Non-Traditional Security Risks in Convenience Store Supply Chains and East Asian International Cooperation: A Case Study of 7-Eleven's Supply Chain

Jiahao Dai[1,*], Xi Wang[2] and Yike Wei[3]
[1]China University of Political Science and Law, Beijing, China
[2]Nanjing University, Nanjing, Jiangsu, China
[3]China Agricultural University, Beijing, China
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Keywords: Supply Chain Resilience, Non-Traditional Security, East Asia Regional Cooperation.

Abstract: Against the backdrop of the intertwined processes of globalization and regionalization, the supply chain systems of transnational convenience store enterprises are increasingly exposed to complex non-traditional security threats. This study takes the supply chain network of 7-Eleven in the East Asian region as its primary case, focusing on the management strategies and cooperative mechanisms employed in re-sponse to non-traditional security risks. It aims to explore how multina-tional corporations can enhance supply chain resilience within the framework of regional coopera-tion and to assess the actual role played by East Asia's non-traditional security cooperation mecha-nisms. The findings indicate that retail enterprises such as convenience stores often struggle to cope with systemic shocks through isolated strategies alone. In contrast, regional collaboration and mul-ti-level governance mechanisms significantly contribute to the enhancement of overall supply chain resilience. Nonetheless, cooperative mechanisms still exhibit notable deficiencies in institutionaliza-tion, trust-building, and resource integration.

1 INTRODUCTION

In the context of a highly interconnected global supply chain, multinational enterprises as an important promoter of economic globalization, their supply chain management is not only related to their own operational efficiency but also involves regional economic security and social stability. Multinational convenience store chains such as 7-Eleven have built extensive transnational supply networks across sectors like food and daily necessities, relying on dense store networks and just-in-time supply systems heavily dependent on cold chain technology. However, the increasing frequency of non-traditional security threats, including natural disasters, climate change, and pandemics, has exposed the growing vulnerability of these systems. Ensuring supply chain resilience amid the dual pressures of globalization and regionalization has thus become an urgent issue for both multinational enterprises and governments.

This study uses convenience stores as a case to explore the non-traditional security risks faced by multinational retail enterprises in East Asia and examines the role and potential of regional cooperation in addressing these challenges. It also identifies current limitations and offers recommendations for improvement, aiming to advance the application of non-traditional security theory in corporate supply chain management. By analyzing 7-Eleven's strategies for coping with non-traditional security threats, the study provides practical insights for multinational enterprises and empirical support for the theoretical development of supply chain resilience. Furthermore, it investigates the function of East Asian regional cooperation mechanisms in managing such threats and proposes feasible policy recommendations to promote government-enterprise collaboration in safeguarding supply chain stability and fostering regional prosperity.

* Corresponding author

Dai, J., Wang, X. and Wei, Y.
Non-Traditional Security Risks in Convenience Store Supply Chains and East Asian International Cooperation: A Case Study of 7-Eleven's Supply Chain.
DOI: 10.5220/0014372700004859

In *Proceedings of the 1st International Conference on Politics, Law, and Social Science (ICPLSS 2025)*, pages 241-250
ISBN: 978-989-758-785-6

2 LITERATURE REVIEW

Non-traditional security (NTS) refers to non-military threats such as natural disasters, terrorism, and energy crises. These threats have become increasingly prominent in the context of globalization and the expansion of security exceptions, emphasizing global and transnational challenges that stand in contrast to the military focus of traditional security. At times, traditional and non-traditional security issues intertwine, potentially leading to more complex conflicts; hence, the interaction between the two is crucial for national security strategies (Cong, 2014). With the deepening of globalization and regional cooperation, the transnational nature of NTS has become increasingly evident. Since NTS threats often transcend national borders, Southeast Asian countries have enhanced regional security through collaborative efforts (Gong, 2020). This perspective provides theoretical support for transnational cooperation, particularly in the context of supply chain security management. In addition, some scholars have reviewed the evolution of global security paradigms, highlighting how non-military threats such as climate change and pandemics have gradually become central global security issues (Cook & Nair, 2021). The "shared security" theory emphasizes that countries should pursue win-win cooperation in the face of NTS threats (Wei, 2015), offering a theoretical foundation for both regional security cooperation and multinational enterprises' approaches to managing supply chain risks. Collectively, these studies provide a multidimensional framework for understanding NTS, underscoring the significance of transnational collaboration in supply chain governance.

