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**Supply Risk Mitigation and Organizational
Competitiveness of Indigenous Shipping Firms in Nigeria**

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Abstract

Purpose: This study examined of the relationship between supplier risk mitigation and competitiveness of indigenous shipping firms in Nigeria.

Methods: The study adopted an explanatory research design and collected primary data in a cross-sectional survey. 3,608 registered indigenous shipping firms constituted the population of the study. The Krejcie and Morgan (1970) Table for sample size determination was relied upon to derive a sample size of 351. A structured questionnaire was used to collect primary data. The reliability of the instrument was confirmed via the Cronbach's alpha test. The Spearman's rank order correlation served as test statistic; and was facilitated by the Statistical Package for Social Sciences (SPSS) version 24.0.

Findings: The study found that supplier risk mitigation relates with competitiveness of indigenous shipping firms. This is because supplier risk mitigation showed

positive and statistically significant relationship with all the proxies of competitiveness.

Implications to Theory, Practice and Policy: The study concludes that supplier risk mitigation relates to competitiveness; and that competitiveness of indigenous shipping firms in terms of responsiveness, operational flexibility, operational efficiency and market leadership depend on supplier risk mitigation. Hence, the study recommends indigenous shipping firms in Nigeria should Institute measures like switching suppliers, product substitution, shifting orders among suppliers, and bridging and buffering strategies to eliminate or reduce the occurrence of, or impact of supply risks.

Keywords: *Market Leadership, Operational Efficiency, Operational Flexibility, Responsiveness, Supplier Risk Mitigation*

INTRODUCTION

Every organisation all over the world primary challenge is to achieve and maintain sustained competitive edge in the highly volatile market environment. To overcome this challenge however, firms increasingly realize that they cannot operate in isolation, but as entities in a larger convoluted business ecosystem (Riquelme-Medina et al., 2021) where each firm leverage the knowledge and experience of others through partnerships, alliances, and outsourcing to build the competencies they require to enhance their competitiveness.

A competitive hedge is a requirement for firms that want to survive and post superior performance results. Roman et al. (2012) argue that the key to acquiring a competitive edge in the modern business world is capacity to compete based on ability to reconfigure and refocus on new strategic directions. However, organizational studies literature shows that the competitiveness of a firm is no longer a function of internal processes alone, but mostly the result of a firm's alignment with external supplier who are relied upon for essential resources. Ni et al. (2021) support the view that firms in recent times, have been more concerned about how to achieve and enhance firm competitiveness. Evidence in literature show that strong leadership, Innovation, strong bonds with partners and suppliers, technological innovations, and capital investment as effective routes to promoting enterprise competitiveness

Supply risk mitigation describes companies' efforts to eliminate or reduce the probability of the occurrence of risk and its impact (Mwesummo et al., 2021); and may include switching suppliers and product substitution (Pellegrino et al., 2019), shifting orders among suppliers (Kirilmaz & Erol, 2017), and bridging and buffering strategies (Mishra et al., 2016). The challenge to businesses therefore, is to manage and mitigate risk through creating more resilient supply networks. Supply chain risks frequently register truly disastrous outcome where they are not adequately mitigated timeously (Lin, 2020; Ellram et al., 2008). Data breaches, criminal activities, health and safety hazards, suppliers' issues and natural disasters disrupt supplies; and can threaten the financial health, professional standing or welfare of employees and other businesses in the firm's value network and the overall competitiveness of the supply chain.

Statement of the Problem

Despite this acknowledged link between supply-side alignment and firm competitiveness, indigenous shipping firms in Nigeria have continued to underperform relative to their foreign-owned counterparts operating within the same coastal and offshore trade. More than two decades after the Cabotage Act of 2003 reserved the carriage of domestic maritime cargo for Nigerian-owned, -built and -crewed vessels, indigenous operators still account for a comparatively modest share of active tonnage in Nigerian waters, and a large proportion of registered firms remain undercapitalised, poorly equipped, and unable to sustain continuous, profitable operations (NIMASA, 2021; Sasegbon, 2025).

