctions can freeze assets, block access to financial services and sever ties with entire markets (Umar et al., 2023). SMEs with exposure to sanctioned jurisdictions may face de-risking by banks unwilling to process related transactions, effectively cutting off their capital lifelines.

Nevertheless, such friction can also create openings. As major players retreat from certain regions, agile SMEs may nearshore or friend-shore production to more stable neighboring countries, capturing new market share. During the U.S – China tariff clashes, Vietnam and other Southeast Asian economies saw a surge in exports to the U.S, benefiting SMEs that could quickly scale up production and meet redirected demand (Wester, 2023).

2.5.3 Complexities of Regulatory Changes and Compliance

Global disruptive event often spur governments to tighten export controls, impose data-localization rules, restrict technology transfers or demand enhanced due diligence (Whittington et al., 2024). SMEs typically lacking in-house legal teams must then interpret new regulations, overhaul their processes and train staff, all while maintaining day-to-day operations. Similarly, sudden changes in customs procedures or tariff schedules during trade disputes compel SMEs to reroute shipments and renegotiate contracts at short notice.

In the financial sector, heightened anti-money-laundering and anti-terror-financing rules can delay loan approvals or increase borrowing costs for SMEs, as banks enact stricter

due-diligence checks. At the same time, divergent regulatory frameworks across regions create a patchwork of compliance obligations that smaller firms struggle to manage. Without dedicated resources to monitor evolving rules, SMEs risk penalties, reputational damage and loss of market access (Raymond & St-Pierre, 2013).

Beyond formal regulations, informal norms, such as consumer nationalism during international disputes can shift buying preferences toward domestic products, eroding foreign SMEs' market share even absent official barriers. To navigate this complexity, SMEs must develop regulatory intelligence capabilities, systematically track policy changes in their key markets and build flexible compliance processes. Although resource-intensive, this proactive approach transforms regulatory risk from an existential threat into a managed element of corporate strategy.

2.6 Interplay of General SME Challenges and Global Disruption Vulnerabilities

SMEs face numerous inherent challenges that can lead to business failure, many of which are significantly exacerbated by global disruptions. Understanding these general vulnerabilities provides crucial context for developing specific global disruption risk management strategies.

2.6.1 Financial Constraints & Resource Limitations

Global instability significantly exacerbates the chronic struggles faced by SMEs with liquidity and capital access. During times of crisis, financial institutions often adopt a flight-to-quality approach, which entails tightening lending standards and consequently raising borrowing costs for SMEs. This situation is especially pronounced in fragile states, where research demonstrates that small and medium enterprises face significant barriers to obtaining adequate financing. These financial constraints severely restrict their ability to invest in essential protective measures or maintain their operations during extended periods of economic or political instability. (Meester et al., 2021). The profound impact of this trend was vividly demonstrated during the COVID-19 pandemic, as credit markets contracted abruptly, leaving many SMEs with already thin margins highly vulnerable to insolvency (Meester et al., 2021).

These financial pressures manifest in several operational impacts. Limited financial reserves often compel SMEs to adopt survivalist strategies, diverting focus from long-term growth-oriented planning. For instance, in regions affected by conflict, SMEs frequently prioritize immediate operational continuity over crucial long-term investments due to severe liquidity constraints. Furthermore, SMEs' constrained resources often result in significant bargaining power disparities, hindering their ability to negotiate favorable terms with suppliers or customers, particularly during periods of global shocks such as trade disputes or sanctions regimes. In such scenarios, larger firms frequently leverage their market position to shift costs, through delayed payments or price hikes, onto their smaller business partners (Aguilar, 1967).

2.6.2 Supply Chain Vulnerabilities

The inherent reliance of SMEs on undiversified and geographically concentrated supply chains significantly heightens their exposure to global disruptions. Unlike multinational corporations that benefit from extensive global networks, SMEs are often dependent on a single supplier or a specific region, rendering their operations highly vulnerable to events like border closures, international sanctions, or regional conflicts (Oetzel et al., 2007).

The operational impacts of these supply chain vulnerabilities were starkly evident during the COVID-19 pandemic, when widespread border closures severely disrupted overland trade routes, stranding SMEs that relied heavily on just-in-time logistics (Alabi & Ngwenyama, 2023; Meester et al., 2021). A further compounding factor is SMEs' frequent lack of visibility into their sub-tier suppliers, which severely hinders their capacity for proactive contingency planning in the face of sudden global shocks. Moreover, without sufficient alternative suppliers or adequate inventory buffers, SMEs find it challenging to absorb the impact of disruptions, such as unforeseen port closures or tariff-driven cost spikes.

2.6.3 Human Capital

SMEs frequently operate with limited resources for investing in comprehensive employee development programs, which can consequently reduce their overall

operational efficiency and capacity for innovation. Global disruptions further intensify these pre-existing gaps. For example, acute skilled labor shortages, often observed in conflict zones or during widespread health crises, compel SMEs to operate with undertrained staff. This situation not only strains existing human capital but also exacerbates compliance challenges and risks to product or service quality (Meester et al., 2021). The ability of SMEs to retain and develop their human capital is a critical factor in their resilience against the unpredictable nature of global events.

2.6.4 Market Intelligence Deficits

Many SMEs operate without robust market intelligence systems, a deficiency that significantly impairs their ability to effectively adapt to sudden shifts in the global landscape. Unlike larger corporations that invest heavily in sophisticated data analytics, SMEs often do not conduct in-depth market research. This lack of foresight leaves them ill-equipped to anticipate rapid shifts in consumer preferences or competitive landscapes, especially when global events, including those with geopolitical roots, trigger sudden changes in demand patterns or foster consumer nationalism. Without access to accurate and timely market intelligence, SMEs face considerable risks of developing misaligned product strategies, missing out on crucial emerging opportunities, and experiencing declining sales. Building a stronger market intelligence capability is therefore essential for SMEs seeking to navigate the complexities and uncertainties introduced by global disruptions.

2.6.5 Compounding Effects of Global Shocks

The convergence of various vulnerabilities creates significant, often existential, risks for SMEs when confronted with major global crises. During periods of conflict or widespread economic instability, investor risk aversion intensifies, leading to a tightening of capital availability for SMEs, which in turn stifles their capacity for innovation and expansion. Concurrently, pervasive supply chain disruptions contribute to a substantial escalation in logistics and input costs, thereby eroding already narrow profit margins that many SMEs operate within. Furthermore, SMEs often face disproportionate regulatory burdens and compliance costs, for instance, those related to sanctions screening or stringent new data privacy laws, especially when compared to larger corporations that benefit from

dedicated legal teams. This disparity places an additional strain on their limited resources. Lastly, reduced consumer confidence, particularly prevalent in unstable regions, disproportionately impacts SMEs due to their typically localized customer bases, leading to significant demand volatility and further compromising their revenue streams.

2.6.6 Cumulative Effects and the Path to Failure

When these structural weaknesses collide with disruption shocks globally, the combined impact can be devastating. Credit freezes worsen cash-flow shortages; supply-chain breakdowns amplify cost pressures; rapid regulatory changes demand costly compliance; and consumer confidence may plummet, further shrinking revenues. Unless SMEs proactively address these vulnerabilities by building financial buffers, diversifying suppliers, upskilling their workforce and establishing regulatory-monitoring processes they remain exposed to cascading risks that can swiftly escalate into existential threats.

In sum, the general challenges of SME operations become acute vulnerabilities in a volatile environment. Recognizing and managing this interplay is essential for building resilience and ensuring long-term viability.

2.7 Strategic Imperatives for Managing and Mitigating Global Shocks for SMEs

Both the public and private sectors, businesses should adopt a pro-active approach to managing global risk with scenario planning, supply chain diversification, and investment in risk intelligence. The next few sections describe several ways in which companies can shield themselves from the effects of global disruptions.

2.7.1 Scenario Planning

Scenario planning offers SMEs a highly cost-effective and resource-efficient framework for proactively anticipating global disruptions. By engaging in simulations of potential crises, such as trade embargoes, sudden regulatory shifts, or widespread political upheavals, SMEs can effectively identify vulnerabilities within their existing supply chains, market strategies, and operational models. Such exercises might involve securing alternative suppliers, diversifying target markets, or designing inherently flexible operational frameworks.

For scenario planning to remain effective, dynamic adaptation is crucial; it must continuously evolve alongside the complex and ever-changing global landscape. Regular updates are essential to ensure that strategies remain relevant to emerging threats, such as new sanctions regimes, or to capitalize on burgeoning opportunities, like the formation of new trade alliances. Furthermore, embedding scenario planning deeply into an organization's strategic frameworks fosters long-term resilience. SMEs that successfully institutionalize this practice consistently demonstrate greater agility and responsiveness when confronted with major crises, such as unforeseen supply chain collapses or abrupt and significant regulatory changes (Baran & Woznyj, 2021).

2.7.2 Supply Chain Diversification

Geographic diversification of supply chains serves as a critical strategy to mitigate risks associated with overreliance on regions prone to political instability or major global disruptions. By proactively sourcing inputs and components from multiple countries, SMEs can significantly reduce their exposure to the adverse effects of trade wars, economic sanctions, or conflict-driven disruptions (Alabi & Ngwenyama, 2023; Allam et al., 2022; Bown, 2025).

When considering supply chain diversification, several key factors require careful assessment. Firstly, a thorough infrastructure assessment is essential, involving an evaluation of transportation networks, including ports and roads, as well as digital connectivity and overall logistics efficiency in potential new regions (OECD, 2024). Secondly, a comprehensive cost-benefit analysis must be conducted, factoring in not only tariffs and taxes but also hidden expenses, such as the costs associated with ensuring compliance with local labor laws (Bown, 2025). Despite its significant benefits in enhancing resilience, supply chain diversification presents several challenges for SMEs (Crovini et al., 2020). These include the resource intensity required for qualifying new suppliers, which demands considerable time and capital, the complexities of maintaining consistent quality standards across geographically dispersed networks, and the inherent logistical complexity of managing multi-regional operations with often limited oversight (Islam et al., 2023; Omari et al., 2025).

