

RISK IDENTIFICATION AND RESILIENCE OF SHIPPING FIRMS IN RIVERS STATE, NIGERIA

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Abstract

This study examined the relationship between risk identification and resilience of shipping firms in Rivers State. Risk identification was the predictor variable, and was used as a uni-dimensional construct; while resilience was the criterion variable and was measured with situation awareness and flexibility. The study adopted a cross-sectional survey research design. The population comprised of 17 shipping firms. The entire population was adopted as the sample. Respondents in the study consisted management staff of the 17 shipping firms, including general manager, regional manager, operations manager, logistics manager and warehouse manager. Thus, 5 copies of questionnaire were administered to each of the 17 shipping firms, bringing our total respondents to 85. However, data obtained from 80 respondents made the final analyses. The study tested two null hypotheses using Spearman Rank Order Correlation Statistical tool, with the aid of Statistical Package for Social Sciences (SPSS version 25.0). The study found that risk identification has significant correlation with resilience in terms of situation awareness and flexibility. Thus, the study concluded that risk identification is a viable supply chain risk management practice that leads to improved resilience of shipping firms in Rivers State; and recommends that shipping firms in Rivers State should engage in risk identification efforts to stay aware of situations surrounding them, in their effort to build resilience.

Keyword: Flexibility, resilience, risk identification, situation awareness,

Introduction

The services of shipping companies within a country are critical components of the economy, being pivotal to economic growth. Hence, activities of shipping companies need to be handled with efficiency and effectively (Song, 2012). Shipping connect constituents of a supply chain to actualize market demand effectively and efficiently (Danko et al. 2020). The value of supply chain to the success of organizations has been established by scholars, and the lesson of the last few years is that supply chains are constantly being exposed to more risk (Carvalho et al., 2021).

It is widely acknowledged that shipping firms serve as crucial links in a complex web of global supply chain, providing the nexus between regional manufacturers and retailers and again between retailers and the final consumers (Borishade et al., 2021; Tang & Musa, 2011). Consequently, having in reliable supply chain risk management protocol is central to achieving operational effectiveness (Oluajo, 2021).

Risks that affects supply chains are may be operational risk or disruptive risk (Sawik, 2011). Operational risks are those risks that affect routine supply chain operations. These include fluctuations in demand and lead times created by uncertainty in customer demand, uncertainty in supply and uncertainty in cost. While, the disruption risks are those that are external to the supply chain. They include incidents like natural disaster (pandemic, tsunami, earthquake,

typhoons etc.) this has huge impact on the supply chain worldwide the resulting shortage of raw materials in global supply chain, legal dispute or strike. David et al. (2015) stated that supply chain risk usually emanate from outside the supply chain or inside the supply chain. This indicates that supply chain risk can be internal and external.

Risk identification is key to effective risk management (Shahbaz, et al., 2019). Identifying risk sources arm decision-makers with effective risk management knowledge (Vilko et al., 2019). Proper identification, assessment and prevention affect supply chain success (Shahbaz et al., 2019). David et al. (2015) described risk identification as the process by which potential risk sources that may affect supply chain performance are identified. Kern et al. (2012) stated that risk identification aims to discover all relevant risks and recognize future uncertainties in order to manage them proactively. Gallus and Thomas, (2011) aver that risk identification is a critical stage of supply chain risk management process.

To survive in uncertain environments and foster future success, organizations must be able to handle all manifestations of the unexpected. Firms need to develop a resilient capacity to adequately react to unexpected events and to capitalize on events that could potentially threaten their survival (Lengnick-Hall et al., 2011). Robert (2010) defines resilience as a firm's capacity to maintain or restore an acceptable level of functioning despite disturbances. Resilient firms possess capabilities that enable them adapt, integrate and reconfigure internal and external resources and competences to match changing conditions (Tamunomiebi, 2018).

Given the numerous disruptions in the flow of cargoes and passengers, it appears that shipping firms supply chain managers are yet to understand the best practices for managing its supply chain risks in Nigeria, and studies on this subject appears not to focus on identifying sources of supply chain risk in the shipping industry (John et al., 2016; Oruwari, 2021). The aim of this therefore, is to examine the association between risk identification and resilience of shipping firms in Rivers State.