Supply chain management (SCM) and food safety are critical issues in the modern economy, directly impacting public health, corporate profitability, and regional economic stability. A supply chain consists of a network of enterprises or departments responsible for acquiring raw materials, processing semi-finished goods, producing finished products, and delivering them to consumers. Research and practice on the composition, operational modes, and coordination of supply chains have contributed to the development of SCM. Lee's (2004) "3A" supply chain theory offers a foundational theoretical framework for SCM. Agility, Adaptation, and Alignment are regarded as essential characteristics of an effective supply chain, enabling responses to sudden shifts in supply and demand and market volatility. As SCM theory has advanced, research on supply chain risk management has also emerged. Ho et al. (2015) define supply chain risk as the negative impact of unexpected events at both macro and micro levels, proposing a classification framework for such risks. While traditional SCM theories focus on maintaining and restoring operations, Ponomarov and Holcomb (2009) introduced the concept of resilience to SCM. Later studies have moved beyond the conventional "restoration" paradigm of resilience to highlight the importance of adaptability and transformation as integral components of supply chain resilience (Wieland & Durach, 2021). This evolution provides greater theoretical flexibility for managing supply chains under NTS threats. For enterprises, resilience is a critical feature for survival and competitiveness when facing supply chain disruptions or external crises. Enhancing redundancy, flexibility, and both cultural and organizational resilience can improve a firm's ability to absorb shocks and recover operations (Sheffi, 2007). These contributions offer both theoretical and practical guidance for enhancing supply chain resilience and managing uncertainty in globalized supply chains. Furthermore, supply chain resilience is not solely dependent on internal capabilities but also requires coordination with upstream and downstream suppliers, logistics partners, and government stakeholders. With the growing trends of globalization and regionalization, regional supply chain collaboration (RSCC) has become a key topic in both SCM and regional economic cooperation. RSCC, through mechanisms such as information sharing, resource integration, and joint planning, significantly improves supply chain efficiency, effectiveness, and competitiveness. The success of such collaboration heavily depends on strategic alignment, information transparency, resource sharing, and trust among partners. However, challenges such as technological integration and equitable profit distribution require appropriate managerial strategies and planning to be effectively addressed (Amyx, 2004). Although RSCC has made notable theoretical and practical advances, existing limitations—such as low institutionalization levels, coordination difficulties, and data security issues—remain unresolved.

In the context of convenience store supply chains, food supply chains represent a particularly critical component. However, their inherent vulnerability spans the production, transportation, and storage stages. The perishable nature of food, time sensitivity, and the complexity of coordinating global supply chains (Zhong et al., 2017) all pose challenges to food supply chain management. In a globalized context, the risks facing multinational enterprises' supply

chains often exceed the control capacity of any single firm or state. While some studies have recognized the challenges faced by food supply chains in East Asia, most research remains limited to descriptive accounts of national systems, lacking an in-depth examination of how regional cooperation in East Asia may help optimize food supply chain governance. This study therefore seeks to fill that gap by exploring how transnational cooperation can contribute to strengthening food supply chain management in East Asia in response to increasingly complex NTS threats.