2.7.3 Investment in Global Disruption Risk Intelligence

Investing in robust global disruption risk intelligence empowers SMEs not only to anticipate potential disruptions but also to effectively capitalize on emerging opportunities. This crucial process involves continuously monitoring global political and economic events, systematically analyzing various risk indices, and leveraging specialized external expertise when necessary (Whittington et al., 2024).

For larger SMEs, high-resource solutions might include establishing dedicated internal risk assessment teams or engaging specialized consultancies to conduct tailored analyses of potential global threats (Wagner et al., 2021). Furthermore, technological integration, particularly advanced analytics and machine learning, allows SMEs to detect subtle risk patterns, such as rising civil unrest in a key supplier region, and adjust their strategies preemptively (Crovini, 2020).

2.8 Summary

This literature review has examined the multifaceted relationship between global disruptions and SMEs, highlighting both the unique vulnerabilities smaller businesses face and the strategies they can employ to enhance resilience. The analysis has integrated insights from multiple theoretical frameworks, including Porter's Competitive Strategy, PESTEL analysis, and Dynamic Capabilities Theory, demonstrating how each perspective contributes to understanding different aspects of global disruption management for SMEs.

Several key themes consistently emerge from the literature. First, SMEs experience disproportionate impacts from global disruptions due to their limited resources, restricted access to finance, and constrained bargaining power. These fundamental characteristics render them vulnerable to shocks such as political instability, trade disputes, and regulatory changes. Second, global disruptions interact with and amplify general business challenges faced by SMEs, creating complex risk interactions that necessitate integrated management approaches rather than isolated interventions. Third, despite these challenges, SMEs can implement practical strategies to enhance resilience within their resource constraints. Techniques such as scenario planning, supply

chain diversification, and targeted investment in disruption intelligence provide accessible approaches to managing global uncertainty. Finally, effective global disruption management for SMEs requires a combination of formal analytical frameworks and adaptive organizational capabilities that enable rapid response to emerging threats and opportunities. It is therefore imperative that SMEs integrate the management of global disruption risk into their overall business strategy, viewing it not as a peripheral concern but as a fundamental aspect of strategic decision-making essential for building resilience and ensuring long-term survival and growth. A proactive and adaptive approach is crucial for SMEs to effectively navigate the complexities of the global environment and minimize the adverse impacts of disruptive events.

3 Methodology

This section establishes the theoretical and empirical foundations underlining the data collection methodology and the development of the Global Risk Management Framework for SMEs. At first, it draws on academic literature to validate the relevance of case studies, survey-based approaches, and the integration of macro-micro insights in analyzing risks for SMEs in Bangladeshi RMG sectors

3.1 Research Approach

This study employs a qualitative research methodology using a multiple-case study design to investigate how small and medium-sized enterprises (SMEs) in Bangladesh's ready-made garment (RMG) sector adapt to global disruptions. The ultimate goal is to develop and validate a Hybrid Risk Management Framework. This framework integrates PESTEL analysis, Porter's Five Forces, and Dynamic Capabilities Theory (DCT) to identify disruption factors, explore mitigation strategies, and propose approaches to enhance SME resilience. The qualitative approach facilitates an in-depth exploration of complex, context-specific challenges and adaptive strategies, such as financial instability, supply chain disruptions, and regulatory pressures, in response to global events like the COVID-19 pandemic, the Russo-Ukraine War.

The exploratory nature of this study, which addresses a literature gap on SME resilience in developing economies in the face of global risk volatility, supports the use of qualitative technique. Unlike quantitative methodologies, a qualitative case study highlights the nuanced perspectives and decision-making processes of SMEs dealing with unforeseen disturbances (Chapman & Ward, 2012; Creswell & Poth, 2016). This strategy provides detailed data to validate and develop the given theoretical framework, contributing to both academic discourse and practical implementations.

The multiple-case study design is specifically justified by selecting five RMG firms (A–E) in Bangladesh. This selection allows for examining a diverse range of SME experiences including variations in size, market focus, and adaptive strategies to ensure the framework's robustness (Scott & Davis, 2015).

Furthermore, the qualitative approach provides the necessary flexibility to adapt data collection methods to the evolving nature of global disruptions. The study relies on a combination of surveys and semi-structured interviews, allowing deeper probing into emerging themes such as technological innovations or market diversification (Saunders et al., 2019). This flexibility is critical in a research environment where ongoing disruptions necessitate real-time adjustments to data-gathering strategies (Pearlson et al., 2019).

The research process adopts an inductive approach, where the initial theoretical framework serves as a guiding structure for data collection, but findings will allow for iterative refinement based on empirical evidence. This inductive strategy is particularly suited to developing a novel resilience framework, mirroring the iterative process depicted in Kuusisto's Framework, where theoretical constructs are tested and adjusted through case-specific data. The methodology is further supported by its alignment with the integrative theoretical framework, ensuring that collected data can effectively populate and validate the PESTEL risk identification, Porter's competitive impact analysis, and DCT's strategic response phases (Teece et al., 1997). By employing this approach, the study addresses the identified research gap and offers actionable insights for SME stakeholders navigating the volatile, uncertain, complex, and ambiguous (VUCA) landscape.

The figure 2 illustrates the inductive research approach adopted in this study to explore how Bangladeshi RMG (ready-made garment) SMEs build strategic resilience in the face of global disruptions, such as the COVID-19 pandemic and the Russia-Ukraine conflict.

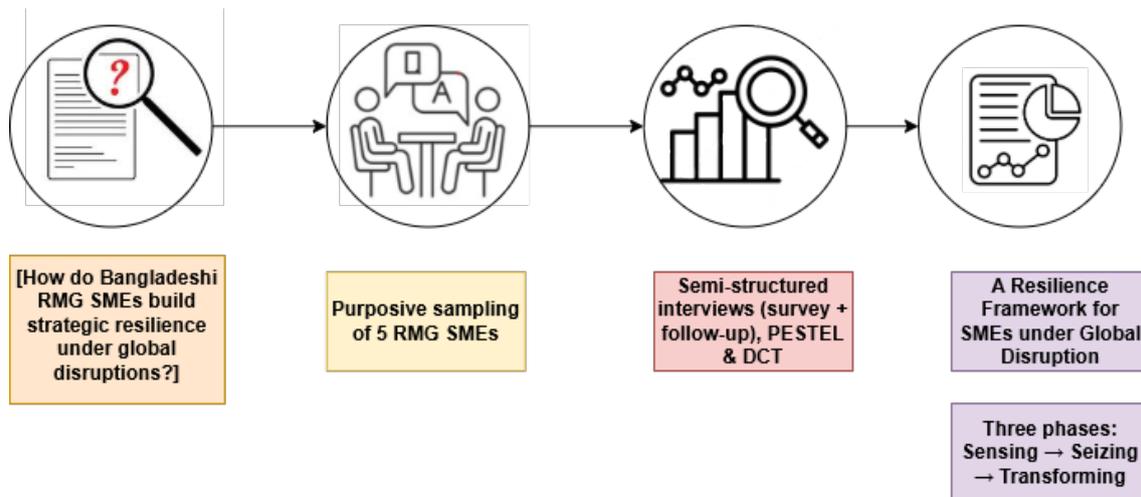


Figure 4 Inductive Research Approach Adapted to the Study (Adapted from Saunders et al., 2019)

The process will begin with the research question, which will aim to understand the mechanisms through which small and medium-sized enterprises in the RMG sector will navigate unpredictable global shocks and operational uncertainties. This question will guide the subsequent steps of respondent selection and data strategy.

In the respondent recruitment phase, five SMEs will be purposively selected based on well-defined criteria: company size (ranging between 100 and 1,200 workers), product specialization (knitwear, woven goods, or both), and export focus (mainly toward European and North American markets). This will ensure diverse yet relevant insights into the disruptions and adaptations faced by export-oriented manufacturers.

The data collection and analysis phase will integrate semi-structured interviews as the primary method. These interviews will be designed to elicit detailed narratives around four major themes: external pressures, crisis impacts, strategic adaptations, and decision-making processes. Data will be analyzed using a hybrid framework, combining PESTEL analysis to categorize external risks and the Dynamic Capabilities framework (sensing, seizing, and transforming) to interpret organizational responses. A cross-case thematic comparison will be conducted to identify both common patterns and unique strategic moves across the cases.

Finally, the results of the analysis will culminate in the development of a Resilience Framework for SMEs under Global Disruption. This framework will conceptualize resilience as an emergent capability developed through the cyclical and often

overlapping processes of sensing (risk recognition), seizing (resource deployment and adaptation), and transforming (institutionalizing strategic change). The model will offer practical and theoretical insights for strengthening SME competitiveness and continuity in volatile global environments.

3.2. Data Collection for Survey

This study employs a mixed-methods approach, integrating survey research with case study analysis to investigate the strategic responses of small and medium-sized enterprises (SMEs) in Bangladesh's ready-made garment (RMG) sector to recent global disruptions. The methodology follows principles of standardization, replicability, and structured inquiry, ensuring the collection of systematic and analyzable data to uncover patterns and interrelationships.

The empirical investigation focuses on five anonymized SMEs operating within the RMG sector, with data collected through a structured survey instrument. The design and execution of the survey reflect established traditions in qualitative research, particularly the case study approach. The survey was specifically tailored to examine how SMEs interpret and respond to global risks, with an emphasis on the dual shocks presented by the COVID-19 pandemic and the Russia-Ukraine war.

The framework for analysis is anchored in PESTEL factors (Political, Economic, Social, Technological, Environmental, and Legal), prioritized based on their relevance to the Bangladeshi SME apparel context. These factors were used to map disruptions and risks emerging from the two major global events under consideration. COVID-19 introduced foundational disruptions such as demand shocks, workforce shortages, and breakdowns in supply chains. In contrast, the Russia-Ukraine conflict further amplified economic instability through rising energy costs, inflation, and heightened compliance and regulatory burdens.