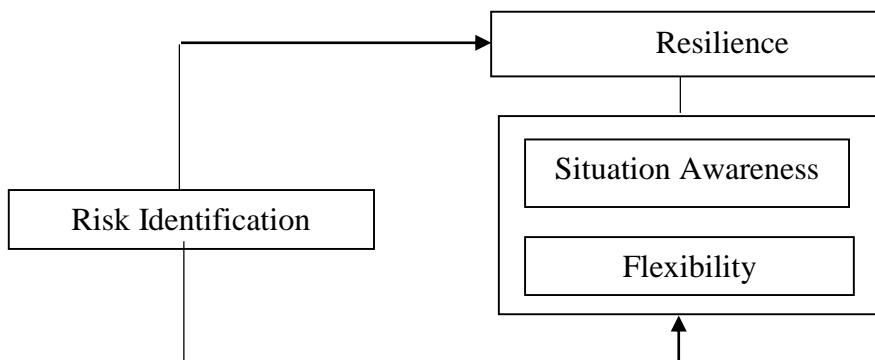


Fig. 1: Conceptual Framework of relationship between Risk identification and Resilience of shipping firms in Rivers State

Theoretical Foundation

This study is premised on high reliability organization (HRO) theory (Weick & Sutcliffe, 2007) which view resilience as a process of “mindfulness” that leads to reliability, rather than an outcome. The theory holds that HROs exhibit a combination of high alertness, flexibility, and adaptability that lead to increased resilience; and proposes that accidents or catastrophic failures can be prevented by ongoing small adjustments that prevent errors from accumulating. Given the increased level of uncertainty and unexpected shocks in the current business

Weick and Sutcliffe (2007) states that HRO theory provides strong support for preventing risk as a response to mismatch between managerial incentives and shareholders, as it is widely acknowledged that shipping firms serve as crucial link in a complex web of global supply chain, providing the nexus between regional manufacturers and retailers, and again between retailers and the final consumers (Borishade et al., 2021; Tang & Musa, 2011). Consequently, having in place reliable supply chain risks management protocol like risk identification is central to achieving operational effectiveness and efficiency.

Concept of Risk Identification

According to Tummala and Schoenherr (2011) risk identification is a tool that is used to create a comprehensive list of all possible supply chain risks. Risk identification is described as "the processes by which potential risk sources that may affect the efficiency and effectiveness of the supply chain are identified (Lockamy, 2011). The identification of risks in a supply chain is as important as the knowledge about the impact of risk management effort on different levels of a supply chain (Zuber et al., 2011). Kayis and Karningsih (2012) stated that, in identifying risk it is important to note the existing interrelationship and dependencies between different risks to be able to understand the risk management better.

David et al. (2015) suggests that firms must identify risks early, in order to achieve the most favourable returns for their shareholders and other stakeholders. The most critical aspect of supply chain risk management is risk identification (Wilding et al., 2012; Colin et al., 2011) because it allows the firms to identify internal and external supply chain vulnerabilities (Breuer et al., 2012; Sachdeva et al., 2012). The objectives of risk identification is to take note of events that could have strong negative impacts on a company's capability to achieve its objectives (David et al., 2015).

Concept of Resilience

Resilience refers to an organization's capacity to resist major disruptions due to unforeseeable, unexpected or catastrophic events, leading organizational systems beyond planned service limits without serious losses (Antunes, 2011). Olope et al. (2023) define resilience as organizational dynamics, adaptation to change, or ability to recover from natural disasters, economic/industrial disputes and disease outbreaks. Robert (2010) define resilience as a firm's capacity to maintain or restore an acceptable level of functioning despite disturbances. Thus, a resilient organization is one that is able to adapt, cope, survive and prosper in the face of abrupt and sometimes hostile variations in the business-scape (Ateke & Nadube, 2017).