Furthermore, East Asian countries exhibit unique characteristics in their approaches to international cooperation on NTS issues. Existing research has focused on the necessity, characteristics, mechanisms, and limitations of regional cooperation. The transnational, interdependent, and multi-level nature of NTS threats in East Asia makes it difficult for individual countries to tackle such issues alone. Amid rising Sino-U.S. tensions, the potential for mitigating conflict through economic interdependence has diminished. Nonetheless, there are signs of regional cooperation and coordination in addressing transnational challenges that threaten public well-being (Jalkebro & Jones, 2021). NTS cooperation in East Asia involves not only intergovernmental collaboration but also engagement by enterprises and non-governmental organizations (NGOs). The current regional cooperation framework in East Asia is a complex system spanning multiple sectors, levels, and actors (He, 2021). Existing cooperation mechanisms include both multilateral and bilateral arrangements. Multilateral mechanisms are mainly ASEAN-centered, including platforms such as the East Asia Summit (EAS) and the Asia-Pacific Economic Cooperation (APEC). China, Japan, and South Korea also demonstrate a preference for bilateral agreements, which offer greater discretion in partner selection and cooperation scope (Corning, 2011). In addition, public-private collaborative mechanisms have begun to emerge. Final product production is increasingly distributed by multinational corporations across regions and countries based on efficiency and cost considerations along the value chain (Zhong et al., 2017). Nevertheless, these mechanisms continue to face multiple challenges. The lack of mutual trust among East Asian countries hinders the institutionalization of collective interaction and coordinated action (Yang, 2012). In the region, traditional security multilateralism has failed due to disinterest or hostility from major powers and intensified geopolitical rivalries (Howe, 2023). National interests tend to dominate cooperative engagements, making deep integration through these mechanisms difficult to achieve. Yet, the potential for regional collaboration remains, particularly at the enterprise level, where multinational corporations play a pivotal role in supply chain management.

Although existing literature has addressed NTS threats, SCM challenges, and regional cooperation mechanisms in East Asia from various perspectives, several limitations persist. First, most studies adopt conventional political economy approaches, lacking an integrative analysis of the intersection between NTS and SCM. Additionally, although some scholars have investigated regional cooperation mechanisms, few have examined how businesses embed themselves within these frameworks to address NTS threats. Moreover, current research on East Asian NTS cooperation is largely conducted at the macro level, with limited focus on applied cases such as convenience stores. There is also a lack of causal analysis that explains how regional cooperation mechanisms can concretely alleviate supply chain risks in the convenience store sector. Therefore, this study aims to fill these gaps by integrating research on supply chain security and NTS cooperation. It seeks to construct a causal framework that traces how external NTS threats trigger supply chain risks and how East Asian regional cooperation mechanisms mitigate such risks. Using 7-Eleven as a case study, this research systematically examines the security challenges of convenience store supply chains and explores corresponding regional collaborative responses, ultimately offering practical recommendations for advancing regional cooperation in this domain.

3 RESEARCH METHODOLOGY

This study adopts a case study approach to analyze 7-Eleven's strategies for managing non-traditional security threats within its East Asian supply chain. Through in-depth qualitative analysis, this method allows for a contextual understanding of how the company addresses risks such as natural disasters, climate change, and public health emergencies (e.g., COVID-19), and extracts practical insights applicable to broader regional contexts.

The case study focuses on 7-Eleven's operations in Japan, China, and Southeast Asia, examining its supply chain structure, operational models, and responses to key threats. Multiple data sources will be used, including academic literature, corporate disclosures, industry reports, and third-party

evaluations, to gather comprehensive evidence on its adaptive strategies under dynamic regulatory and market conditions.

A qualitative analytical framework guides the investigation, with attention to:

(1) Information-sharing mechanisms that enhance transparency and emergency response.
(2) Technological collaborations, such as digital logistics and smart inventory systems, that bolster resilience.
(3) Strategic adaptations of supply chain configurations across varied infrastructural and regulatory environments in East Asia.

Finally, the study evaluates how 7-Eleven leverages regional cooperation frameworks to strengthen its risk management capacity. It also identifies transferable practices and proposes recommendations for enhancing supply chain security and resilience among other multinational convenience store chains operating in the region.

4 THEORETICAL FRAMEWORK

This study builds a dual analytical framework to examine the interaction between supply chain security risks and non-traditional security cooperation in East Asia, aiming to explore how multinational retailers like 7-Eleven enhance supply chain resilience through internal optimization and regional collaboration. Despite the maturity of their supply chains, convenience store networks remain vulnerable to cross-border challenges such as food safety inconsistencies, logistics disruptions, and technological failures—issues intensified by East Asia's regulatory diversity and susceptibility to sudden crises.

