Managing volatility in logistics markets

Challenges – Practices – Tools

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ISCM – Institute of Supply Chain Management

The Institute of Supply Chain Management (ISCM-HSG) at the University of St. Gallen sees itself as an international platform for dialogue between science and practice in the field of supply chain management, especially purchasing, logistics, and transport. The ISCM-HSG researches complex problems of global value-added networks in the form of concepts, methods, and instruments, thereby building a bridge between research and applied solutions. This promotes the further development of supply chain management in industry, trade, services, and the public sector. In addition, the ISCM-HSG provides a comprehensive range of training and continuing education aimed at managers, young scientists, and students.

Promotional Association

This study was conducted on behalf of the promotional association of the ISCM-HSG. With more than 20 companies in the promotional association, its members benefit from research insights and a targeted exchange on current supply chain and logistics challenges. Please contact the study authors for more information concerning the promotional association and membership options.

Management Summary

This study of managing volatility in logistics markets published by the Institute of Supply Chain Management at the University of St.Gallen investigates volatility in freight rates for sea, road, rail, and air as modes of transport and sheds light on management practices from the perspective of shippers, intermediaries, and carriers. Based on a three-stage research design, this study presents the following key findings:

Volatility sources

This study provides an improved understanding of the origin of volatility in logistics markets and the underlying effect of the variables investigated. We examine 35 freight price volatility sources and assign these complex factors to four meta-dimensions (shipper, logistics service provider (LSP), market, and exogenous factors).

Volatility management

This study provides a holistic framework for identifying and investigating strategies for addressing freight price volatility. The investigation framework distinguishes between three management stages (ReStrain, ReAct, ReThink), four management dimensions (informational, organizational, partner, provider), and three actors (shipper, intermediary, carrier) to efficiently manage freight price volatility. Based on this reference framework, the present study draws the following key findings regarding four logistics scenarios:

Study context

The Institute of Supply Chain Management at the University of St.Gallen and its promotional association conducted a consortium study on freight price volatility in logistics markets. This study provides answers to the challenges, practices, and tools to address freight price volatility and thus provides a clear picture for actors in logistics markets.

To answer the research questions, we conducted an extensive interview series involving 44 experts in logistics markets. The results reveal the different viewpoints of the respective actors, and thus provide a triangulation of perspectives.

The key players represented in this study are shippers, intermediaries, and carriers involved in transportation via sea, air, road, and rail.

In response to the Russia-Ukraine crisis that began in February 2022, we extend the study by a short discourse on the focus topic of volatility in times of geopolitical crisis to capture relevant effects on logistics market, derive conclusions regarding the volatility of freight prices, and provide insights for responding to this crisis based on the study findings.

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Scenario 1: Sea freight – global – container

Sea freight is famous for its boom-and-bust cycles with many years of low rates where shipping lines were not earning their cost of capital, followed by the COVID-19 crisis and shipping lines passing the buck to shippers. Besides these unexpected fluctuations in prices, sea freight exhibited very low reliability during recent years. To avoid similar situations in the future, shippers, intermediaries, and carriers need to go beyond treating the symptoms to addressing the underlying conditions. While shippers can commit to higher quantities in advance and use longer-term, enforceable take-or-pay contracts, intermediaries could extend warehouse spaces to ride out market dislocations due to limited port operations. In addition, carriers should rethink their last-call and first-call port selections to shave multiple days off transit times.

Scenario 2: Road freight – international and national – full truckload (FTL), less-than-truckload (LTL), and general cargo

Freight rates in road freight have been subject to significant fluctuations, especially due to the high spot market activity in international FTL. However, road freight faces severe capacity constraints beyond price dynamics, including driver shortages, long delivery times for new equipment, and rising energy costs. Therefore, actors need to find ways to use capacities more effectively and consistently. For example, shippers need to facilitate faster driver turn times at pick-up and delivery locations, while intermediaries and road haulers need to eliminate barriers and build competencies within their commercial, planning, and fleet departments.

Scenario 3: Rail freight – international – container

In contrast to other transport modes, rail freight is characterized by price stability due to limited providers and a comparably transparent cost structure. Consequently, rail freight is primarily concerned with utilizing its capacities and increasing flexibility and reliability. Besides, there is still a considerable backlog in establishing necessary infrastructure, such as multimodal terminals for intermodal transport. To improve capacity utilization, shippers should identify “predictive” product categories that require less flexibility (e.g., consumer goods) and exploit rail freight. In addition, intermediaries need to develop concepts to achieve traffic pairings, while rail undertakings need to leverage automation (e.g., shunting operations).

Scenario 4: Air freight – global – belly, freighter, and charter

Since passenger aircraft carry more air cargo than full freighters worldwide, the COVID-19 crisis resulted in a 28% global decline in air cargo shipping and sky-rocketing spot market prices, which eventually exceeded standard freight rates by ten or more. In light of these developments, shippers need to rethink their "have" and "have-not" products with high margins to justify air freight. In addition, intermediaries need to improve cooperation between shippers and carriers, with the latter being challenged to rethink flight economics, as we expect business class to lag behind leisure travel.

Mini cases

Six case studies extend the scope of this study to demonstrate relevant approaches logistics actors can adopt when managing freight price volatility. The six cases of Coop, DB Cargo, EK Procurement, Fygen, Heraeus, and Migros provide insights into how companies have directly addressed the study's guiding theme in practice.

Indices and digital business models in freight

As indices often only capture one-dimensional data and do not allow any forecasting function, they frequently fail to deliver the promised benefits to practitioners. In this context, the present study differentiates between three tiers of indices that include 60 distinct information sources. For each index, a factsheet provides practitioners with a neutral overview and profound input for price planning, management, and control processes (Resch, 2012). Beyond the indices, this study also responds to the fact that the landscape of available digital services and software providers in logistics lacks transparency for legacy players. Building on an existing classification of nine archetypes of digital business models in freight, we identify and compile 142 factsheets covering emerging digital businesses. The identified companies can help shippers, intermediaries, and carriers improve the information flow in existing business relationships or establish new ones.