Also, resilient firms are flexible, proactive, anticipatory and creative; they exploit new opportunities through calculated risk taking (Ateke & Nadube, 2017). Lengnick-Hall et al. (2011) argue that resilient firms effectively absorb, develop situation-specific responses to, and engage in transformative activities to capitalize on disruptive surprises that potentially threaten their survival. Resilient organizations possess dynamic capabilities that enable them to adapt, integrate and reconfigure internal and external resources and competences to match the requirements of changing conditions (Teece et al. (1997). An organization's resilience results from internal processes and dynamics that create resources in a flexible, convertible and malleable way (Sutcliffe & Vogus, 2003). Such processes and dynamics enable an organization to successfully respond and adapt to unexpected situations (Sutcliffe & Vogus, 2003; Lengnick-Hall et al., 2011).

Resilience is deemed a dynamic and flexible capability synthesized from predictive capability, survival capability, adaptive capability, coping capability and learning capability that organizations exhibit in response to crises (Duchek et al., 2020; McManus et al., 2008). Therefore, resilience is a concept with several dimensions. Ateke and Nwulu (2018) measured it using situation awareness, keystone vulnerability management, adaptive capacity and resilience ethos. Ahiauzu and Jaja (2015) measured resilience using situation awareness, keystone vulnerability and adaptive capacity. Kantur and Say, (2015) argued that resilience includes robustness, flexibility, agility and integrity. Herein, we conceptualize resilience as situation awareness and flexibility, based on suggestions from Kantur and Say (2015) and Ateke and Nwulu (2018).

Situation awareness

Situation awareness describes an organization's awareness of its business-scape, and its understanding of what that information means for its present and future wellbeing (Ahiauzu & Jaja, 2015). It describes the knowledge a firm has of its operating environment (McManus et al, 2008). This includes the ability to anticipate opportunities and possible threats, disturbances and the ability to correctly identify potential crisis and their likely effects (Tamunomiebi, 2018).

Wickens (2017) and Endsley (2015) defines situation awareness as the perception of elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future. This definition emphasizes the dynamic and predictive nature of situation awareness in complex operational contexts.

Salmon et al., (2019) emphasizes the practical application of situation awareness in supporting decision-making processes. Situation awareness provide numerous benefits, including improved decision-making, enhanced safety and performance, reduced errors and accidents, and increased operational efficiency. It also enable organizations identify and respond to disruptions promptly, reducing downtime and operational risks. However, keeping in touch with the environment all the time is very difficult for any organisation, especially during complex high stress operations (Tamunomiebi, 2018).

Flexibility

Flexibility is the ability to react quickly and effectively to change in the environment (Lengnick-Hall & Beck, 2016). Al-Haddad and Kotnour (2015), defined flexibility as the adaptability of a system to different environments. Gilgor (2016) indicated that flexibility is the capacity to modify the range of tactics and operations to the extent needed. Shishodia et al. (2019) indicated that investing in creating flexibility is assumed to be more beneficial than investing in creating redundancies, because having flexible suppliers helps a firm in day-to-day operations in addition to helping the firm mitigate disruptions.

Flexibility is a tool by which a firm can respond to changes in the market (Wilson & Ali, 2014). With this tool, companies can improve their competitive position by accelerating their decision-making processes to adopt and implement new technologies (Al-Haddad & Kotnour, 2015). Flexibility is expressed as making environmental uncertainty more predictable with little cost in terms of time, effort, cost, or performance or react to environmental uncertainty. Therefore, proactive and reactive flexibility offers companies unique advantages in improving business performance (Mishra, 2018). Furthermore, a highly flexible supply chain can help enterprises perform in multiple paths. For example, flexible supply networks could help firms accurately grasp the market supply and demand information to reduce the risks of being out of stock or

Risk Identification and organizational Resilience

Kiprop and Tenai (2017) conducted a study on effect of risk identification on financial performance of financial institutions in Kenya. The study revealed that, there was a positive link between supply risk identification and financial performance of financial institutions. Thus, these scholars argue that through the identification of risk the business can identify events and places that her resources will be wide-open to risks.