A significant part of this underperformance is traceable to weaknesses in the supply relationships that keep a vessel seaworthy and trading. Nigeria's shipyards lack the capacity to dry-dock and repair vessels beyond a modest tonnage, forcing indigenous shipowners to sail their vessels to Ghana, Cameroon, Côte d'Ivoire, Equatorial Guinea and other neighbouring countries for dry-docking, at significant cost and with vessels sometimes out of service for months (Peterside, cited in Leadership, 2021). This dependence on foreign shipyards and spare-parts suppliers exposes firms to long lead times, foreign-exchange volatility and prolonged vessel downtime that erode operational flexibility and service reliability. In the same vein, disruptions and irregularities in marine fuel and bunkering supply, alongside difficulty sourcing and retaining certificated Nigerian crew amid limited local training and manning infrastructure,

expose indigenous operators to unplanned costs and service failures that further weaken their competitive standing relative to foreign operators (NIMASA, 2019).

Yet, despite this evident vulnerability of indigenous shipping firms to disruptions in dry-docking, spare-parts, bunkering and crew-sourcing arrangements, empirical attention to how these firms mitigate sector-specific supply risks, and whether such mitigation relates to their responsiveness, operational flexibility, operational efficiency and market leadership, remains scarce. It is against this backdrop that the present study interrogates the relationship between supply risk mitigation and organizational competitiveness of indigenous shipping firms in Nigeria.

This study examined supply risk mitigation and organizational competitiveness. In the succeeding sections, this paper presented the baseline theory upon which the study is premised, provides literature on supply risk mitigation and proxies of organizational competitiveness. Empirical and anecdotal evidence of the nexus between supply risk mitigation and organizational competitiveness was presented, and hypotheses were formulated. The study methodology was presented thereafter; and results, discussion of findings followed. The report ended with a conclusion and recommendations.

Theoretical Review

This study on supply risk mitigation and organisational competitiveness is anchored on a dual theoretical framework: Prospect Theory (Kahneman & Tversky, 1979), and Dynamic Capabilities Theory (Teece, Pisano & Shuen, 1997). Prospect theory, operating at the level of individual and managerial cognition, explains how decision-makers perceive and frame risk under uncertainty, while dynamic capabilities theory explains how firms convert such risk-related decisions into reconfigured resources and routines that translate into organizational competitiveness. Prospect theory seeks to provide explanation to decisions made under conditions of uncertainty and risk. The position of Markowitz (1952) that the objects of choice in decision-making are prospects definable as potential gains or losses was the cornerstone idea of prospect theory. Prior to the creation of prospect theory, it was believed that decision-making is based on rational calculation of anticipated utility of risks and benefits of various choices (Tversky & Kahneman, 1981). Prospect theory however, produced strong evidence that, in reality, actual decision-making methods tend not to align with such rational calculations (Tversky & Kahneman, 1992). Prospect theory contends that the determination of a standard against which to evaluate options is essential (Miles, 2012). This is because the classification of an option as positive or negative is dependent on whether the value of the option is greater or less than the reference point. A positively framed option decreases the likelihood of perceiving something as neutral in value; while a negatively framed option increases the possibility of something being perceived as neutral in value (Highhouse & Paese, 1996 as cited in Miles, 2012).

An outcome framed as a loss (negative) tend to raise the assumption that there is more risk to be avoided, compared to when the same outcome is framed as a gain (positive). Ideally, organizations are attentive to their overall gains and losses, not just to changes to their wealth in relation to randomly determined reference points. Also, organizations' attitudes toward risk ought not to be determined by considering whether they are momentarily thinking about potential gains or losses. However, prospect theory suggests that individuals and organizations follow these ideas when challenged to make decisions (Miles, 2012). The theory in this study stretched to expatiate strategic choices firms make in relation to supply risk mitigation. The study believes that prospect theory, having been found adequate as a baseline theory in studies on political decision, foreign policy and financial forecasting can also prove useful in shedding

light on supply risk mitigation and its relationship with competitiveness of firms. However, prospect theory operates primarily at the level of individual managerial cognition; while it explains how decision-makers frame and respond to potential losses and gains, it does not on its own account for how firms convert such risk-related decisions into organizational competitiveness.