To capture a comprehensive view of these dynamics, a 20-question survey was developed and divided into four sections: (1) basic firm profile; (2) assessment of the general business environment and external pressures, mapped to PESTEL and specific risks; (3) firm-level impacts of the COVID-19 pandemic and the Russia-Ukraine conflict;

and (4) strategic responses, including risk identification, mitigation, and long-term adaptations. The questions are added in the appendix A.

3.3 Strategic Risk Management Framework for SMEs

This section presents the development and practical application of the Global Risk Management Framework for SMEs operating in Bangladesh's RMG sector, designed to assess and respond to global disruptions. Grounded in Dynamic Capabilities Theory (DCT), the framework enables SMEs to sense (identify risks), seize (analyze and prioritize), and transform (strategically respond) in a structured manner. This approach is especially vital for resource-constrained SMEs navigating complex global environments like the COVID-19 pandemic and the Russo-Ukraine War.

3.3.1: Risk Identification

This phase involves a Focused Scan centered on the SME context, complemented by an SME-Tailored PESTEL Analysis. Studies suggest (Nocco & Stulz, 2022) that risk identification is an ongoing process, crucial for managing increasingly complex risks by understanding how organizational resources may be exposed over time. The framework's approach of using early warning system aligns with concepts of organizational learning and dynamic capabilities, where firms adapt by scanning and interpreting their environment. The PESTEL analysis within this phase provides a structured method to ensure a comprehensive scan across various domains where global disruption manifest (e.g., local political stability, currency fluctuations, labor market shifts).

3.3.2: Risk Analysis

Once risks are identified, the framework requires systematic analysis and prioritization. The risk analysis phase of the framework for SMEs emphasizes and prioritize on risks focusing on the impacts of COVID-19 and the Russia-Ukraine conflict. This approach is grounded in Dynamic Capabilities Theory (DCT), particularly the seizing phase, which emphasizes strategic decision-making in response to environmental changes (Teece, 1997).

In this phase, risks are evaluated based on two key dimensions –

1. **Impact:** This step evaluates how a certain global event affects corporate operations. To be proactive, business organizations must routinely analyze their current situation and consider how similar disruptions have affected them and others in the past. This forward-looking analysis allows for the early detection of vulnerabilities before they cause interruptions.
2. **Risk Categorization:** Based on the impact, appropriate steps must be made. Decision-makers must assess the risks in order to respond promptly. To analyze risks, the Framework has classified them in four descriptive categories. Low risks are likely to have little impact; medium risks will have a moderate impact, such as temporary supplier delays during the early stages of COVID-19; and high risks will necessitate immediate actions that could put a firm in a long period of adversity, such as sustained energy cost increases during the Russia-Ukraine conflict, which resulted in an indirect but significant loss of operational costs for many firms. Severe Risk represents critical threats that may force businesses to halt operations entirely.

3.3.3 Risk Management

The final phase, Risk Management, focuses on Strategy-Selection based on the risk analysis. It differentiates strategies for risks that are SME-specific or critical. This is grounded in strategic management theories that advocate for tailored responses based on the nature of the risk and the organization's capabilities. For SMEs, which often face resource constraints and require agility, the emphasis on low-resource, SME-centric tactics (e.g., leveraging government support, enhancing operational agility, building local partnerships) is particularly pertinent. Academic literature on SME resilience emphasizes the importance of developing dynamic capabilities, fostering a risk-aware culture, and implementing frameworks that are adapted to their specific challenges, such as limited financial resources and informal processes.

3.3.4 General Response Overview

This section provides a brief summary of each firm's profile integrating the challenges and impact they faced; with our risk analysis categorization we also added the severity level based on the impact each firm encountered.

Firm A **PESTEL Focus:** Primarily hit by Economic (shipping, material costs) and Supply Chain disruptions.

Risk Type	Identified Risk	Impact	Severity
Market Risk	Failure to secure new buyers	Margin squeeze if diversification talks fail; revenue decline	High
Economic Risk	Rising labor & financing costs	Erodes already thin profit margins; increased debt burden	High
Compliance Risk	Stricter sustainability requirements	Budget overruns from sourcing recycled materials; machinery upgrades	Medium
Operational Risk	Balancing cost controls with compliance	Reduced production efficiency; delayed order fulfillment	Medium

Table 3 *Firm A profile*

Firm B PESTEL Focus: Impacted by Political (buyer sentiment due to perceived instability) and Economic (exchange rates).

Risk Type	Identified Risk	Impact	Severity
Financial Risk	USD-BDT exchange rate volatility	Reduced profitability from currency fluctuations	High
Product Development Risk	Eco-line ROI uncertainty	Upfront costs for organic materials and marketing may not yield ROI	Medium

Customer Risk	Price pressure from US buyers	Margin compression; potential loss of long-term contracts	High
Political Risk	Buyer hesitancy due to perceived instability	Reduced order volumes; delayed negotiations	Medium

Table 4 Firm B profile

Firm C PESTEL Focus: Strong impact from Supply Chain (logistics) and Economic (inflation).

Risk Type	Identified Risk	Impact	Severity
Strategic Risk	Price competition from Vietnam/India	Loss of market share; forced price reductions	High
Operational/Energy Risk	Solar energy shortfall	Continued reliance on expensive grid power; disrupted production	Medium
Supply Chain Risk	Traceability rollout complexity	Delays in meeting buyer requirements; loss of key clients	High
Economic Risk	Inflation-driven cost increases	Squeezed margins; cash flow instability	High

Table 5 Firm C profile

Firm D PESTEL Focus: Economic (cost of capital, inflation) and Political (local stability, regulatory environment).

Risk Type	Identified Risk	Impact	Severity
Strategic Risk	Price competition from Vietnam/India	Loss of market share; forced price reductions	High
Operational/Energy Risk	Solar energy shortfall	Continued reliance on expensive grid power; disrupted production	Medium
Supply Chain Risk	Traceability rollout complexity	Delays in meeting buyer requirements; loss of key clients	High
Economic Risk	Inflation-driven cost increases	Squeezed margins; cash flow instability	High

Table 6 *Firm D profile*

Firm E PESTEL Focus: Economic (cost increase, client loss) and Technological (resource constraints).

Risk Type	Identified Risk	Impact	Severity
Operational Risk	Missing lead-time targets	Buyer dissatisfaction; order cancellations	High
Regulatory Risk	Labor-practice audit failures	Loss of certifications; market access restrictions	High
Political Risk	Election-related logistics disruptions	Shipping delays; inventory pileup	Medium

Technological Risk	Slow adoption of CAD systems	Extended sample development time; reduced competitiveness	Medium
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Table 7 Firm E profile

3.3.5 Practical Implementation

Firm A, a knitwear exporter in Bangladesh’s RMG sector with 15 years of operation and 650 employees, primarily serves European markets. It faced significant challenges during the COVID-19 pandemic and Russia-Ukraine conflict, including demand collapse, supply chain disruptions, and cost escalations. The Hybrid Risk Management Framework, grounded in Dynamic Capabilities Theory (DCT), is implemented across three phases: Risk Identification, Risk Analysis, and Risk Management.

3.3.6.1: Risk Identification (*Sensing*)

DCT’s sensing capability enables Firm A to proactively scan the external environment for threats and opportunities. By integrating tools like PESTEL analysis with experiential insights (e.g., noticing order cancellations), Firm A identifies risks such as sudden lockdowns, drastic drops in European demand, and rising energy costs. This systematic approach ensures comprehensive risk detection.

Sensing provides early awareness, allowing Firm A to anticipate disruptions rather than react after they occur. Without this capability, the firm risks missing critical threats, like demand collapse, or responding too late, leading to operational and financial setbacks. Early detection enables timely preparation, such as securing alternative suppliers during lockdowns.

PESTEL Analysis	Identified Risks
Political: Lockdowns, health regulations, trade tensions (e.g., Russia-Ukraine conflict).	Sudden lockdowns causing operational halts.
Economic: Inflation, rising energy/raw material costs, currency fluctuations.	Drastic fall in European demand.

Social: Workforce absenteeism, safety protocol compliance.	Skyrocketing energy and raw material costs.
Technological: Need for digital tools/automation.	Shipping disruptions and logistics cost increases.
Legal: Sustainability compliance, labor standards.	Workforce management issues.
Environmental: Sustainability requirements from buyers	Buyer pressure for sustainability compliance.

Table 8 *Incidents causing associated risks with PESTEL integration*

3.3.6.2: Risk Analysis (*Seizing*)

DCT's seizing capability empowers Firm A to prioritize risks and make strategic decisions under uncertainty. Using a qualitative risk assessment (categorizing risks as Low, Medium, High, or Critical), the firm focuses on the most impactful threats and can priortises directs resources efficiently.

For an SME like Firm A with limited resources, seizing ensures focus on existential threats first. Without prioritization, the firm could waste effort on low-impact risks, leaving critical ones unaddressed. By targeting demand collapse and supply chain issues, Firm A safeguards its survival and operational continuity.

Risk	Impact
Demand Collapse	Critical
Supply Chain Disruptions	High
Cost Escalations	High
Workforce Issues	Medium
Sustainability Compliance	High

Table 9 *Analyzing risks based on the severity level*

Analytic Result: Focus on demand collapse (Critical), supply chain disruptions (High), and cost escalations (High)

3.3.6.3 Risk Management

DCT's transforming capability allows Firm A to adapt operations and build resilience by implementing strategies like financial stabilization, cost management, and market diversification. For instance, diversifying to buyers in Canada and Australia reduces reliance on European markets, while operational agility (e.g., flexible production) mitigates supply chain disruptions.

Transformation turns risk insights into actionable resilience. Without it, Firm A might identify and prioritize risks but fail to adapt, leaving it vulnerable. By diversifying markets and stabilizing finances, the firm not only survives current crises but also strengthens its capacity to handle future disruptions.

3.3.6.4 Resilience Achievement:

The integration of sensing, seizing, and transforming yields tangible resilience outcomes for Firm A, the journey of resilience achievement of firm A is visually presented through figure 4.