Given these risks, internal corporate efforts are insufficient; coordinated regional governance and cross-border mechanisms are essential. Centering on East Asian non-traditional security cooperation, this framework investigates how intergovernmental collaboration—via institutionalized information-sharing, technological cooperation, and emergency response systems—can mitigate retail sector risks and strengthen supply chain resilience.

Based on this, the study constructs two causal chains:

(1) The formation of supply chain security risks driven by external non-traditional threats (e.g., natural disasters, pandemics, food safety incidents).
(2) Their mitigation through regional cooperation mechanisms.

For example, extreme weather may disrupt logistics, while regulatory gaps in food safety complicate transnational sourcing. Technological disparities, especially in parts of Southeast Asia, further undermine supply reliability. In response, regional cooperation can enable early-warning systems, harmonized standards, and coordinated crisis responses. For instance, the transfer of Japan's cold chain logistics by 7-Eleven to Southeast Asian branches has significantly improved operational efficiency.

Integrating these causal chains, the study argues that regional cooperation in East Asia offers essential support to retail supply chains under non-traditional security threats. Mechanisms such as information sharing, technology exchange, and emergency coordination not only reduce vulnerabilities but also enhance public trust and economic stability.

This framework contributes both theoretically and practically. It helps firms identify vulnerabilities across three key dimensions—food safety, logistics, and technology—and informs strategy formulation, such as adopting dual-sourcing to offset geopolitical or climate-related disruptions (Sheffi, 2007). At the policy level, it offers guidance for designing regional cooperation systems. For instance, developing mutual food safety recognition among China, Japan, Korea, and ASEAN could lower cross-border trade barriers. In times of crisis, firms are encouraged to integrate into regional logistics networks, while governments are advised to enhance support for SMEs.

In conclusion, this framework advances understanding of supply chain risks under non-traditional threats and offers actionable governance strategies. By bridging academic theory with practical feasibility, it supports the construction of resilient and secure regional supply networks in East Asia.

5 PRACTICAL ANALYSIS OF SUPPLY CHAIN MANAGEMENT OF CONVENIENCE STORE CHAINS--A CASE STUDY OF 7-ELEVEN

5.1 7-Eleven's Supply Chain Management Strategy

Currently, the global convenience store industry is undergoing rapid expansion. Leveraging its global footprint and supply chain innovation, 7-Eleven has

become a benchmark enterprise in the sector, establishing a strong competitive advantage. According to the Management Report 2024 released by Seven & i Holdings, as of the end of February 2023, 7-Eleven operated over 84,000 stores worldwide, with more than 60,000 located in Asia—accounting for over 70% of its global presence. In Japan, the number of stores reached approximately 21,544, while Thailand and South Korea each had over 14,000 and 12,000 stores respectively, maintaining dominant positions in their domestic convenience store markets. In China, 7-Eleven also operates more than 5,000 stores (Seven & I, 2024a).

In order to support such a large shop network, 7-Eleven has developed a highly centralized logistics model built around a joint delivery system. In the early stages of the convenience store industry, most stores relied on a low-frequency, high-volume restocking model, which often led to inventory overstock and product spoilage. 7-Eleven was the first in Japan to introduce a small-lot joint delivery model characterized by two main features: small delivery volumes and shared transportation. By reducing the quantity of goods delivered per shipment while increasing the delivery frequency, 7-Eleven minimizes product waste and ensures freshness on store shelves. This approach also enables stores to adjust their procurement strategies flexibly based on consumer demand. Under the joint delivery system, suppliers first deliver goods to designated distribution centers, where products are consolidated and then distributed uniformly to individual stores. To maintain product quality, 7-Eleven also utilizes a temperature zone distribution system, categorizing goods by temperature requirement—ambient, chilled, and frozen—and implementing mixed-load transportation in which delivery vehicles are compartmentalized to carry products across multiple temperature zones simultaneously (Lee, 2021). This system not only ensures the freshness and safety of food items but also reduces transportation costs through shared logistics infrastructure and optimized delivery efficiency.

In terms of store layout, 7-Eleven adopts a high-density location strategy, which involves concentrating stores in specific areas rather than dispersing them. This strategy not only shortens the distribution radius, reduces distribution costs, and improves logistics efficiency, but also strengthens brand influence and increases market penetration. The high-density layout also facilitates unified management of shops by the headquarters and improves overall operational efficiency.

