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Cascading Conflicts:
How Regional Wars Disrupt Global Supply Chains and Retail Operations

A multi-case analysis of geopolitical disruptions and their downstream commercial impact.

Whitepaper



An RPG Company

Abstract

This paper examines how armed conflicts in geographically concentrated regions produce cascading disruptions across global supply chains and retail operations far beyond the immediate theater of war. Drawing on case studies from the Russia-Ukraine conflict (2022-present), the Israel-Hamas conflict (2023-present), and the Red Sea shipping crisis (2023-2024), this research analyzes mechanisms through which regional wars translate into fuel price volatility, commodity shortages, logistics rerouting, inventory distortions, and consumer price inflation across international markets. The study synthesizes evidence from peer-reviewed literature, industry reports, and practitioner insights spanning retail, logistics, and supply chain management to construct a multi-layer disruption framework. Findings indicate that global supply chains remain structurally exposed to conflict-induced shocks through three primary pathways: resource dependency corridors, logistics chokepoints, and financial contagion via commodity markets. The paper concludes with strategic and operational recommendations for retailers and supply chain practitioners seeking resilience amid persistent geopolitical instability.

Keywords

Supply chain disruption, geopolitical risk, retail operations, war economics, logistics resilience, commodity volatility, inventory management, Red Sea crisis, Ukraine war, nearshoring, supply chain diversification

01. Introduction

The globalization of trade over the past four decades has created unprecedented supply-chain efficiencies but has also introduced systemic vulnerabilities to geopolitical shocks. When armed conflict erupts in one region, its economic aftershocks rarely remain contained. Modern supply chains are deeply interconnected webs of raw material sourcing, manufacturing, logistics infrastructure, and distribution networks that span continents. A conflict that destroys a port, restricts airspace, disrupts agricultural output, or triggers sanctions on a major trading nation does not merely harm the combatants; it reverberates through every business dependent on those nodes.

The period between 2022 and 2024 has provided an unprecedented natural experiment in conflict-driven supply chain disruption. The Russian invasion of Ukraine in February 2022 delivered immediate shocks to global wheat, sunflower oil, fertilizer, and energy markets. The subsequent conflict in Gaza in October 2023 and the retaliatory Houthi attacks on Red Sea shipping lanes compounded existing fragilities, forcing major container lines to reroute around the Cape of Good Hope, adding thousands of miles, weeks of transit time, and billions of dollars in freight costs.

Retailers and supply chain professionals worldwide, from large-format grocers to fashion apparel companies to automotive parts distributors, have had to navigate cascading disruptions that few had modeled in their risk frameworks. This paper systematically analyzes these impacts, identifies structural vulnerabilities, and offers a practitioner-informed perspective on resilience strategies grounded in both academic literature and real-world operational experience.

02. Problem statement

Despite the evident impact of geopolitical conflicts on supply chains and retail, the academic and practitioner literature has historically treated war as an exogenous shock rather than a structural risk requiring proactive management frameworks. The central problem this paper addresses is threefold:

- The mechanisms by which regional wars translate into supply chain and retail disruptions are not sufficiently mapped or understood in an integrated manner.
- Retailers and supply chain operators lack robust, evidence-based frameworks to anticipate, quantify, and mitigate conflict-driven disruptions.
- The asymmetric nature of conflict impacts, whereby wars in resource-rich or logistics-critical regions produce disproportionate global effects, is underappreciated in enterprise risk management practices.

Specifically, this research asks: Through which mechanisms do regional armed conflicts create measurable supply chain and retail disruptions in geographically distant markets, and what strategies most effectively mitigate these impacts?

03. Literature Review

3.1 Supply chain vulnerability and geopolitical risk

Sheffi (2005) established the foundational framework for supply chain resilience, arguing that companies must build redundancy, flexibility, and visibility into their networks to withstand disruptions. His work, while primarily focused on natural disasters and industrial accidents, laid the conceptual groundwork for understanding geopolitical shocks as disruption events. Subsequent scholarship expanded this framework to include political risk as a first-order concern (Christopher & Peck, 2004; Tang, 2006).

Zsidisin and Ritchie (2008) specifically addressed supply chain risk management as a discipline, cataloging risk types including supplier concentration, single-source dependencies, and geographic clustering of supply. Their framework has proven particularly relevant to conflict analysis, as the Russia-Ukraine war exposed extreme dependency on Eastern European agricultural and energy inputs across European and Middle Eastern supply chains (Glauber & Laborde, 2022).