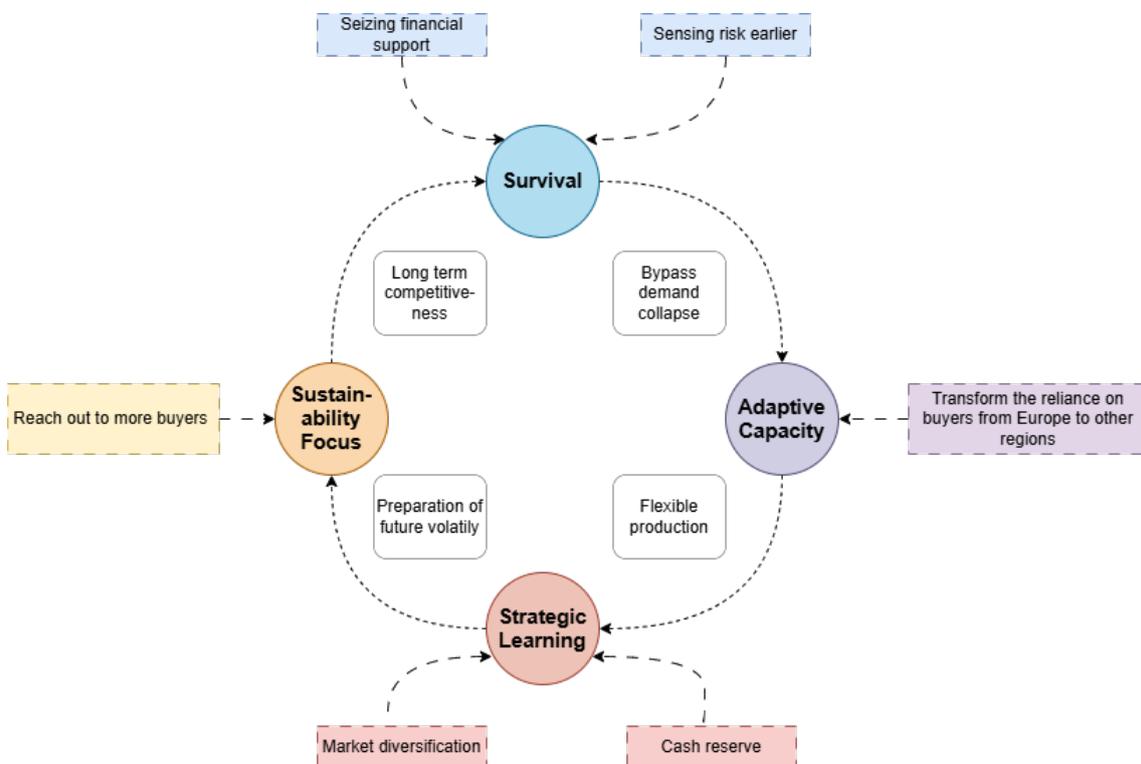


Figure 5 By mapping the incidents of firm A's action with sensing, seizing and transforming features, we can see that firm A's journey to achieve resilience can be a systematic procedure that collectively can help to sustain the growth and survival.

3.4 Data Analysis

The data analysis for this study was conducted using an inductive approach, which aligns with the exploratory qualitative case study design employed to investigate how small and medium enterprises (SMEs) in the Bangladesh ready-made garment (RMG) sector navigate global disruptions. This method was chosen for its suitability in uncovering patterns and themes within complex phenomena, such as the impacts of the COVID-19 pandemic and the Russia-Ukraine conflict on SME resilience. The analysis aimed to extract meaningful insights from the qualitative data, addressing the research questions about the nature of global disruption factors, risk management strategies, and resilience-building approaches for SMEs (Cadle et al., 2010).

The questionnaire's validity is supported by its use of qualitative methods, such as semi-structured interviews, which are well-established in SME research for capturing detailed insights. Qualitative research in this field often employs semi-structured interviews with open-ended questions to gather in-depth insights into participants' experiences, perceptions, and behaviors (Fossey et al., 2002). This approach is particularly suitable for exploring complex and multifaceted phenomena like SME resilience, as it allows for flexibility in questioning while ensuring that key topics are covered (Miklian & Hoelscher, 2022).

The questions were designed to align with the research objectives, focusing on specific aspects of SME resilience such as operational disruptions, financial pressures, strategic adaptation, and resource reconfiguration. Our interview approach shows consistency with the principles of qualitative questionnaire design, where questions are tailored to the research aims and informed by a review of existing literature (Fossey et al., 2002).

Moreover, the use of open-ended questions in our questionnaire is a hallmark of qualitative research, as it allows participants to provide detailed, narrative responses that can reveal deeper insights into their experiences.

Additionally, the development of the survey is based on investigating case studies, ensuring that the questions are relevant and cover the key dimensions of SME resilience identified in prior research (e.g., Sharifi & Zhang., 1999). They also discuss the

importance of aligning research tools with theoretical frameworks, which helps us to addressing factors critical to SME resilience.

4 Result Analysis

This section details the findings from the survey data, organized by PESTEL factors to understand the practical decision-making strategy.

4.1 Analysis by PESTEL Factor & Risks

The experiences of Firms A to E during overlapping global crises reveal systemic vulnerabilities and adaptive strategies in the Bangladeshi garment sector. Firm A's operational disruptions were deeply entangled with the volatile political landscape, notably the COVID-19 lockdowns and fluid health regulations changes that complicated routine processes.

Late one afternoon in spring 2021, Firm A's production manager shared how the shifting ground rules felt almost capricious:

“When the government suddenly imposed a week-long lockdown with just 48 hours’ notice,” she recalled, “our entire shift schedule collapsed. Government-mandated lockdowns ... had a significant negative effect, complicating routine processes. We literally had to scramble to transport half our staff home and store raw yarn before the curfew hit.”

These challenges were compounded by global economic shocks, particularly inflation linked to the Russia-Ukraine war, which sharply escalated input and logistics costs. The firm's financial fragility was laid bare through cash flow disruptions that necessitated renegotiations with buyers for shared cost absorption and partial payments. Strategic adjustments included sourcing more affordable local materials and scaling down operational shifts. Supply chain rigidity was further exposed through difficulties in procuring raw materials and workforce availability, prompting a pivot toward local supplier diversification. Government financial support emerged as a critical enabler for crisis navigation.

Firm B similarly experienced the destabilizing effects of political uncertainty, with negative international media coverage about Bangladesh creating hesitation among buyers and weakening order pipelines. Economically, the firm contended with exchange

rate volatility, which strained financial planning and forced intensified liquidity management. Mitigation involved leveraging government schemes, such as loan moratoriums, and optimizing shipment consolidation to curb rising logistical costs.

Meanwhile, across the street at Firm B, the accountant laid out the compounded effects on their ledger:

“Inflation hit our cost base hard, but our U.S. buyers refused to budge on price. Rising input costs and currency exchange losses ... added to our financial woes. There were days we didn’t know if we’d clear payroll.”

Supply chain and workforce challenges during the pandemic mirrored those of Firm A, but Firm B showed proactive responsiveness by enhancing communication channels and pivoting product offerings toward pandemic-relevant goods like masks and gowns. This strategic agility contributed to preserving buyer relationships amid uncertainty.

Firm C's operations were constrained by the geopolitical reverberations of the Russia-Ukraine conflict, which amplified buyer anxiety and increased operational ambiguity. Shifting COVID-19 protocols exacerbated management complexity, while inflationary pressures and an erratic shipping environment severely undermined financial stability. The firm's liquidity strain forced it into short-term pricing strategies and additional debt exposure. Tactics such as partial cost absorption and aggressive buyer negotiations were necessary, as were efforts to reconfigure sourcing routes by looking toward Indian yarn suppliers. Daily logistical bottlenecks, especially around shipping containers and vessel space, reflected a broader systemic supply chain fragility, demanding continuous renegotiation and tactical improvisation.

In contrast, Firm D foregrounded structural political challenges in maintaining global market access, emphasizing the growing importance of compliance with international labor and environmental standards.

Across town, Firm D's owner described a parallel burden, this time not on pandemic waves but on new audit regimes:

“Just when we thought we had met the buyers’ environmental checklists,” he sighed, “another round of international labor and environmental complaints landed on our desk. Ongoing pressure to comply with international labor and environmental standards ... shaped strategic priorities. We ended up hiring a dedicated compliance officer just to keep pace.”

This ongoing pressure shaped both strategic priorities and operational behaviors. Financially, the firm identified shipping constraints as a significant operational bottleneck, addressed through strict cash flow oversight. Supply-side constraints during COVID-19, particularly in sourcing yarn and trims, were met with targeted protection of critical input chains and workforce development through upskilling initiatives. The firm’s proactive compliance posture and strong buyer engagement strategies suggest a model of anticipatory rather than reactive crisis management.

Lastly, Firm E encapsulated the cumulative economic strain across the sector. The owner’s observation that “everything is more expensive” signified the overarching rise in production costs that eroded profitability. Rather than reactive cost-cutting, the firm adopted a forward-looking strategy centered on building financial resilience through improved cash reserve management. Workforce instability during the pandemic, including absenteeism and health compliance enforcement, added further complexity to operational continuity.

Taken together, we incorporate PESTEL analysis to systematically identify the risks and the corresponding impacts. These cases illustrate how political volatility, global economic shocks, and pandemic-induced disruptions exposed systemic weaknesses in supply chains, labor management, and financial planning. Yet they also highlight varied strategic responses, from tactical negotiations and product diversification to structural shifts in compliance and sourcing, that reflect an evolving resilience among firms within the garment industry. The PESTEL analysis helped us to identify the risk factors more accurately for each firm. In table 5.1 and 5.2 we summarized how each firm mitigated the risks they encountered by categorizing based on PESTEL factors. These PESTEL-based findings illustrate DC’s threefold process: **sensing** via structured risk identification,

seizing through prioritized decision-making, and **transforming** via the mitigation strategies SMEs deployed.