Regarding digitalization in supply chain management, 7-Eleven began constructing its information system as early as 1978 and has continuously upgraded it, eventually forming an intelligent inventory management system based on point-of-sale data analysis (Li, 2008). This system allows for real-time data collection, acquiring sales data from stores three times a day, with analysis completed within 20 minutes, optimizing inventory management and restocking plans. Additionally, the system has established an information-sharing mechanism with suppliers, ensuring that suppliers can access real-time sales trends and inventory levels, optimizing production and distribution arrangements to enhance supply chain coordination efficiency (Liu & Wang, 2015).

5.2 Risks in 7-Eleven's Supply Chain Management

Though 7-Eleven has successfully built a highly mature and industry-leading supply chain management system, it still faces a series of challenges that not only affect the stability and efficiency of the supply chain but may also amplify the impact of crises when encountering non-traditional security risks.

First, the supply chain management system is highly dependent on centralized logistics distribution. This reliance means that any external disruptions to the logistics network can lead to severe consequences. Additionally, 7-Eleven's temperature zone delivery system places high demands on logistics infrastructure and cold chain transportation. Any malfunction along the process may compromise the freshness and safety of food products. Energy shortages, equipment failures, or management negligence can result in temperature control failures, causing significant food waste.

Second, the joint distribution model involves numerous suppliers and partners, increasing the complexity of supply chain management. Ideally, information flows across all segments of the supply chain are synchronized and consistent. However, due to differences in management systems among suppliers, logistics providers, and stores, information delays or errors are common, resulting in delivery delays and inventory confusion. Furthermore, the complexity of the distribution system means that any adjustments require coordination across multiple parties, making optimization difficult. When entering new markets, 7-Eleven must carefully plan its supply chain to adapt to local conditions, which may in turn affect the pace of expansion.

In addition, 7-Eleven's globalized supply chain faces challenges stemming from cross-border regulatory differences and regional standards, requiring adaptation to varying infrastructure and policy environments across countries. The World Bank's Logistics Performance Index 2023 reports significant differences in logistics performance across Asia. China, Japan, and South Korea in the 'infrastructure' dimension scored more than 4, much higher than the Philippines, Vietnam, Indonesia, and other countries less than 3; in the 'logistics tracking and traceability', 'timeliness' and 'logistics competence and quality', China, Japan, and South Korea all score higher than all other Asian countries except Singapore (Arvis et al., 2023). These differences indicate that even geographically proximate regions like East and Southeast Asia may exhibit substantial variation in the execution of food inspection, customs clearance, and cold chain supervision. This poses compliance and efficiency challenges for companies like 7-Eleven that rely on integrated supply systems.

Changes in tariff policies across countries could also lead to increased costs for goods. Some countries may impose import quotas or special approval requirements for certain products, reducing supply chain flexibility. The instability of international political situations may also create uncertainty in supply chain operations. Trade disputes, economic sanctions, and other geopolitical issues can disrupt multinational supply chains. For instance, the Russia-Ukraine conflict has pushed global energy prices higher, increasing the cost of storing and distributing goods. Public health crises can hinder international logistics, while Japan's discharge of nuclear wastewater has prompted some countries to revise their import policies for Japanese products.

Finally, the digitalization of supply chain management introduces new risks. System malfunctions may result in incorrect inventory data, disrupted order processing, and delivery delays, potentially hindering normal store operations. Cybersecurity threats are also a major concern, as malicious attacks could lead to system outages, data breaches, or the manipulation of sensitive operational information, thereby jeopardizing supply chain integrity and damaging corporate reputation.

In conclusion, while 7-Eleven's supply chain management system aims to optimize costs and enhance efficiency, it also faces numerous non-traditional security threats. Addressing these challenges requires not only further optimization of its supply chain model but also strong support from international cooperation mechanisms.