Musa (2012) conducted a study titled supply chain risk management: identification, evaluation and mitigation techniques in Sweden. Findings from the study shows that supply chain risk management practices is a critical process that would enable organization identify, evaluate and design appropriate risk mitigation strategy to hedge the identify risk thereby enhancing the efficiency and effectiveness of the supply chain and by extension the organization.

Gitau (2015) investigated the relationship between project risk mitigation practices especially at the project planning phase and its effect on the schedule and cost performance. From the results of correlation analysis, it was established that risk identification practice especially at the planning phase affected Rwandese Construction industry.

Mbuva et al. (2018) examined the extent to which risk assessment influences performance of SME projects in Machakos County. The study revealed that the majority of the risk assessment components were positively supported by the respondents and their response mean was above 3.50, the composite mean. Inferential statistics depicted that risk identification, prioritization and managing change significantly influenced financial performance.

In the light of these revelations from literature we therefore hypothesized that:

H_01 : There is no significant relationship between risk identification and situation awareness of shipping firms in Rivers State

H_02 : There is no significant relationship between risk identification and flexibility of shipping firms in Rivers State

Methodology

The study adopted a cross-sectional survey research design. The population comprised of 17 shipping firms in Rivers State. The entire population served as the sample. Test units consisted management staff of the 17 Shipping Firms in Rivers State; general manager, regional manager, operations manager, logistics manager and warehouse manager. 5 copies of questionnaire were administered to each of the 17 shipping firms, bringing our total respondents to 85. However, data obtained from 80 respondents was used in the final analyses. The null hypotheses were tested using Spearman Rank Order Correlation Statistical with the aid of Statistical Package for Social Sciences (SPSS version 25.0).

Test of Hypotheses

Table 1: Correlation between Risk Identification and Situation Awareness

		Correlations	
		Risk Identification	Situation Awareness
Risk Identification	Pearson Correlation	1	.722**
	Sig. (2-tailed)		.000
	N	80	80
Situation Awareness	Pearson Correlation	.722**	1
	Sig. (2-tailed)	.000	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

Source; SPSS output of data analysis on risk identification and resilience of shipping firms (2025).

As shown from the SPSS output on Table 1, it can be seen that there is a high extent, positive influence of risk identification on situation awareness. This is indicated in the coefficient; which is 0.722. Again, the probability value is less than the significant value; i.e. $0.000 < 0.05$; indicating a significant, high extent, positive influence of risk identification on situation awareness.

Table 2: Correlation between Risk Identification and Flexibility Showing Correlations

		Risk Identification	Flexibility
Risk Identification	Pearson Correlation	1	.812**
	Sig. (2-tailed)		.000
	N	80	80
Flexibility	Pearson Correlation	.812**	1
	Sig. (2-tailed)	.000	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

Source; SPSS output of data analysis on risk identification and resilience of shipping firms (2025).

As shown from the SPSS output on Table 2, there is a high extent, positive influence of Risk Identification on Flexibility. This is indicated in the coefficient; which is 0.812. Again, the probability value is less than the significant value; i.e. $0.000 < 0.05$; indicating a significant, high extent, positive influence of Risk Identification on Flexibility.

Discussion of findings

From the findings, study revealed that risk identification has a significant relationship with resilience. This position is line with the report of Kiprop and Tenai (2017) who conducted a study on the effect of risk identification on financial performance of financial institutions in Kenya; and revealed that, a positive link exists between supply risk identification and financial performance of financial institutions. Again, our finding support the findings of Gitau (2015), whose investigation on the relationship between project risk mitigation practices and cost performance established that risk identification practice especially at the planning phase affected Rwandese Construction industry.

Our findings align with Ateke and Nwulu (2021) whose study showed that dynamic marketing capabilities (specifically market opportunity sensing, market opportunity seizing, and resource reconfiguration) improve adaptability among hospitality firms. This suggest that dynamic marketing capabilities can predict company adaptability, and highlights the role of market sensing in fostering adaptability among hospitality firms in Rivers State.

Again, our findings that risk identification significantly relate to flexibility support for the position of Mikugi and Bagudu (2021) who examined a framework of risk analysis and performance of small and medium enterprises; and revealed that the extent of efforts required for risk management depends on the complexity of the operational activities and the scale of the business, therefore risk management for a business of any size relates to systematic assessment and strategic response to threats.