3.2 War economics and trade

The economic literature on war and trade is extensive. Blomberg and Hess (2006) demonstrated that armed conflict reduces bilateral trade by approximately 25%, with effects persisting for years after hostilities end. Glick and Taylor (2010) found that war destroys trade through three channels: direct physical destruction of infrastructure, diversion of productive resources to military use, and uncertainty-driven reduction in private investment and commercial activity.

More recently, Kilic et al. (2022) analyzed the economic spillovers of the Ukraine war on European food systems, documenting supply shortfalls, price spikes, and retailer inventory challenges that spread well beyond the conflict zone. The International Monetary Fund (2022) projected that the war would cost the global economy $1.4 trillion in lost output by the end of 2023, with disproportionate impacts on food-importing developing nations.

3.3 Logistics chokepoints and maritime disruption

The Red Sea shipping lane, responsible for approximately 12%-15% of global trade by volume (UNCTAD, 2024), has been studied extensively as a critical chokepoint. Notteboom and Rodrigue (2005) identified chokepoints as the Achilles heel of global logistics, noting that geographic concentration of shipping routes creates systemic fragility. The Suez Canal, which the Red Sea feeds, handles roughly 30% of global container traffic (IMF, 2023).

The Houthi disruption of 2023-2024 provided real-time confirmation of these vulnerabilities. According to Kuehne+Nagel (2024), container shipping rates on the Asia-Europe route increased by over 200% between December 2023 and February 2024, as carriers rerouted around Africa. This rerouting added 10-14 days of transit time and increased fuel costs by an estimated 30-40% per voyage (Drewry, 2024).

3.4 Retail impact studies

Academic research specifically linking conflict to retail operations is more limited, though practitioner literature and industry reports are rich. Deloitte's 2023 Global Retail Outlook noted that geopolitical instability had become the top-ranked external risk for global retail executives, surpassing inflation and consumer sentiment for the first time. PwC's 2022 Global Supply Chain Survey found that 88% of retail supply chain leaders had experienced significant disruptions in the prior 24 months, with geopolitical events cited as the fastest-growing cause.

Scholarly work on retail resilience has focused primarily on demand forecasting under uncertainty (Syntetos et al., 2016), inventory buffering strategies (Silver et al., 2017), and supplier diversification (Choi & Linton, 2011). These frameworks provide the analytical toolkit for assessing retail responses to conflict-driven disruptions.

04. Methodology

4.1 Research design

This paper employs a qualitative multi-case study methodology, supplemented by quantitative data from industry reports, trade statistics, and commodity price indices. The case study approach suits examining complex, contextually embedded phenomena where purely quantitative methods struggle to isolate causal mechanisms (Yin, 2018). This paper analyzes three primary conflict cases: the Russia-Ukraine war (2022-present), the Israel-Hamas conflict and Red Sea crisis (2023-present), and the broader impact of sanctions regimes associated with both conflicts.

4.2 Model framework: The three-layer disruption model

Drawing on supply chain risk literature and practitioner experience, this paper proposes a three-layer disruption model to organize the analysis:

- **Layer 1: Resource dependency disruption**, which has a direct impact on raw materials, commodities, and energy sourced from or through conflict zones.
- **Layer 2: Logistics infrastructure disruption** that affects transportation routes, port access, airspace closures, and carrier capacity.
- **Layer 3: Financial and market contagion** that impacts through commodity price volatility, currency fluctuations, sanctions-driven trade restrictions, and investor uncertainty.

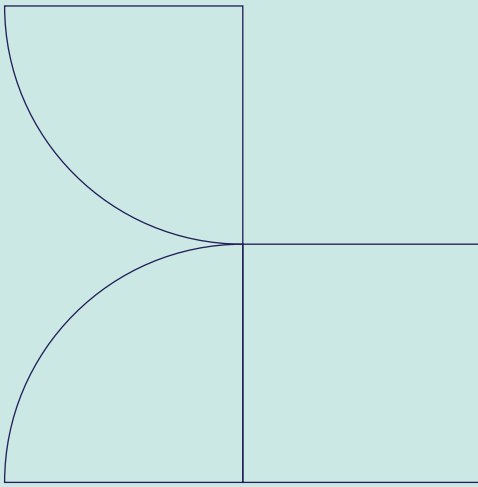
Each case study is analyzed through all three layers to map the pathway from conflict origin to retail and supply chain impact in distant markets.