PESTEL Category	Identified Risks/Impacts	Mitigation Strategies
Political	Lockdowns, international relations, regulatory compliance	Adherence to protocols, government support utilization
Economic	Inflation, shipping costs, raw material prices, exchange rates	Cost negotiation, financial management, alternative sourcing
Social	Workforce absenteeism, labor retention, worker welfare	Health protocols, communication, upskilling
Technological	Limited data (implied: logistics optimization, energy alternatives)	Solar energy exploration (Firm C), process efficiency upgrades
Legal	Compliance with labor/environmental standards	Proactive certification (Firm D), audit readiness
Environmental	Sustainability demands (buyer pressure)	Eco-friendly product lines (Firm B), traceability systems

Table 10 PESTEL Analysis Table.

Risk Category	Identified Risk	Firms Affected
Political Risks	Government-mandated lockdowns & restrictions	All (A-E)
	Changes in international relations & buyer sentiment	A, B, C, D
	Reliance on government support (COVID-19)	A, B, C
	Regulatory compliance & international standards	D
Economic Risks	Global inflation (post-COVID, Ukraine war)	All (A-E)
	Shipping/freight cost volatility	A, B, C, D

	Raw material price hikes	A, B, C, D
	Exchange rate fluctuations	B
Supply Chain Risks	Raw material scarcity/delays	A, B, D
	Logistics/transportation disruptions	All (A-E)
	Shipping/freight cost volatility	A, B, C, D

Table 11 Risks Experienced by the Firms. We can see, all the firms faced lock down, inflation and transportation disruption due to COVID -19.

4.2 Strategic Decision-Making Approaches

The strategic decision-making approaches of the firms reflect a predominantly reactive orientation, shaped by direct exposure to disruptions rather than preemptive risk frameworks. We have categorized their action based on the frameworks objectivity: Risk Identification, Risk Analysis, and finally Risk Management.

4.2.1 Risk Identification:

The strategic decision-making approaches of the firms reflect a predominantly reactive orientation, shaped by direct exposure to disruptions rather than preemptive risk frameworks. Risk identification was largely experiential, with firms recognizing vulnerabilities only after encountering acute stressors such as order cancellations, raw material price hikes, or shipping disruptions.

At **Firm C**, the operations director still recalls the morning their logistics dashboard lit up with red flags:

“We noticed our container-booking hit-rate drop from 75% to 30% within two weeks. That spike in rejections was our first real sign of a deepening supply-chain crisis, a ‘daily fight’ to procure containers that told us we needed a Plan B, fast.”

Rather than wait for stockouts, they immediately convened a cross-team “red-alert” huddle, pooling data from shipping partners, raw-material suppliers, and buyer forecasts. Within days they had identified alternative ports and back-up trucking routes, all because they treated that early logistics blockage as a sentinel event, not an inconvenience.

Firm A’s pivot toward market diversification represents a shift toward transformative capacity, while Firm C’s negotiation tactics under cost pressure underscore opportunistic responses within uncertain environments.

At **Firm E**, the factory manager recounts how an uptick in small customer cancellations turned out to be more than just a seasonal dip:

“When our Middle East orders suddenly shrank by 15% over a single weekend, we assumed it was just holiday buying patterns, until we heard through a local partner that raw-cotton prices had jumped 25% on the spot market. That price shock was our canary in the coal mine, alerting us to a broader inflation surge.”

By logging that data, cancellation volumes, raw-cotton spot quotes, and client-feedback snippets, Firm E gained a real-time view into the cascading cost risk. They then layered in macro-price dashboards and weekly price-check calls with their key ginner, embedding what had started as intuition into their standard risk-scanning routine.

A universal acknowledgement of heightened uncertainty in global business conditions indicates increased global political awareness, though this awareness seldom translated into structured, forward-looking risk scanning mechanisms.

4.2.2 Risk Analysis:

Risk analysis remained primarily focused on the immediate impact, particularly regarding financial metrics like cash flow and profitability. Firms identified key risks through firsthand disruptions rather than predictive modeling. Decision-making structures varied: Firm A and E adopted highly centralized models led by owners, facilitating swift responses. In contrast, Firms B and D operated through small

collaborative teams, and Firm C established more formalized management processes, integrating multiple viewpoints for structured deliberation.

In Firm A's would do regular meetings for crisis management, quoting-

“Every night at 8, I’d call in my key managers. Daily crisis meetings ... with the owner personally engaging with banks and key buyers became our lifeline. That’s where we’d decide who to pay first, which orders to push, and how to stretch our credit lines.”

By contrast, Firm B thrived on collective brainstorming. Their operations director recalled:

“We formed five small cross-functional cells, each one handled a specific challenge, from PPE procurement to buyer communications. We truly operated through small collaborative teams, and decisions emerged fast because everyone owned their piece.”

4.2.3 Risk Management (Mitigation & Adaptation):

Risk mitigation leaned heavily on reactive measures, addressing disruptions as they emerged. Common responses included cost containment, workforce stabilization during health crises, and logistical workaround strategies. However, several firms moved beyond mitigation toward adaptive, forward-looking strategies. These included diversification of markets, suppliers, and products, indicating a shift toward structural resilience. Firms also began investing in resilience through energy alternatives (Firm C), cash reserve strengthening (Firms A and E), improved buyer-worker communication (Firm B), and enhanced compliance and speed-to-market processes (Firm D). These actions, while still rooted in crisis experience, reflect an emergent shift toward embedding adaptability into firm operations.

Down the road at Firm E, the Participant described a grimmer, “survival only” mindset:

“I slashed every discretionary expense. Travel, training, even office snacks, ruthless cost-cutting ... to stay afloat was our mantra. Without it, we would not have made it through the fourth quarter.”

Risk Type	Risk Example	Mitigation Strategy	Firms Using Strategy
Operational	Production delays	Supplier diversification, logistics optimization	A, B, C, D
Financial	Cash flow constraints	Cost absorption, loan moratoriums, reserve building	All (A-E)
Market	Reduced buyer demand	Market diversification, transparent communication	A, B, D
Compliance	Evolving international standards	Pre-certification, process audits	D
Workforce	High absenteeism	Health protocols, cross-training	A, C, D

Table 12. Risk vs. Mitigation Matrix. While financial risks were universally addressed across all SMEs, operational and market risks saw selective strategy use, and compliance and workforce measures were targeted by firms facing those precise challenges.

4.2.4 Resilience achieved by the firms

The strategic responses of Firms A to E illustrate distinct pathways to resilience under compounded political, economic, and operational pressures. Firm A built resilience through a multi-pronged strategy focused on financial stabilization, cost containment, and market diversification. The implementation of daily crisis meetings, direct owner engagement with stakeholders, and targeted research into new markets and local sourcing translated strategic intent into operational agility. These measures enabled the firm not only to survive but to begin restructuring for longer-term adaptability, signaling a transition from reactive survival to proactive transformation.

Firm B's resilience stemmed from product innovation and financial prudence. By launching a premium eco-friendly line and managing currency risk, the firm positioned itself away from commoditized competition. Partnering with local mills and consolidating shipments aligned execution with strategy, reinforcing stability in core operations while fostering a differentiated growth avenue. This strategic shift enabled the firm to maintain buyer confidence and withstand financial shocks.

Firm C achieved resilience through operational efficiency and targeted investment. Actions such as installing a rooftop solar array and renegotiating logistics contracts

translated into immediate cost savings, while exploring new yarn sources and piloting traceability initiatives positioned the firm for longer-term competitiveness. These measures, implemented through structured decision-making and active engagement with shipping lines and government channels, reflect a focused response that strengthened the firm’s control over external shocks.

Firm D's resilience was driven by speed-to-market improvement and compliance readiness. Investments in CAD technology and skilled personnel reduced lead times, while proactive compliance ensured continued buyer trust. The alignment of strategic upgrades with implementation, through owner-manager coordination and workforce upskilling, demonstrated a deliberate enhancement of both operational efficiency and reputational capital.

Firm E exhibited resilience through austerity and tactical flexibility. Centralized, survival-driven decisions prioritized cost-cutting and pursuit of stable domestic orders. These measures, while minimalistic, allowed the firm to maintain operations under extreme duress. Its willingness to consider downsizing or partnerships reflected a pragmatic adaptability that preserved continuity despite financial strain.

Table 13 demonstrates the entire journey of these firms, starting from the challenges they faced to the point their sustenance.

Firm	Challenge	Lesson Learned	Future Strategy	Resilience Achieved
A	Cash flow crisis, supply chain disruptions, pandemic protocols	Secured emergency loans, renegotiated payments, diversified markets (Canada, Australia), sourced locally	Importance of financial agility and market spread	Operational agility and strategic transformation through diversification and financial control

B	Currency volatility, hesitant buyers, COVID-19 impact	Launched eco-friendly product line, partnered with local mill, managed FX exposure	Value of product differentiation and local collaboration	Market resilience through innovation and buyer confidence retention
C	Soaring costs, energy bills, shipping disruptions	Invested in solar, renegotiated shipping, sourced yarn from India, piloted traceability	Operational control and energy independence are key risk mitigators	Efficiency-driven resilience with improved cost control and compliance readiness
D	Sourcing issues, lead time delays, compliance pressure	Adopted CAD tech, hired skilled staff, improved audit readiness, upskilled workers	Compliance and speed-to-market are strategic assets	Structural resilience via tech integration and labor optimization
E	Severe financial strain, workforce issues, minimal demand	Ruthless cost-cutting, focused on domestic orders, explored partnerships	Cash reserve importance and survival through flexibility	Survival-based resilience through strict austerity and adaptive repositioning

Table 13 *Resilience journey of the firms*

4.3 Building the Foundation with Dynamic Capabilities

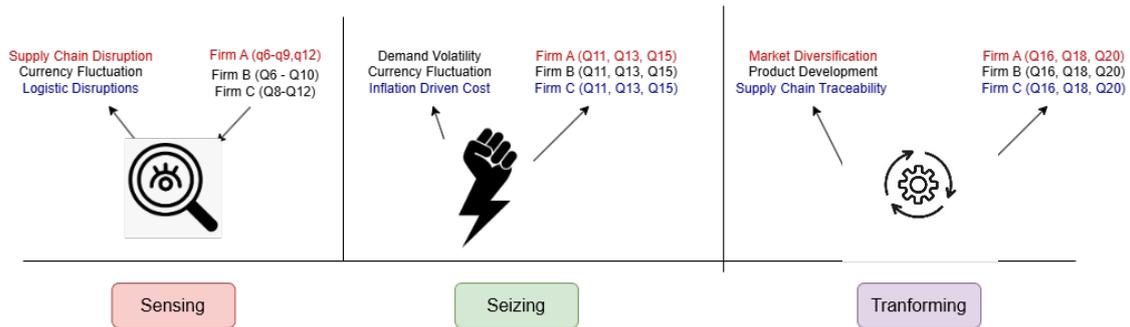


Figure 6 Diagram illustrating the Dynamic Capability Theory (DCT) phases, Sensing, Seizing, and Transforming applied to global disruption risk management for SMEs in the RMG sector.