5.3 Causes and Impact Mechanisms of Differences in 7-Eleven's Supply Chain Management Strategies

7-Eleven adopts significantly different supply chain strategies across global markets due to variations in consumer demand, regulatory frameworks, and infrastructure conditions. For example, in Japan, consumer preference for fresh food has led to a high-frequency, small-batch delivery model, while in China, the focus is on integrating logistics through regional distribution centers to reduce operational costs. Regulatory systems and infrastructure also play a key role: Japan's strict legal standards have driven the development of an efficient cold chain system, whereas, in Southeast Asia, where infrastructure is relatively weak, 7-Eleven relies more on local supplier partnerships to enhance stability and control costs.

These differentiated strategies also strengthen the company's ability to respond to non-traditional security risks. By diversifying supply chain layouts and sourcing channels, different markets reduce dependence on single suppliers or logistics routes, thereby improving resilience in the face of natural disasters, energy shortages, and other disruptions. For instance, in Southeast Asia, diversified procurement mitigates logistics disruptions, while in China, regional distribution centers enhance delivery efficiency.

In summary, the supply chain strategies adopted by 7-Eleven in different countries and regions are influenced by a combination of market characteristics, regulatory regimes, and infrastructure conditions, and play a key role in enhancing the company's ability to respond to non-traditional security threats.

5.4 Regional Cooperation on Supply Chain Management in East Asia

As a major engine of global economic growth, East Asia has seen increasing emphasis on cross-border cooperation in supply chain management. With the acceleration of globalization and the rising frequency of non-traditional security threats, ensuring the security and stability of regional supply chains has become a pressing issue. Current cooperation in East Asia is largely built upon the framework of regional economic integration, emphasizing industrial connectivity, improved logistics efficiency, and enhanced risk control mechanisms.

The ASEAN+3 framework (ASEAN plus China, Japan, and South Korea) has become a relatively

mature platform for cooperation across political, economic-security, and socio-cultural dimensions. Economic cooperation agreements and institutional dialogues under this framework have strengthened intergovernmental collaboration in areas including supply chains, improving the complementarity of regional economies (Li & Tian, 2010). The signing of the Regional Comprehensive Economic Partnership (RCEP) further liberalizes the flow of goods, services, and investments, providing institutional support for transnational supply chain integration. In terms of non-traditional security cooperation, regional mechanisms such as the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), its supporting programs (Ministry of Foreign Affairs of the People's Republic of China, 2022), and the Disaster Emergency Logistics System for ASEAN (DELSA) offer foundational infrastructure for emergency logistics coordination and supply chain resilience (Wang & Xu, 2023).

Information sharing and technological collaboration have also emerged as crucial drivers of supply chain security. The launch of the ASEAN Meteorological Data Service Platform for Early Warning at the 21st China–ASEAN Expo is a notable example, aiming to monitor and mitigate meteorological risks to regional logistics networks (Han, 2024). Additionally, China, Japan, and South Korea have increased cooperation in digital logistics and blockchain application, enhancing transparency and reducing systemic risks in the supply chain.

Multinational enterprises such as 7-Eleven, operating under highly standardized and efficient supply chain models, have also become key participants in regional cooperation. Through cross-border logistics partnerships and localized strategies, they contribute practical expertise and promote best practices for regional supply chain integration.

Despite these advances, several limitations hinder the effectiveness of regional cooperation. First, the absence of binding institutional safeguards results in inconsistent policy implementation and fragmented cross-border logistics coordination. The uneven execution of "green channel" logistics policies during the COVID-19 pandemic highlighted this challenge, as varying national standards disrupted supply chain continuity. Second, technological and infrastructural disparities remain significant. While Japan and South Korea lead in automation and cold chain systems, many Southeast Asian countries face financial constraints and underdeveloped infrastructure, restricting their participation in advanced logistics networks and widening the regional gap in supply chain resilience.

Moreover, existing emergency response mechanisms rely heavily on voluntary cooperation among countries, lacking unified operational standards or robust enforcement frameworks. This often leads to inefficiency and delays in responding to sudden shocks. Addressing these challenges requires a shift from "soft consultations" to enforceable institutional arrangements, along with the development of more cohesive emergency logistics strategies and region-wide coordination mechanisms.