Dynamic Capabilities Theory

To bridge this gap, the study also draws on Dynamic Capabilities Theory (Teece, Pisano & Shuen, 1997), which extends the Resource-Based View (Barney, 1991) by explaining how firms sense threats and opportunities in a changing environment, seize them through timely redeployment of resources, and reconfigure existing routines, assets and supply relationships to sustain competitive advantage. Whereas the resource-based view emphasises the possession of valuable, rare, inimitable and non-substitutable resources as a source of competitive advantage, dynamic capabilities theory emphasises the firm's capacity to continuously renew and reconfigure those resources in response to a changing environment, which is more consistent with the volatile supply conditions confronting indigenous shipping firms. Applied to the present study, dynamic capabilities theory suggests that indigenous shipping firms' capacity to identify supply-side vulnerabilities such as dry-docking, spare-parts, bunkering and crew-sourcing disruptions (sensing), redeploy resources through measures such as switching suppliers, product substitution, shifting orders among suppliers, and bridging and buffering strategies (seizing), and institutionalise these adjustments into routine practice (reconfiguring) is what ultimately translates supply risk mitigation into responsiveness, operational flexibility, operational efficiency and market leadership.

The two theories are therefore treated as complementary rather than competing perspectives in this study. Prospect theory explains the cognitive and perceptual antecedents of risk mitigation, namely, how shipping firm managers frame supply disruptions as losses to be avoided and consequently adopt mitigation measures such as switching suppliers, product substitution, and bridging and buffering strategies. Dynamic capabilities theory, in turn, explains the firm-level mechanisms, resource reconfiguration, capability building and routine renewal, through which those mitigation choices are converted into sustained competitiveness. Anchoring the study on this dual framework thus provides a fuller account of both why indigenous shipping firms in Nigeria mitigate supply risk the way they do, and how such mitigation efforts translate into competitive outcomes.

Concept of Supply Risk Mitigation

Supply risk mitigation describes the processes and activities firms undertake to identify, assess and control threats to their operations, capital or earnings and which could emanate from their supply network. Firms in various industries frequently encounter unmediated vulnerabilities and disruptions in their supply networks that sometimes prompt damage-control efforts that cost huge financial resources (Mwesiumo et al., 2021). In contemporary times, government institutions and private businesses have had to grapple with cybersecurity breaches that result in loss of crucial intellectual property and proprietary assets; and which are occasioned by glitches in supply ecosystems. These issues point to one fundamental theme: “the lack of robust processes to identify and successfully manage risks in the supply chain” in a world that has become interconnected (Christopher & Peck, 2004). The challenge to businesses therefore, is to manage and mitigate risk through creating more resilient supply networks. Supply chain risks frequently register truly disastrous outcome where they are not adequately mitigated timeously (Lin, 2020; Ellram et al., 2008). activities, health and safety hazards, suppliers' issues and natural disasters disrupt supplies; and can threaten the financial health, professional

standing or welfare of employees and other businesses in the firm's value network and the overall competitiveness of the supply chain. Supply chain risk mitigation is thus essential to firms that desire to preserve their reputation and revenue, and also ensure seamless operations of firms in its supply network (Chang et al., 2015). This position re-echoes the view that "a supply chain is only as strong as its weakest link;" and that each node in a supply network A number of supply risk mitigation strategies that promise supply chain competitiveness exist. Managing supply risk has become incredibly important for companies because even a minor error can take a toll on a firm's health in terms of financial, reputational and customer-based costs (Raj et al., 2022). Hence, organizations should always adopt new strategies in order to mitigate supply risk so as to have a competitive edge.