4.3 Data sources

Primary data sources include: UNCTAD trade statistics (2022-2024); IMF commodity price databases; the Freightos Baltic Index for container shipping rates; the FAO Food Price Index; World Bank conflict and trade databases; and practitioner reports from Gartner, McKinsey, Deloitte, and PwC. Case-specific sources include reports from Drewry Shipping Consultants, Kuehne+Nagel, and IATA for logistics data.

4.4 Analysis strategy

Each case is analyzed using a structured narrative approach that traces the causal pathway from conflict event to supply chain node disruption to downstream retail impact. Cross-case comparison identifies common mechanisms and context-specific factors. The paper synthesizes findings into strategic implications using a practitioner-oriented lens informed by industry experience across major retail and supply chain deployments globally.



05. Experimental setup

5.1 Case selection and scope

Three conflict cases were selected based on their demonstrated global supply chain impact, availability of post-event data, and diversity of disruption mechanisms:

- **Case A:** Russia-Ukraine war (February 2022-present): Selected for its energy and agricultural commodity impacts on European and global supply chains.
- **Case B**: Israel-Hamas Conflict and Red Sea crisis (October 2023-present): Selected for its logistics chokepoint impact via Houthi attacks on Red Sea shipping lanes.
- **Case C:** Sanctions and trade fragmentation (2022-present): Selected to examine the secondary effects of financial and trade sanctions on supply chain configurations.

5.2 Evaluation dimensions

Each case is evaluated across the following dimensions: commodity price impact (percentage change in key indices), logistics cost impact (freight rate changes), lead time extension (days added to key trade routes), retail inventory impact (stockout rates, buffer stock changes), and strategic responses observed in industry (sourcing changes, supplier diversification, nearshoring).

5.3 Analytical parameters

The primary time window for quantitative data is January 2022 to December 2024, enabling pre-conflict baseline comparison for the Ukraine war and full-cycle analysis for the Red Sea crisis. Industry survey data from Gartner (2023) and McKinsey (2024) are used to assess practitioner responses and strategic adaptations across retail segments including grocery, apparel, consumer electronics, and automotive parts.

06. Results

6.1 Case A: Russia-Ukraine war, a resource dependency disruption

The Russian invasion of Ukraine in February 2022 produced immediate and severe commodity shocks across multiple categories. Ukraine and Russia together account for approximately 29% of global wheat exports, 19% of global corn exports, and 75% of global sunflower oil exports (FAO, 2022). Within weeks of the invasion, global wheat prices rose 55%, reaching $12.09 per bushel by May 2022, the highest level since 2008 (World Bank, 2022). Sunflower oil prices increased by over 60%, triggering product reformulations, rationing by European retailers, and ingredient substitutions across food manufacturing supply chains.

Energy markets experienced even more dramatic disruption. European natural gas prices increased by over 400% in the six months following the invasion, directly impacting the operating costs of manufacturers, logistics operators, and retailers across the continent. The European Retail Round Table (2022) reported that energy costs for large-format grocery retailers increased by 35%-60% in the 2022 fiscal year.

From a retail perspective, UK supermarkets including Tesco and Sainsbury's implemented purchase limits on sunflower oil within two weeks of the invasion. German retailers reported flour and cooking oil shortages within three weeks. The impact on food service supply chains was similarly acute, with restaurant chains reformulating menus and absorbing cost increases that eventually passed through to menu prices.

Fertilizer supply disruption created a secondary agricultural production shock with longer lag times. Russia accounts for approximately 22% of global ammonia exports and 15% of urea exports. Reduced fertilizer availability and higher prices in the 2022 growing season contributed to reduced crop yields in Asia, Africa, and South America, extending the food price inflation cycle into 2023 (IFDC, 2023).

6.2 Case B: Red Sea crisis, a logistics infrastructure disruption

The Houthi attacks on commercial shipping in the Red Sea, beginning in earnest in December 2023, triggered the most significant rerouting of global container shipping since the Suez Canal crisis of 1956. By January 2024, all five of the world's largest container carriers, Maersk, MSC, CMA CGM, Hapag-Lloyd, and COSCO, had suspended Red Sea transits, opting for the longer Cape of Good Hope route (UNCTAD, 2024).