6 THE IMPACT OF NON-TRADITIONAL SECURITY THREATS: THE CASE OF THE COVID-19 PANDEMIC

6.1 Overview of the Event

The outbreak of the COVID-19 pandemic has had a profound impact on international trade, supply chains, and the retail industry. China was the first country to be affected by the pandemic. Excluding the Spring Festival factor, overall trade activity in China dropped by 56% in one week from mid-February 2020. As the pandemic spread globally, the global manufacturing network entered a period of comprehensive disruption, with both the supply and demand sides facing simultaneous shocks (Zhao, 2020).

To contain the rapid spread of the pandemic, countries worldwide implemented measures such as transportation restrictions, which led directly to global supply chain disruptions. In the early stages of the pandemic, global food supply chains faced labor shortages, disruptions to transportation and distribution networks, and increased import restrictions and regulations. During the pandemic, the time required to import fresh food increased by 2-5 days in some Asian countries, with transport costs rising by 30-60 percent (ESCAP, 2021). The pandemic disrupted international logistics, posing serious challenges for retailers like 7-Eleven that rely on precise supply chains, and further complicating supply chain management.

The repercussions of the pandemic on 7-Eleven's global supply chain have been pervasive, manifesting across all business segments. As of 2020, 7-Eleven's domestic convenience store business revenue had decreased by 50.4 billion yen compared to 2019. This was primarily due to a sharp decline in foot traffic and commuting restrictions during the pandemic, which limited consumption scenarios mainly driven by daily

customers. The operating revenue of overseas convenience stores decreased by 548.5 billion yen year-on-year, a decline that more clearly reflects the impact of lockdown policies in various countries, disruptions in cross-border logistics, and weak consumer demand on its international supply chain. Department and specialty stores' operations were also severely impacted, with revenue declining by 227.4 billion yen. The supply chain for non-essential goods experienced more severe compression during the pandemic. Concerning profitability, the operating profits of the overseas business sector experienced a decline of 3.9 billion yen compared to the year 2019. This decline can be attributed, at least in part, to the escalating costs of operations, which were precipitated by complications in logistics and inadequacies in the supply chain (Seven & I, 2024b).

7-Eleven has sought to augment the proportion of local procurement to address the challenges of cross-border logistics disruptions. However, as regional supply chains cannot entirely supplant global supply systems in the near term, supply chain management has become more intricate, and the retail industry's digital transformation has accelerated considerably. Nevertheless, supply chain vulnerabilities have emerged as a pivotal impediment for companies adapting to market shifts. 7-Eleven has historically been recognized for its supply chain model, which is marked by small, frequent replenishments and just-in-time delivery. However, this model encountered significant challenges during the pandemic. Large retail companies that had already developed plans for online business and possessed strong supply chain integration capabilities demonstrated more substantial market competitiveness during the pandemic (KPMG, 2020).

Furthermore, implementing disparate policies in East Asian countries during the pandemic has engendered considerable challenges for cross-border supply chain management. 7-Eleven had to continuously adapt to varying logistics management regulations across countries, leading to reduced supply chain operational stability. Concurrently, certain nations have instituted "green channel" policies for logistics management, while others have not done so promptly, resulting in deficiencies in regional logistics cooperation. According to a survey of 1,789 companies conducted by ERIA, approximately 70% of companies modified their customer relationships during the pandemic, 60% adjusted their supplier relationships, and nearly 50% changed their production locations. The majority of these adjustments were finalized in 2020. Moreover, most companies indicated that these adjustments were medium- to long-term and would not revert to pre-pandemic structures (Oikawa et al., 2021).

6.2 International Cooperation in East Asian Supply Chains throughout the Pandemic

Facing challenges such as supply chain disruptions caused by the COVID-19 pandemic, East Asian countries have launched a series of cross-border cooperation initiatives at the regional level to help retail companies overcome difficulties.