Operational Dimensions of Supply Risk Mitigation in Shipping

The switching-supplier, product-substitution, order-shifting and bridging-and-buffering strategies identified in the general supply chain literature (Pellegrino et al., 2019; Kirilmaz & Erol, 2017; Mishra et al., 2016) take on sector-specific forms in shipping, where the assets at risk are seagoing vessels whose downtime carries immediate revenue and safety consequences. In this study, supply risk mitigation among indigenous shipping firms is therefore operationalised through four concrete practices. The first is dual-sourcing of marine gasoil and bunker fuel, whereby vessels are contracted to more than one bunkering supplier or physical supply point, so that price spikes, quality contamination, or supply interruption at one source do not immobilise the fleet. The second is strategic inventory buffering of vessel-critical spares, spare engine parts, filters, pumps and other consumables subject to long import lead times are held in stock, at the vessel or a shore-based store, ahead of anticipated need, rather than ordered reactively after a breakdown. The third is long-term maintenance and service-level agreements with shipyards and repair contractors, whereby indigenous operators pre-negotiate dry-docking slots, turnaround-time guarantees and pricing with local or foreign yards to reduce the uncertainty and cost associated with ad-hoc repair arrangements. The fourth is crew-sourcing and backup manning arrangements, including standing relationships with maritime training institutions and crewing agencies to secure certificated replacement crew on short notice, thereby limiting disruption from crew unavailability. These four practices give empirical texture to the constructs of switching suppliers, product substitution, shifting orders among suppliers, and bridging and buffering as they apply specifically to indigenous shipping operations, and inform the operationalisation of supply risk mitigation adopted in this study.

Although these four practices represent conceptually distinct operational dimensions, the present study operationalises supply risk mitigation as a single global (unidimensional) construct rather than as a multidimensional index with separate sub-scales for each dimension. This is consistent with the measurement approach adopted in the survey instrument, in which supply risk mitigation is assessed using one seven-item Likert-type scale that yields a single composite score (Cronbach's alpha = 0.802; see Table 1), rather than four distinct sub-scales with independently computed reliability coefficients as was done for the three dimensions of organizational competitiveness (responsiveness, operational flexibility and market leadership). Hypotheses Ho1 to Ho3 accordingly test the relationship between this single composite supply risk mitigation score and each of the three competitiveness proxies, rather than examining the differential contribution of dual-sourcing, inventory buffering, maintenance service-level agreements and crew-sourcing arrangements individually. Future studies may build on the operational dimensions identified here by developing and validating dimension-specific sub-scales to test their differential effects on firm competitiveness.

Organizational competitiveness

Organizational competitiveness requires firms to be pliant; and consistently adjust to changing market structures and conditions (Douglas, 2004). Gunasekaran et al. (2003, as cited in Verma & Seth, 2010) argues that firms become competitive by performing important activities at a lower cost or better than competitors; and that a firm's competitiveness depends on other components (suppliers, manufacturers, and distributors) in its value creation and delivery network. Chow et al. (2008) states that competitiveness encompasses organisational, managerial, technical, and strategic capabilities and skills firms develop over time; and argues that being part of a business ecosystem enable access to a greater pool of expert knowledge, which is key to building organizational competitiveness. Riquelme-Medina et al. (2021) and Alletto et al. (2017) align on the position that collaborative activities in business ecosystems benefit firm's flexibility, agility, market position, patent productivity and efficiency. Thus, business ecosystems create opportunities for individual firms; and by identifying with a business ecosystem, a firm reap benefits that are relevant to improved competitiveness that comes from collective learning experiences (Chow et al., 2008). The forgoing demonstrates that competitiveness is a relative concept. Alahmad (2021) Tarafdar and Qrunfleh (2017) suggests that organizational competitiveness can be deconstructed into cost effectiveness, operational flexibility, and product availability and delivery capability, reliable and consistent product delivery, responsiveness to customers' demands, and inventory optimization; (Krajewski et al. 2009, as cited in Waithaka & Kimani, 2021) proffered product customization, consistent quality and high capacity utilization; while Cagnazzo et al. (2010 as cited in Wachira et al., 2022) named responsiveness, flexibility, and costs management as dimensions of competitiveness. However, this study adopted responsiveness, operational flexibility, operational efficiency and market leadership as operational, financial and market performance indicators of competitiveness (Alagarsamy et al., 2021; Omar et al., 2019; Roman et al., 2012).