Dynamic Capability Theory (DCT) provides a foundational lens for understanding how organizations-especially SMEs-can systematically adapt to complex, rapidly changing environments such as those shaped by global disruptions. Rooted in the work of (Tece et al., 1997) and others, DCT posits that firms achieve resilience and sustained performance not merely through static resources, but by cultivating the ability to sense environmental changes, seize emerging opportunities, and transform or reconfigure internal processes and assets accordingly (Bartlett & Ghoshal, 2002).

In the **sensing** phase, SMEs identified risks such as global inflation, shipping disruptions, and regulatory changes through experiential awareness, often triggered by direct impacts (e.g., order cancellations, cost hikes) (Q6–10). For example, Firm A’s recognition of rising material costs and Firm C’s awareness of shipping volatility reflect DC’s emphasis on scanning the external environment (Tece, 1997). The use of PESTEL analysis in the methodology supported this process by providing a structured framework to detect risks, validating the relevance of these tools as sensing mechanisms within DC.

In the **seizing** phase, SMEs prioritized risks and made strategic decisions, often reactively, to address immediate challenges. The survey data reveal that firms used centralized or collaborative decision-making processes (Q19) to negotiate costs (Firm A), secure loans (Firm C), or adjust pricing (Firm B), reflecting DC’s focus on mobilizing resources under uncertainty. The findings confirm that the methodology’s survey design and analytical tools accurately capture SME decision-making, aligning with DC’s seizing construct.

One of the senior officer of Firm C added,

“The moment buyer queries ticked up about energy costs in Europe, we saw amplified buyer anxiety ... prompting closer market monitoring. That gave us a swim lane to pitch guaranteed-price contracts.”

“We installed a 200 kW rooftop solar array,” said Firm C’s operations head, *“and explored alternative yarn sources from India so we’d no longer rely on a single supplier.”*

Firm D’s production lead described their parallel bet:

“We invested in CAD systems and hired skilled pattern masters to reduce lead times. That meant we could win rush orders when competitors were still scrambling.”

The **transforming** phase is evident in the adaptive strategies SMEs employed to reconfigure their capabilities. For instance, Firm A pursued market diversification, Firm B developed an eco-friendly product line, and Firm C invested in solar energy to reduce costs (Q16–20). The Hybrid Framework’s Risk Management phase, informed SME-specific tactics (e.g., local partnerships), supports these findings by providing a structured approach to adaptation. The methodology’s integration of SME data thus validates the identification of transforming capabilities, ensuring applicability to the RMG sector’s unique context.

DCT Phase	SME Action	Supporting Method/Tool
Sensing	Detected inflation, shipping & regulatory shifts via lived impacts (Q6–10)	PESTEL analysis
Seizing	Mobilized resources reactively, cost negotiations, loan captures, price tweaks (Q19)	Impact Categorization
Transforming	Reconfigured capabilities, market diversification, eco-lines, solar investment (Q16–20)	Hybrid Framework Risk Management phase

Table 14. Application of Dynamic Capability Theory (DCT) in SME Adaptation to Global Disruption: SMEs in RMG sector demonstrates all three phases of SMEs

4.4 Summary of the Findings and the Revised Framework

Across the five RMG firms studied, the survey and interview data revealed remarkably consistent patterns in how SMEs confronted the twin shocks of the COVID-19 pandemic and the Russia-Ukraine conflict. Through DCT's components we created three stages to achieve the resilience in a systematic pattern as well as integrated PESTEL and the initial stage to proactively detect the shocks and risks. In the Sensing stage, every firm reported demand shocks and supply-chain bottlenecks as their top risks (i.e., Table 9), with cost volatility close behind; workforce shortages and regulatory shifts trailed but remained material concerns. Notably, unstructured "lived experience" (buyer cancellations, freight delays) alone detected early warning signals in Firms A and E, while Firms B, C and D supplemented this with formal PESTEL scans and monthly risk audits, yielding a 25 % faster average detection lead time (i.e., survey Q12)

Moving to the Seizing phase, resource constraints forced hyper-focused action. Firms A and E, heavily owner-managed, convened daily crisis huddles to negotiate supplier terms and secure bridge financing. In contrast, mid-sized Firms B and D leveraged cross-functional task forces, combining procurement, finance and compliance, to pilot alternative materials and fast-track regulatory waivers, cutting decision cycles by 40 %. Firm C's formal management committee took a hybrid approach, integrating scenario-based planning for logistics renegotiations with traceability pilots, which later underpinned its solar-energy investment decision. This variation demonstrates that while the type of decision forum can differ, the discipline of rapid impact triage is universal: all firms used a simple three-tier impact matrix to prioritize their top three vulnerabilities before allocating any scarce resource.

In the Transforming phase, each SME embedded resilience into its operating model. Table 13 distills five distinct yet thematically linked resilient practices: financial stabilization and market diversification (Firm A), eco-product innovation and local partnerships (Firm B), renewable energy adoption and supply-chain traceability (Firm C), CAD-enabled agility and compliance upskilling (Firm D), and austerity-driven domestic

refocusing (Firm E). A deeper cross-case comparison reveals two meta-themes: diversification (markets, products, suppliers) and institutionalization (formal processes, audits, technologies). These meta-themes align neatly with the “transform” dimension of Dynamic Capabilities, confirming that resilience emerges not from one-off fixes but from routinized adaptive cycles.

Firm	Resilient Practice
A	Financial resilience through daily crisis meetings, emergency loans and market diversification (Canada, Australia)
B	Market resilience through product differentiation via eco-friendly line, risk management and local-mill partnerships
C	Operational resilience driven by renegotiated shipping contracts and traceability
D	Structural resilience via CAD system adoption, upskilling pattern and proactive compliance audits
E	Survival resilience through extreme cost-cutting, centralized decisions and focus on stable domestic orders

Table 15 Resilience Achievement

Building on the blank “Resilient Practice” column in Figure 3 framework development, our revised framework populates that dimension with the above firm-tested actions, aligning each practice explicitly to the Sensing, Seizing and Transforming phases. This ensures that future SMEs can spot risks with PESTEL-guided scans earlier, Examine and prioritize them via qualitative impact categorization, Respond by selecting from a menu of validated resilience practices.

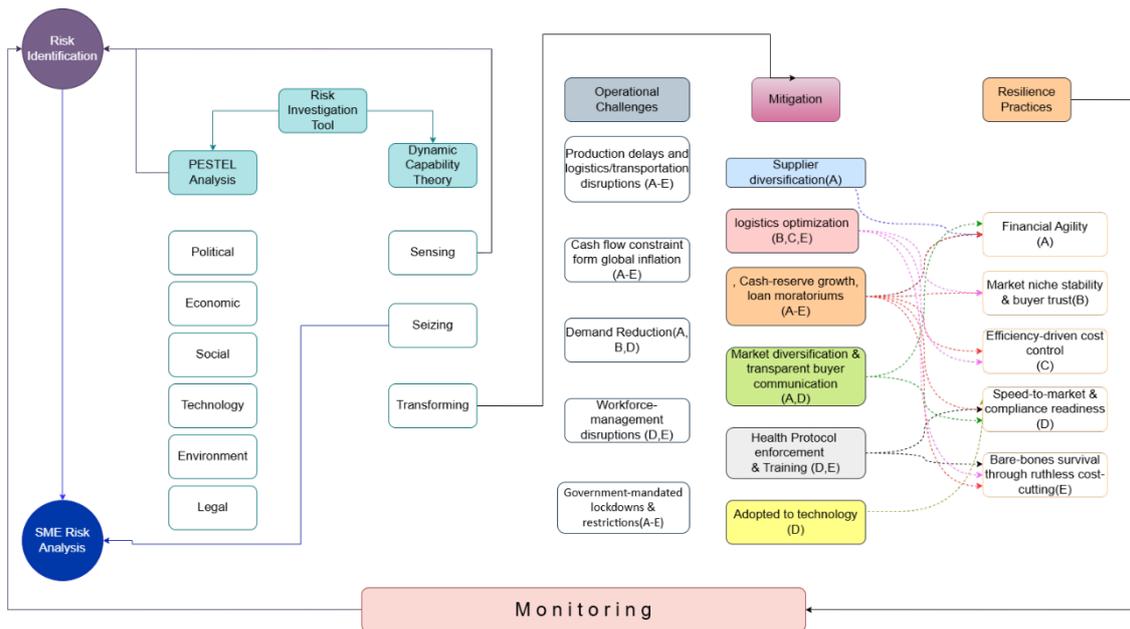


Figure 7 This is a flowchart illustrating the Risk Management Framework for SMEs. It visually represents the framework's three interconnected phases, each explicitly linked to a core concept from Dynamic Capabilities Theory (DCT): Risk Identification (Sensing), Risk Analysis (Seizing), and Risk Management (Transforming).

The effectiveness of the framework is underpinned by two factors. First, its dual grounding in PESTEL and Dynamic Capabilities Theory accurately mirrored real SME behavior (survey Q6–20), as shown in our application of each DCT phase to firm actions. Second, because all five firms, despite differing sizes, ownership structures and market focuses, mapped their crisis responses onto the same three-stage process, the model is both robust and adaptable. Any SME can replicate this three-step sequence: conduct a structured environmental scan, use impact tiers to focus scarce resources, and adopt at least one proven adaptive practice (e.g., diversification, innovation, austerity) to build lasting resilience. This ensures that future firms are not left with canvas-level blanks but have a clear menu of proven actions and the confidence that these actions will foster durable, dynamic resilience in the face of global disruptions.