China, Japan, and South Korea issued a joint declaration titled "Stabilizing the Logistics System" in early 2020 to coordinate cross-border logistics channels. China also actively implemented relevant policies, streamlined approval procedures, and established a green channel for cargo approval during the pandemic. These mechanisms helped 7-Eleven import masks, disinfectants, and other scarce goods from China more quickly to meet consumer demand. In addition, ASEAN and the three countries of China, Japan, and South Korea strengthened information sharing on epidemic prevention and control, shared logistics and epidemic prevention experiences through videoconferencing, and provided each other with emergency medical supplies. At the same time, governments in various countries have actively supported companies in responding to supply chain crises. For example, during the pandemic, the Changning District Government of Shanghai facilitated procurement channels for 7-Eleven convenience stores' logistics partners, ensuring the smooth operation of critical logistics links. Faced with the challenges of the pandemic, 7-Eleven quickly adapted its supply chain strategy, accelerating its digital transformation and promoting contactless delivery models. In addition, the company increased its procurement of essential items such as antiseptic supplies to ensure adequate store supply and meet customer demand.

By cooperating with government epidemic prevention measures, the company strengthened its coordination with public health systems to ensure supply chain security. It also adopted more flexible logistics strategies, such as increasing the number of logistics suppliers to reduce the risk of relying on a single logistics channel. These measures not only increased the flexibility and responsiveness of the supply chain, but also strengthened the company's ability to survive a crisis, minimize the impact of the pandemic on store operations, reduce the risk of infection for customers and employees, improve the crisis response capabilities of the convenience store

supply chain, and increase the company's flexibility in complying with pandemic preparedness guidelines.

6.3 Inadequate Cooperation in East Asian Supply Chains

Although East Asian countries have initiated multi-level cooperation to address cross-border logistics disruptions, shortcomings remain. First, the lack of standardization has increased the cost of coordination. Although China, Japan, South Korea, and ASEAN have tried to ensure smooth logistics, there is no mutual recognition of quarantine policies among countries. For example, China requires nucleic acid testing for cold chain food products, while Japan implements a fast-track customs clearance system, resulting in longer customs clearance times for companies. Second, the responsibilities for allocating emergency resources are unclear. The ASEAN Emergency Logistics Coordination Center relies on voluntary contributions from member states rather than mandatory obligations, resulting in uneven distribution of critical resources such as refrigeration equipment for vaccine transport. In addition, the technological marginalization of small and medium-sized enterprises (SMEs) is becoming increasingly apparent, as Southeast Asian SMEs lack the technological compatibility to integrate into digital logistics systems. These problems stem from the design of East Asia's regional cooperation mechanisms, which have failed to address interest balancing and enforcement rigor adequately.

7 CONCLUSION AND OUTLOOK

This study examines the causes of supply chain security risks in convenience stores and the role of non-traditional security cooperation in East Asia in mitigating these risks. The findings indicate that supply chain security is affected not only by external non-traditional security threats such as natural disasters and public health crises but also by the supply chain's management capabilities, regional coordination levels, and the effectiveness of emergency response mechanisms. Convenience store companies, which rely heavily on efficient logistics systems and cross-border sourcing networks, face supply chain security issues that are highly transnational and systemic. Therefore, it is difficult for individual countries or companies to address supply chain security risks independently, and regional cooperation has become a meaningful way to enhance supply chain resilience.

East Asian countries have already initiated several supply chain security collaborations; however, the effectiveness of these collaborations is limited by various factors. First, regional cooperation lacks a legally binding force, resulting in low coordination in cross-border logistics management. Second, uneven technological cooperation has weakened the adaptability of Southeast Asian SMEs within regional supply chain networks. In addition, existing emergency response mechanisms in East Asia are still mainly based on ad hoc consultations and lack long-term, institutionalized crisis management systems, which limits the speed of supply chain recovery in an emergency.

To further enhance supply chain security and the effectiveness of regional cooperation, East Asian countries should improve their cooperation framework in the following areas. First, they should promote the institutionalization of supply chain security cooperation to ensure that countries can quickly coordinate their actions in emergencies. Second, they should strengthen the inclusiveness of technical cooperation and establish a regional digital logistics fund to help resource-constrained enterprises improve their supply chain management capabilities and promote the balanced development of supply chains. In addition, further promote the digital transformation of supply chains through new technologies, such as intelligent logistics management and blockchain food traceability, to enhance supply chain transparency and risk resilience.

AUTHORS CONTRIBUTION

All the authors contributed equally and their names were listed in alphabetical order.

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