Responsiveness

Satisfying the requirements of buyers is one of the many challenge's firms face in today's volatile business environment (Jagan et al., 2019); and meeting this challenge requires firms to be responsive to customers (Gunasekaran & Kobu, 2007). Responsiveness is an emergent notion that spans multiple factors included in value chain activities that span identifying or creating and exploiting business opportunities, achieving brand vitality, and expeditiously meeting impulsive alterations in customers' demands in a rapidly shifting environment (Helt et al., 2005, cited in Arimie & Nadube, 2019). Responsiveness is also the ability to respond to customers' needs in terms of quality, speed and flexibility (Asree et al., 2010); and represents a competitive capability (Nwulu & Ateke, 2018). Recently, Richey et al. (2021) proposed a broad view of responsiveness; and incorporates response to the environment, supply chain members, stakeholders, and consumers.

Responsiveness has been shown as an indicator of competitiveness and as a means to improving other (market and financial) aspects of company performance (Aslam et al., 2018; Huo et al., 2018). Nevertheless, Wong and Hvolby (2007) question firms' reactive approaches in cases of extreme demand variation, uncertainty, and seasonality, and called for "coordinated response" to manage and shape customer demand patterns. Overall, extant literature converges on the effectiveness of actions, timeliness, and response to market stimuli as three essential properties for responsiveness. In the current study however, responsiveness is treated unidimensional; and as a measure of organizational competitiveness.

Operational flexibility

The concept of operational flexibility was developed to address firms' challenge of achieving improved visibility, minimized uncertainty and facilitate swift well-considered decision-making. The development of operational flexibility enables companies to respond better, to changing buyers' requirements and other environmental vagaries (Williams et al., 2013).

Operational flexibility describes how well firms smartly and seamlessly coordinate, deploy and switch the use for resources in response to environmental dynamics (Sanchez, 1995, as cited in Meng et al., 2020). Operational flexibility therefore, borders on resource flexibility and coordination flexibility (Wei et al., 2004). Resource flexibility is concerned with the identification and obtainment of different uses for accessible or available resources, which unveils various strategic options for business executives. Operational flexibility may be viewed from difficulty, time, and cost of switching different uses of resources.

The various aspects of company operations where flexibility is growing in importance includes upstream supplies and downstream marketing which have prominence in view of their roles in building and sustaining competitiveness. Firms that do not accord flexibility much attention in their operations are easily outperformed by competitors who operate with a higher level of flexibility. To achieve improved visibility, minimize uncertainty and facilitate informed decision-making in good time, companies must develop flexibility that facilitates better response to changing buyers' requirements and other environmental vagaries (Williams et al., 2013). Hence, operational flexibility as a measure of firm competitiveness.

Market leadership

Market leadership in today's business world also requires firms to design and implement proactive customer-focused strategies that confer competitive advantage and long-term survival (Bassell & Lambert, 2018). Ateke and Nwulu(2021) marketing success today requires firms to be innovative, quick to adapt to changing conditions, and resilient. They must possess the competences of agility and flexibility; and must not be tethered to the marketing thinking, programmes, processes, practices or strategies of the past. This is because several once powerful companies are struggling today or have faded away because they did not adapt rapidly; they are having the same experience as the dinosaur, which went extinct not due to physical weakness, but due to inability to adapt to changing conditions (Bassell & Lambert, 2018). Market leadership is conferring several benefits, including large market share and above-per-profitability.