Furthermore, our findings concur with Asare-Kyire et al. (2023) whose study on impact of resilience on innovation performance and firm performance in the hospitality sector in Ghana showed that development of resilient capabilities make companies engage in exploratory innovation, including developing new products or business models. This leads to resilience capabilities, fosters a culture of innovation, and improve a firm's competitive advantage and long-term success.

Conclusion and Recommendations

Findings from the study support the fact that identifying risk early is an initiative that firms must engage in, on a periodic bases in order to achieve the most favourable returns, since the early detection of the potential risk could mean a huge difference between loss and competitive edge for the firm. We therefore, conclude that there is a significant and positive relationship between Risk Identification and resilience of shipping firms in Rivers State.

In view of the conclusion drawn from literature review, this paper recommends that shipping firms in Rivers State should engage in risk identification efforts to stay aware of situations surrounding the firm and industry at large and be flexible in their service delivery to continuously build resilience.

References

Ahiauzu, L. U., & Jaja, S. A. (2015). Process innovation and organizational resilience in public Universities in South-South Nigeria. *International Journal of Managerial Studies and Research*, 3(11), 102-111.

Al-Haddad, S. & Kotnour, T. (2015). Integrating the organizational change literature: a model for successful change, *Journal of Organizational Change Management*, 28(2), 234-262. <https://doi.org/10.1109/ACCESS.2020.2990389>

Antunes, P. (2011). BPM and exception handling: focus on organizational resilience, *IEEE Transactions on Systems, Man, and Cybernetics*, 41(3), 383-392.

Asare-Kyire, L., Bonsu, C. A., Appienti, W. A., & Ackah, O. (2023). Organizational Resilience, Innovation and Firm Performance: Moderating Role of Social Ties. *Open Journal of Business and Management*, 11, 2034-2050. <https://doi.org/10.1016/j.tre.2022.102936>

Ateke, B. & Nwulu, N. (2021). Dynamic marketing capabilities and adaptability in hospitality firms. *Journal of Business Research*, 129, 405-416.

Ateke, B. W., & Nwulu, C. S. (2018). Employee competency development and organizational resilience. *International Journal of Social Sciences and Management Research*, 4(3), 31-44.

Ateke, B. W., & Nadube, P. M. (2017). Agile marketing for organizational resilience in a dynamic business environment: A theoretical reflection. *Rhema University Journal of Management and Social Sciences*, 5(2), 133-143.

Breuer, C., S, G., Haasis, H.D., & Wildebrand, H. (2012). Collaborative risk management in sensitive logistics nodes, *Team Sales Management: An International Journal*, 19(7/8), 331–351.

Christopher, M. & Peck, H., (2004). Building the resilient supply chain. *International Journal of Logistics Management*, 15(2), 1-14.

Colin, J., Pfohl, H.C., Gallus, P. & Thomas, D. (2011). Interpretive structural modelling of supply chain risks, *International Journal of Physical Distribution & Logistics Management*, 41(9), 839–859.

David, K.M., Patrick, K.N., & Kennedy, O. (2015). An assessment of effect of risk identification management strategy on supply chain sales performance in manufacturing companies in Kenya, *International Journal of Economic, Commerce and Management*, 3(4), 1-17.

Efejuku, K. (2022). Continuance commitment and organizational resilience of commercial banks in Rivers State, Nigeria. *International Journal of Business Systems and Economics*, 13(7), 154-167. <https://doi.org/10.5958/0975-4385.2020.00013.8>

Endsley, M. R. (2015). Towards a theory of situation awareness in dynamic systems. *Human Factors*, 37(1), 32-64.

John, A., Yang, Z., Riahi, R., & Wang, J. (2016). A risk assessment approach to improve the resilience of a seaport system using Bayesian networks. *Ocean Engineering Journal*, 111, 136–147. <https://doi.org/10.1002/pa.2010>

Kayis, B., & Karningsih, P.D. (2012). A knowledge-based system tool for assisting manufacturing organizations in identifying supply chain risks. *Journal of Manufacturing Technology Management* 23, 834–852.