The logistics impact was immediate and quantifiable. The Asia-Europe container route extended by about 9,000 nautical miles and added 10-14 days of transit time (Drewry, 2024). Spot freight rates on the Shanghai-Rotterdam corridor increased from approximately $1,500 per TEU in November 2023 to over $5,000 per TEU by January 2024, a 233% increase in eight weeks. Air freight rates on equivalent routes rose 30%-40% as shippers tried to bypass the sea freight bottleneck for high-value, time-sensitive goods.

For retailers, the impact showed up in three channels. First, inventory disruption: extended lead times forced retailers to either carry higher buffer stock (increasing working capital requirements) or accept higher stockout risk. Fast-fashion retailers, including Inditex (Zara) and H&M, publicly acknowledged 2-3-week lead-time extensions on Asian-sourced product lines. Second, cost inflation: rising freight costs translated directly into higher cost of goods for imported merchandise. For retailers with thin margins, including electronics and appliances, the freight cost escalation represented a material P&L impact. Third, seasonal alignment failures: time-sensitive retail categories including seasonal apparel, holiday merchandise, and promotional inventory were particularly vulnerable to lead time extensions, with some retailers receiving spring merchandise in summer.

6.3 Case C: Sanctions and financial contagion

The sanctions imposed on Russia following the invasion, including removal from SWIFT, asset freezes, and sector-specific trade restrictions, produced financial contagion effects that extended supply chain disruptions beyond the direct commodity and logistics impacts. Russian counterpart sanctions on Western companies created a complex web of supply chain restructuring requirements, particularly for European manufacturers dependent on Russian titanium, palladium, and rare earth inputs.

The automotive sector provides a particularly illustrative case. Russian palladium accounts for approximately 40% of global supply, and palladium is a critical input for catalytic converters. BMW, Volkswagen, and Stellantis each disclosed supply risk in their 2022 annual reports and accelerated supplier diversification programs to South African and North American sources (KPMG, 2023). These transitions involved 12-24 month lead times, during which production planning remained constrained.

Currency volatility associated with conflict-driven uncertainty further complicated retail supply chain economics. The Russian ruble, Ukrainian hryvnia, and currencies of neighboring economies experienced significant volatility, creating hedging challenges and cost uncertainty for retailers operating in or sourcing from affected regions.

07. Discussion

The three cases analyzed demonstrate that the mechanisms connecting regional armed conflict to global supply chain and retail disruption are consistent, measurable, and operate across multiple layers simultaneously. The Three-Layer Disruption Model proposed in this paper effectively captures the primary pathways: resource dependency disruption (Case A), logistics infrastructure disruption (Case B), and financial contagion (Case C).

A critical observation across all three cases is how quickly shocks spread. Modern supply chains are tightly coupled systems with limited slack; the 'just-in-time' philosophy that drove efficiency gains over the past three decades also reduced the system's capacity to absorb shocks. When a conflict event disrupts a node in this system, the impact propagates rapidly through the network, often faster than organizations can respond.

The asymmetry of impact is also notable. Countries and companies that over-concentrated their sourcing, logistics, or financial exposure in or near conflict zones suffered disproportionately compared with those with more diversified networks. This finding aligns with Sheffi's (2005) resilience framework and practitioners' experience at major retailers; those with multi-source supplier programs, dual-mode logistics capability, and geographically distributed inventory absorbed shocks more effectively.

From a retail operations perspective, the 2022-2024 conflicts have accelerated several strategic shifts already underway. Nearshoring and friendshoring, relocating supply chains to geographically or politically proximate regions, have gained urgency as risk mitigation strategies. Diversification of carrier relationships and logistics providers has become standard practice. And investment in supply chain visibility technology for real-time tracking and early warning of disruption has increased markedly across the retail sector.

08. Limitations

This study carries several important limitations. First, the case study methodology limits generalizability. While the cases analyzed are substantive and recent, they represent specific conflicts with particular geographic and economic characteristics. Not all regional conflicts will produce the same mechanisms or magnitudes of supply chain disruption.