In addition, market leaders wield significant influence on suppliers, distributors, consumers, competitors and government regulations in an industry (Ateke & Nwokah, 2022). Market leadership requires the development and introduction of products that increases customers' value. Market leaders enjoy more market power and competitive advantage than rivals; and maintain their leadership over a long period of time in some industries (Ateke & Nwokah, 2022). Virtually all decisions and actions of firms are aimed at achieving and sustaining market leadership (Rajagopalan et al., 2022). Market leaders are firms with the largest market share and highest profitability prospects in their industry; and which are able to create competitive advantage that translate to performance differentials.

Supply risk mitigation and organisational competitiveness

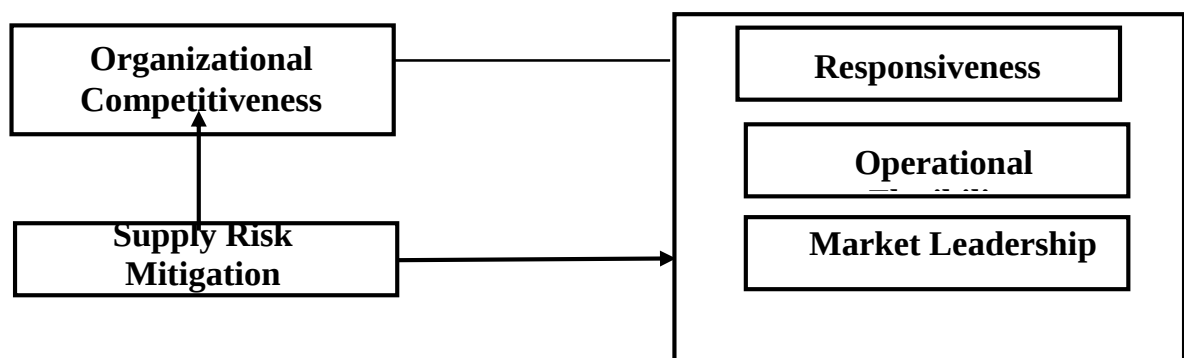
Supply chains are inherently prone to risks that may be occasioned by suppliers' production failure or bankruptcy, natural disasters, economic crisis, etc.; and firms are expected to anticipate these risks and make contingency plans for them. This is in lieu of the enormity of the effects supply risks have on firms' current and future wellness. Linton and Vakil (2020)

states that firms must evolve risk mitigation strategies to avoid or reduce the impacts of supply risks that have the capacity to disrupt operations and threaten their competitive position. Supply risk mitigation efforts results in the elimination or reduction of the likelihood of occurrence or impact of risks in the firm's supply structure. Increase in supply chain complexity and uncertainty of supplies have attracted substantial interest in supply risk management debate from supply chain practitioners and theorists (Mwesiumo et al., 2021). Friday et al. (2018) notes that procurement officers face increasingly complex operations, hence, are susceptible to procurement-related risks. In the view of Andres and Marcucci (2020), businesses are exposed to risky and highly disruptive events in the present global business environment that is characterized by increased uncertainty and competition. This view of Andres and Marcucci (2020) that firms encounter more risks today is credible because increased complexity and uncertainty of supplies exacerbate firms' vulnerability to supply risks and disruptions (Sharma & Sharma, 2015). Thus, Bevilacqua et al. (2020) preferred that effective risk management is essential to preventing or mitigating supply breaks that disrupt business operations. Andres and Marcucci (2020) suggest such disruptive events often affect multiple partners in a value chain and harm business performance. Effective risk mitigation efforts are thus required to buoy the firm and insulate it from economic, social and environmental harms (Mishra et al., 2016). Sharma et al. (2020) identified supply risk mitigation as an essential factor that enhances survival and prosperity, which indicates a firm's level of competitiveness. In view of the above submissions the following hypotheses were formulated:

Ho1: Supply risk mitigation has no significant relationship with responsiveness of indigenous shipping firms in Nigeria.