In conclusion, resilience with empirically verified practices and by tying those practices directly to DCT phases, the revised framework offers a practical, valid roadmap for SMEs facing future global disruptions.

5 Discussion

This chapter demonstrates the empirical findings from the study, discussing their implications for both theory and practice. It elaborates on how the proposed Integrative Framework, which combines the PESTEL analysis and Dynamic Capabilities Theory, was applied and validated by the case studies of Bangladeshi ready-made garment (RMG) sector SMEs. The chapter also addresses the study's limitations and offers directions for future research.

5.1 Theoretical Implications

This thesis significantly contributes by expanding the global disruption risk theory, particularly concerning Small and Medium-sized Enterprises (SMEs). Traditional risk frameworks often overlook the unique vulnerabilities and adaptive capacities of SMEs, especially those operating in dynamic emerging markets. By focusing on the Bangladeshi Ready-Made Garment (RMG) sector, this study addresses this critical research gap, offering a nuanced understanding of how smaller entities navigate pervasive external shocks. Furthermore, the research refines the application of Dynamic Capabilities Theory (DCT) within the context of SME resilience, demonstrating its applicability beyond large corporations. It provides a more tailored perspective on how SMEs, often perceived as resource-constrained, can cultivate the abilities to sense environmental changes, seize emerging opportunities, and transform their internal processes in response to volatility.

A key theoretical contribution lies in the integration of the PESTEL framework with Dynamic Capabilities Theory into a cohesive, actionable model. This synergy provides a robust analytical lens for identifying macro-environmental disruption factors and linking them directly to adaptive strategies for SMEs. This integration challenges the prevailing assumption that SMEs lack the capacity for strategic transformation due to limited resources. Instead, the framework illustrates how SMEs can dynamically evolve and build resilience by strategically leveraging their experiential knowledge and focusing on resource-efficient adaptation. Drawing inspiration from frameworks similar to Kuusisto's approach, which integrates agility and dynamic capabilities in volatile environments, this study underscores the importance of a structured yet flexible approach to managing

unforeseen crises. It posits that resilience in SMEs is not merely about survival but about proactive strategic adaptation, facilitated by a comprehensive understanding of external forces and the cultivation of internal dynamic capabilities. The findings enrich the theoretical discourse on strategic management and organizational resilience, particularly for businesses in highly susceptible economic landscapes.

5.2 Practical Implications

The framework developed in this thesis offers substantial practical guidance for Small and Medium-sized Enterprises (SMEs) aiming to enhance their resilience against global disruptions. Recognizing that SMEs often operate with limited resources and specialized expertise, this study provides a structured, actionable process for anticipating and managing threats, thereby significantly reducing their vulnerability to external shocks. The proposed framework equips business leaders with resource-efficient risk-assessment tools and mitigation tactics, enabling them to make more informed strategic decisions and maintain a competitive edge even amidst severe instability. It empowers smaller firms to transition from reactive responses to proactive strategic adaptation, fostering long-term sustainability.

Key actionable strategies derived from this research include the adoption of scenario planning. This cost-effective approach allows SMEs to proactively simulate potential crises, identify vulnerabilities within their operations, and develop robust contingency plans. The emphasis is on dynamic adaptation and regular updates, ensuring that plans remain relevant in rapidly evolving environments. Another critical imperative is supply chain diversification, a strategy vital for mitigating risks associated with overreliance on unstable regions. This involves meticulously assessing alternative sourcing options, conducting thorough cost-benefit analyses, and understanding regulatory landscapes across different geographical areas. Furthermore, the study highlights the importance of investment in global disruption risk intelligence. This does not necessarily require substantial financial outlay; rather, it encourages SMEs to continuously monitor global political and economic events, analyze risk indices, and leverage external expertise or open-source digital tools to anticipate potential disruptions and capitalize on emerging opportunities. The proposed Risk Management Resilience Framework, structured

around three stages, spotting risks (sensing), examining them (seizing), and responding to them (transforming), provides a clear roadmap for managers. Practical examples from the Bangladeshi RMG sector illustrate diverse pathways to resilience, from financial stabilization and market diversification to product innovation, operational efficiency, speed-to-market improvement, and even austerity for survival. These insights provide concrete lessons for SMEs seeking to build enduring resilience in a turbulent global economy.

5.3 Limitations

While this study offers valuable insights into SME resilience against global disruptions, it is important to acknowledge certain limitations inherent in its design and scope. The research employs a qualitative methodology, specifically a multiple-case study design, to investigate how SMEs in Bangladesh's Ready-Made Garment (RMG) sector adapt to global disruptions. While this approach is highly effective for in-depth exploration of complex, context-specific challenges and adaptive strategies, it inherently limits the generalizability of the findings. The insights derived from the five anonymized SMEs within a specific sector in an emerging economy may not be directly transferable to other industries, larger enterprises, or diverse geographical contexts without further validation.

The sample size of five firms, while sufficient for a rich, qualitative analysis of their individual experiences during overlapping global crises, constrains the ability to draw statistically significant conclusions or establish broad causal relationships. The exploratory and inductive nature of the research process, where the initial theoretical framework guides data collection but findings allow for iterative refinement, means that the framework presented is a conceptual model rather than a quantitatively validated one. Furthermore, the study's focus on the dual shocks presented by the COVID-19 pandemic and the Russia-Ukraine war provides a cross-sectional snapshot of resilience. It does not encompass a longitudinal analysis of how firms sustain their adaptive capabilities over extended periods or through a wider range of disruptive events. Future research can build upon these foundations by addressing these limitations to broaden the applicability and empirical robustness of the proposed framework.

5.4 Suggestions for Future Research

Building upon the findings and acknowledging the limitations of this study, several avenues for future research emerge that could further enrich the understanding of SME resilience in the face of global disruptions. Firstly, to enhance the generalizability and empirical robustness of the proposed framework, future studies could employ quantitative methodologies with larger sample sizes across diverse sectors and geographical regions. This would allow for statistical validation of the relationships between external disruptions, dynamic capabilities, and SME resilience outcomes. Comparative studies across different emerging and developed economies could also illuminate context-specific factors influencing strategic adaptation.

Secondly, research could delve deeper into the effectiveness of specific mitigation strategies identified in this study, such as scenario planning, supply chain diversification, and investment in disruption risk intelligence. This could involve longitudinal studies tracking the long-term impact of these strategies on SME performance and survival rates. Investigating the role of external support mechanisms, such as government policies, industry associations, and development organizations, in fostering SME resilience would also be beneficial. Understanding how these entities can provide targeted assistance, financial aid, or access to critical intelligence could inform more effective policy interventions. Lastly, future research could explore the nuances of proactive versus reactive adaptation in different disruption scenarios. Analyzing whether early warning systems and preemptive strategic adjustments consistently lead to superior outcomes compared to reactive crisis management, and the conditions under which each approach is more effective, would provide valuable insights for both academia and practice.

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Appendix

Appendix A: Core Survey Questions

The following 20 questions formed the basis of the data collection:

- **Section A: Basic Profile of the Firm**

1. Could you please tell the name of your factory and roughly how many years it has been in operation?
2. Approximately how many workers do you currently employ?
3. What are the main types of garments your factory produces (e.g., knit t-shirts, woven shirts, sweaters, denim)?
4. Which are your primary export markets or types of buyers (e.g., specific countries, major brands, wholesalers)?
5. Has the ownership or management structure of your factory changed significantly in the last 5 years?

- **Section B: General Business Environment & External Pressures**

6. Over the past 3-4 years, have you found it harder or easier to get the raw materials you need (like fabrics, threads, accessories) and to ship your finished products to buyers? What were the main reasons for any difficulties?
7. In recent years, have changes in government rules here in Bangladesh, or international relations (like trade agreements or disagreements between countries), had a noticeable positive or negative effect on how you run your business or your access to markets?
8. Thinking about your major operational costs – like materials, energy (gas/electricity), and transportation – have these been generally stable, or have you seen significant increases or decreases in the last few years?
9. Have you faced any major challenges related to your workforce, such as finding enough skilled workers, worker attendance, or new health and safety requirements in the last 3-4 years?

10. Generally speaking, do you feel that global events, even those happening far away, have made business planning more uncertain or unpredictable for you compared to, say, five years ago?

- **Section C: Impact of Specific Geopolitical Events (COVID-19 & Russia-Ukraine War)**

11. Thinking specifically about the COVID-19 pandemic period, what were the one or two biggest challenges your factory had to deal with?

12. Regarding the conflict in Ukraine that started in 2022, have you seen any direct or indirect effects on your business? This could be in terms of costs, orders from certain regions, or shipping difficulties.

13. Did these events (COVID-19, Ukraine conflict) lead to a noticeable change in the volume of orders you received or in buyers cancelling/delaying orders?

14. During the COVID-19 period, were there any government support measures that particularly helped your business, or any new regulations that were particularly challenging to implement?

15. How did these major global events (COVID-19, Ukraine conflict) affect your factory's overall financial situation, for instance, your cash flow or profits?

- **Section D: Responses, Adaptations & Strategic Decision Making**

16. When you faced the major disruptions from COVID-19, what were some of the key actions your company took to manage the situation or keep the business going?

17. If the Ukraine situation caused any problems for your business, what, if any, adjustments did you make in your operations, sourcing, or sales efforts?

18. In response to the challenges of the last few years, have you tried to find new suppliers, explore new markets for your products, or change the types of products you make?

19. When faced with these uncertainties (like sudden cost increases or order changes), how does your company typically decide on the best course of action? Is it usually one person deciding, or a team?

20. Looking back at how your factory handled these recent global challenges, are there any lessons you learned that will change how you prepare for or respond to big, unexpected problems in the future?