Second, the quantitative data largely comes from industry reports and secondary sources, which may carry reporting biases or methodological inconsistencies. Academic-quality longitudinal datasets covering conflict-specific supply chain impact are not yet available for the most recent conflicts analyzed.

Third, the practitioner perspective embedded in this analysis, while valuable for real-world relevance, may reflect specific industry segments (large-format retail, enterprise supply chain technology) more than the experiences of small and mid-sized retailers who may lack the resources to implement the resilience strategies discussed.

Finally, the rapidly evolving nature of the conflicts analyzed means that some findings may be superseded by developments after the study's data cutoff. The Red Sea crisis in particular remains active, and its full impact on global trade patterns has not yet been resolved.

09. Conclusion

This paper has demonstrated that regional armed conflicts produce systematic, multi-pathway disruptions to global supply chains and retail operations through three primary mechanisms: resource dependency disruption, logistics infrastructure disruption, and financial contagion. The Russia-Ukraine war, the Red Sea shipping crisis, and associated sanctions regimes have collectively validated the structural vulnerabilities of globally integrated supply chains and exposed the inadequacy of pre-conflict risk management frameworks in most organizations.

The central argument of this paper that war in one region creates business impacts across the globe is not merely an observation of contemporary events but a structural feature of modern supply chain architecture. As long as supply chains remain concentrated around specific resource corridors, logistics chokepoints, and financial systems, geopolitical conflict in any of these nodes will generate downstream disruptions that reach retailers and consumers worldwide.

For supply chain and retail practitioners, the implication is clear: geopolitical risk must be elevated to a first-order consideration in supply chain strategy, network design, and risk management frameworks. The era of treating war as an unforeseeable 'black swan' event is over. Conflict-driven disruption is a recurring, predictable feature of the global trade environment that demands proactive structural responses.

10. Future work

This study suggests several avenues for future research. First, quantitative modeling of conflict-driven supply chain disruption using network analysis could provide more precise estimates of vulnerability and cascading effects across specific industry supply chains. Second, longitudinal studies tracking retailer performance before, during, and after conflict-driven disruptions would provide empirical evidence on the effectiveness of different resilience strategies. Third, the role of supply chain technology, including AI-driven demand sensing, real-time visibility platforms, and predictive risk analytics, in mitigating conflict-driven disruptions warrants dedicated investigation. Finally, comparative analysis of small and mid-sized retailers' responses to geopolitical disruption would address a significant gap in the current literature, which is heavily weighted toward large enterprise experience.

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Authored by

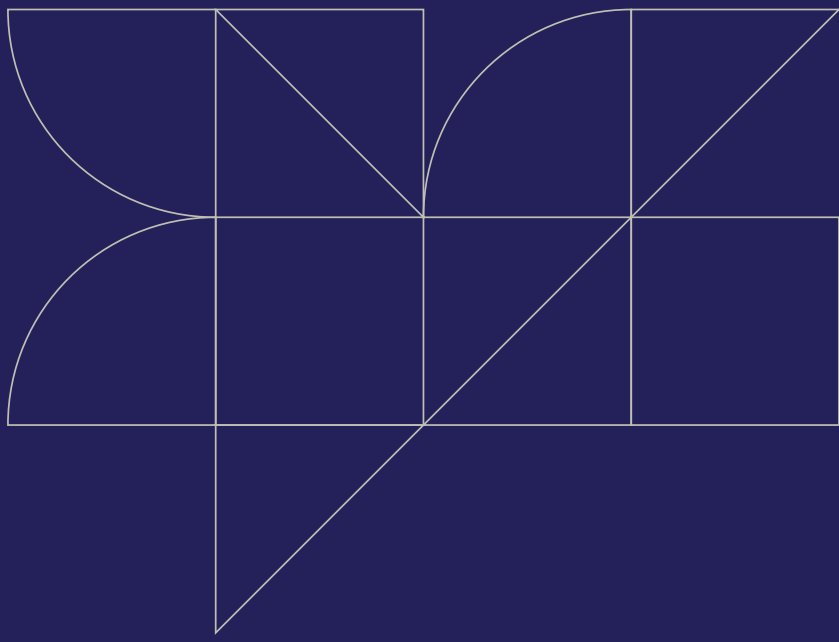
Ekta Agarwal,

Vice President,

Consumer Services & Manufacturing,

Zensar Technologies

ekta.agarwal@zensar.com



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