Kern, D., Moser, R., Hartmann, E. & Moder, M. (2012). Supply risk management: Model development and empirical analysis. *International Journal of Physical Distribution & Logistics Management*, 42(1), 60–82.

Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21(3), 243-255.

Lengnick-Hall, C. A., & Beck, T. E. (2016). Adaptive fit versus robust transformation: how organizations respond to environmental change. *Journal of Management*, 31, 738-757.

Lin, Y. & Zhou, L., (2011). The impacts of product design changes on supply chain risk: A case study', *International Journal of Physical Distribution & Logistics Management* 41(2), 162–186

Lockamy, A. (2011). Benchmarking supplier risks using Bayesian networks, benchmarking: *An International Journal*, 18(3), 409–427.

McManus, S., Seville, E., Vargo, J., & Brunsdon, D. (2008). A facilitated process for improving organizational resilience. *Natural Hazards Review*, 9(2), 81-90.

Mentzer, J.T., DeWitt, W., Keebler, J.S. & Min, S., (2001). Defining supply chain management. *Journal of Business Logistics*, 22(2), 1-25.

Meyer, A., Niemann, W., Uys, G., & Beetge, D. (2019). An exploration of supply chain risk management in the South African third-party logistics industry. *Acta Commercii*, 19(1), 1–13.

Mikugi, I.A. & Bagudu, H.D. (2021). A review of risk analysis and financial performance of small & medium enterprises (SMEs). *International Journal of Management, Business, and Entrepreneurship*, 4(1), 1-14.

Okoli, C. I. & Okeke, S. I. (2019). Assessment of suitable risk management practices adopted by owners of SME in Anambra state for institutional collaborations for business success in e- world. *Nigerian Journal of Business Education (NIGJBED)*, 6(1), 64-70.

Olope, S. O., Nadube, P. M., & Hamilton-Ibama, L. E. (2023). Marketing strategy audit and organizational resilience of food and beverages firms in Nigeria. *Journal of Contemporary Marketing*, 8(1&2), 339-354.

Punniyamoorthy, M., Thamaraiselvan, N. & Manikandan, L., (2013). Assessment of supply chain risk: Scale development and validation, *Benchmarking: An International Journal* 20(1), 79–105

Salmon, P. M., Stanton, N. A., Walker, G. H., Baber, C., & Jenkins, D. P. (2019). Situation awareness measurement: A review of applicability for industrial settings. *Theoretical Issues in Ergonomics Science*, 20(5), 545-567.

Shahbaz, M. S., Rasi, R. Z. R. M., & Ahmad, M. D. F. B. (2019). A novel classification of supply chain risks: Scale development and validation. *Journal of Industrial Engineering and Management*, 12(1), 201-218.

Song, X., & Guo, S. (2022). The impact of negative workplace gossip on employees' organizational self-esteem in a differential conducive inter-firm atmosphere. *Frontiers in Psychology*, 13. <https://doi.org/10.1108/BIJ-04-2022-0226>

Tamunomiebi, M. D. (2018). Ethics Training As Predictor of Organizational Resilience in Tertiary Health Institutions in Bayelsa State, Nigeria. *International Journal of Social Sciences and Management Research*, 4(2), 56-65.

Tang, O., & Musa, S. (2011). Identifying risk issues and research advancements in supply chain risk management. *International Journal of Production Economics*, 133(3), 25–34.

Tummala, R., & Schoenherr, T. (2011). Assessing and managing risk using the supply chain risk management process (SCRMP). *Supply Chain Management: An International Journal*, 16(6) 476-483.

Wickens, C. D. (2017). Situation awareness: Review of Mica Endsley's 25 years of research. *Aviation Psychology and Applied Human Factors*, 7(2), 107-112.

Wilding, R., Colicchia, C., & Strozzi, F., (2012). Supply chain risk management: A new methodology for a systematic literature review. *Supply Chain Management: An International Journal*, 17(4), 403–418.