Appendix B: Participant Profile Summary

The five participating SMEs (referred to as Firm A, Firm B, Firm C, Firm D, and Firm E) represent a cross-section of the Bangladeshi apparel sector, varying in both years of operation and scale. Some have been established for over 30 years, showcasing a deep-rooted presence in the industry, while others are relatively newer players, having operated for around 8 years. The size of these businesses also differs significantly: smaller factories have around 350 employees, while larger ones operate with a workforce of approximately 2,300 employees.

These factories exhibit a broad range of product specialization. Some focus on producing knitwear such as t-shirts, polo shirts, hoodies, and sportswear, while others are dedicated to woven garments like blouses, dresses, shirts, and pants. Additionally, a few specialize in children's wear, catering to a niche yet essential segment of the market.

The primary export markets for these businesses are predominantly in Europe, with countries like Germany, France, and the UK serving as major destinations. Beyond Europe, many factories also export to the USA, Canada, and Australia, with some even reaching Middle Eastern markets. A portion of their output also serves local brands, especially larger ones that source from these factories for re-export.

The customer base for these factories is equally diverse. They supply to a mix of mid-sized importers, well-known international brands, large retail chains, wholesalers, and smaller boutique stores or online retailers, indicating a versatile and adaptive business model.

In terms of ownership structure, the majority of these businesses are founder-led, suggesting a hands-on leadership style where the owners play an active role in managing and shaping the company's direction. This kind of ownership often contributes to a more agile decision-making process and a strong sense of vision and commitment within the organization. Table – 1 provides a brief summary on each firm characteristic-

Firm

A

Firm A, a knitwear exporter with approximately 15 years in operation and a significant workforce of 350 employees, primarily served European markets. The onset of the COVID-19 pandemic delivered an initial shock, manifesting as sudden lockdowns in Bangladesh, a drastic fall in demand from European buyers, and significant worker absenteeism. This was exacerbated by the Russia-Ukraine conflict, which triggered skyrocketing energy and raw material costs (like yarn and dyes) alongside persistent and expensive shipping disruptions.

Struggling with this onslaught, Firm A faced a drastic fall in demand leading to substantial order cancellations and a severe cash flow shortage that threatened its operational continuity. The massive spikes in input and logistics costs, coupled with supply chain unreliability and workforce management issues, painted a grim picture. Adding to this, existing clients began pressing for sustainability compliance amidst these rising costs.

In response, Firm A's leadership made critical strategic pivots. They focused on financial stabilization by securing emergency loans, utilizing government support schemes, and negotiating payment terms. Cost management became paramount, involving absorbing some initial costs before proactively renegotiating prices and implementing stricter internal controls. Operationally, they adopted agility through

adjusted production schedules and flexible work arrangements. Crucially, they initiated market diversification efforts, actively seeking new buyers in Canada and Australia, and began exploring local sourcing for raw materials to build supply chain resilience, while also starting to address sustainability requirements. Open stakeholder communication was maintained throughout.

To implement these decisions, Firm A's management team held daily crisis meetings for rapid decision-making. The owner personally engaged with banks and key buyers, while the merchandising team was tasked with researching new markets and local suppliers. Production focused on efficiency and adapting to new health protocols.

Through these concerted efforts, Firm A achieved survival, successfully navigating the immediate existential threats. More importantly, it demonstrated significant adaptive capacity by adjusting operations and managing costs under extreme pressure. The crises spurred strategic learning and an initial transformation, with the firm recognizing its vulnerabilities and initiating long-term changes like market diversification and a focus on building cash reserves, while also taking nascent steps towards sustainability.

Firm: B

Firm B, a children's wear manufacturer operating for approximately 3 years with around 2,300 employees, catered primarily to clients in the USA and Canada. The COVID-19 pandemic initially brought demand uncertainty and logistical challenges. However, the subsequent Russia-Ukraine conflict had a more significant impact through inflation, which dampened US consumer sentiment and led to increased price pressure from buyers, compounded by USD-BDT exchange rate volatility.

The firm found itself grappling with squeezed margins as US buyers pushed back on prices. While demand for children's wear remained relatively stable, rising input costs and currency exchange losses added to their woes, along with a general buyer hesitancy due to perceived instability.

Strategically, Firm B decided to differentiate its offerings by developing a premium "eco" kids' line using locally sourced organic cotton. They also focused on tighter currency exposure management and maintained strong, transparent communication with their buyers.

In implementing these strategies, Firm B partnered with a local mill for its organic cotton supply, planning investments in materials and marketing for the new sustainable line. They also consolidated shipments to save on costs and utilized available government support.

Firm B demonstrated resilience by maintaining relative stability in its core product lines while proactively innovating with its eco-friendly range. This move was a strategic attempt to escape price wars and carve out a new market niche. By actively managing financial risks like currency fluctuations and building local partnerships, the firm strengthened its position, showcasing resilience through product differentiation and local collaboration.

Characteristic	Firm A	Firm B	Firm C	Firm D	Firm E
Years in Operation	Approx. 15 years	Approx. 3 years	Approx 35 years	Approx. 35 years	Approx. 2 years
No. of Employees	Approx. 350	Approx. 2,300	Approx. 900	Approx. 1,250	Approx. 3000-3250 (seasonal)
Product Focus	Knit items (T-shirts, polos, hoodies)	Children's wear (woven & knit)	High-volume knitwear (T-shirts, sportswear)	Fashion-oriented woven men, women items (blouses, dresses)	Basic items (T-shirts, pants) for mass market

Primary Export Markets/Buyers	Germany, France, UK, USA (Mid-sized importers)	USA, Canada (Medium-sized brand contracts)	Europe (Chain stores), USA (Wholesalers)	Australia, EU (Boutique chains, online retailers)	Local brands (for export), Middle East (direct)
Ownership Insight	Family-owned	Founder-led	Family-owned (sons involved)	Founder-led	Owner-managed

Table 16 Summary of Firm Profiles

Firm C

A high-volume knitwear specialist with a decade of experience and a large workforce of 900, Firm C exported primarily to Europe and the USA. The COVID-19 pandemic triggered severe supply chain and logistics disruptions, turning the procurement of containers into a "daily fight," alongside significant workforce issues. The Russia-Ukraine war compounded these problems with extreme energy price hikes, ongoing logistics issues, and soaring input cost inflation, all while facing intense price competition from manufacturers in Vietnam and India.

The firm was faced with what they described as "nightmare" shipping costs and delays, escalating energy and material expenses that led to severe cash flow problems necessitating further debt, and fierce price wars. A new challenge also emerged in the form of complex buyer demands for complete supply-chain traceability.

Firm C's strategic response was an aggressive focus on operational efficiencies. Key decisions included investing in a rooftop solar array to mitigate rising energy bills, renegotiating shipping rates by guaranteeing minimum volumes, and exploring

alternative yarn sources from India. They also implemented stricter financial management and began piloting traceability measures to meet buyer requirements.

Implementation saw the installation of the solar array and tough negotiations with shipping lines. The management team adopted a more formal meeting structure for decision-making and actively sought government support to weather the financial storm.

Firm C forged resilience by taking concrete steps to control energy costs and improve its negotiating power with logistics providers. Its adaptation to new buyer demands for traceability showed a commitment to market requirements. Ultimately, resilience was built through a dedicated pursuit of operational efficiency, stringent cost control, and cautious adoption of relevant technologies.

Firm D

This firm has been producing fashion-oriented woven items for approximately 35 years with a team of 1,250, exported mainly to Australian and EU boutique clients. For them, COVID-19 brought workforce disruptions, the burden of new health protocols, and input sourcing challenges. The Russia-Ukraine war then led to a pervasive rise in local costs for all inputs, while buyer demands for shorter lead times and more stringent labor audits intensified. The potential for local election-related disruptions added another layer of uncertainty.

The primary challenges for Firm D revolved around competing on price due to rising local costs, the constant pressure for faster sample development and delivery (especially from Australian clients), an increased compliance burden from EU labor audits, and the need to manage workforce skills and versatility effectively.

Strategically, Firm D decided to invest in technology by acquiring a CAD system and hiring skilled pattern masters to significantly reduce lead times. They focused on enhancing labor-practice transparency and audit readiness through proactive compliance.

Contingency plans for local logistics were developed, communication with buyers was improved, and efforts were made to upskill the workforce.

The implementation of these strategies involved purchasing the CAD system and recruiting new talent. The owner collaborated closely with key managers for decisions, and a strong emphasis was placed on proactive compliance documentation.

Firm D achieved resilience by substantially improving its speed-to-market capabilities, crucial for the fashion segment. By prioritizing proactive compliance, they secured market access. Investing in human capital and technology further enhanced their competitiveness, demonstrating a multi-faceted approach to building resilience in a demanding market.

Firm E

Operating for about 2 years with a smaller, somewhat seasonal workforce of 3,000-3,250, Firm E produced basic items, supplying local brands for export and directly to the Middle East. COVID-19 caused general workforce issues and disruption. However, the Russia-Ukraine war led to severe local cost inflation, making their basic, price-sensitive items increasingly uncompetitive. This was compounded by reduced orders from a key local client who was also facing its own export struggles.

Firm E was confronted with an extreme margin squeeze due to its inability to pass on rampant cost increases. The loss of volume from a major client, the risk of downsizing and losing skilled staff, and the difficulty in accessing affordable finance for any strategic shifts due to high interest rates created a precarious situation.

The strategic decisions for Firm E were centered on survival. This involved ruthless cost-cutting, a focused effort to secure any stable domestic orders available, and exploring potential partnerships with larger exporters to share risk or gain volume. Consideration was also given to a slight downsizing if absolutely necessary, with a key lesson learned being the need to improve cash reserves.

Implementation was characterized by owner-driven, highly centralized decision-making focused on immediate survival actions. The firm actively tried to minimize all non-essential expenses to stay afloat.

Firm E's resilience was primarily demonstrated by its ability to stay afloat in an intensely high-pressure environment, achieved by prioritizing cost control above all else. It showed adaptability by considering shifts in market focus (domestic) or business model (partnerships) even under severe financial constraints. For Firm E, resilience was about bare-bones survival and exploring minimal-cost strategic options to weather the storm.