Ho2: Supply risk mitigation has no significant relationship with operational flexibility of indigenous shipping firms in Nigeria.

Ho3: Supply risk mitigation has no significant relationship with market leadership of indigenous shipping firms in Nigeria.



Methods

This study examined the association between supply risk mitigation and competitiveness of indigenous shipping firms in Nigeria. The study adopted an explanatory research design. The universe of the study comprises 3,608 registered indigenous shipping firms in Nigeria. The information on the number of indigenous shipping firms in Nigeria was obtained from the Nigerian Maritime Administration and Safety Agency (NIMASA, 2022). The study relied on the Krejcie and Morgan (1970) Table for sample size determination to arrive at a sample size of 351. However, the final analyses were based on 349 usable responses. Primary data for this study was collected from the sample element of the study, using structured questionnaire; and

in a cross-sectional survey. The instrument used to collect primary data is a multiple-choice questionnaire designed in the 5-point Liker scale. In line with its conceptualisation as a global construct in the literature review, supply risk mitigation was measured with a single seven-item sub-scale yielding one composite score per respondent, rather than as separate sub-scales for the dual-sourcing, inventory-buffering, maintenance service-level agreement and crew-sourcing dimensions identified therein. Organizational competitiveness, by contrast, was measured as a multidimensional variable, with responsiveness, operational flexibility and market leadership each assessed using an independent sub-scale, consistent with hypotheses Ho1 to Ho3. The reliability of the instrument was determined using “Cronbach’s Alpha test of reliability” with a threshold of 0.70 set by Nunally (1978). A summary of the results of test of reliability is presented in Table 1.

Table 1: Summary of Reliability Results

Variables	Dimensions/Measures	Items	Cronbach’s Alpha
Organizational Competitiveness	Supply risk mitigation	7	0.802
	Responsiveness	11	0.811
	Operational flexibility	11	0.701
	Market leadership	8	0.722

Source: Simulation from SPSS Output o (2023)

The results show that all the scales in the instruments surpassed the Cronbach’s Alpha reliability threshold of 0.70 as suggested by Nunally (1978). Hence, the instruments is best adjudged reliable, and meets the required minimum standard of precision and clarity. The results demonstrate the scales in the research instruments adequately measure the constructs they are designed to measure. The Spearman’s Rank Order Correlation (anonparametric statistic) was test statistic used for data analyses.

Table 2: Descriptive Statistics of Items on Supply Risk Mitigation

My firm:	N	Mean
Create contingency procurement plans	349	3.2837
Institute measures to reduce bottlenecks in the supply chain	349	3.5043
Maintain strategically placed safety stocks	349	3.7278
Postpone commitment of resources	349	3.2521
Ensure high information sharing with suppliers	349	3.3352
Experience delay of incoming shipments	349	3.0936
Rarely experience damage to incoming shipments	349	3.4093
Collaborate with key suppliers to identify supply chain risks	349	2.9091
Valid N (listwise)	349	

Source: SPSS Output of Data Analysis on Strategic Procurement Practices and Competitiveness (2023).

The result on the analysis in Table 4.9 reveals that risk mitigation initiatives are common features of procurement operations the firms surveyed in the study. The results reveal mean coefficients which describe this indicator of strategic procurement practice as being moderately expressed by the study population, suggesting that indigenous shipping firms institute risk mitigation measures in their strategic procurement operations.

Table 3: Descriptive Statistics of Items on Responsiveness

My firm	N	Mean	SD
Responds swiftly to customers' needs	349	3.5272	1.05181
Has flexible processes that meets changes in customers' requirements	349	3.3868	1.17539
Is always willingness to assist customers	349	3.4069	1.18930
Provide timely solutions to customers' needs or problems	349	3.2636	1.05828
Offers a variety of products to customers	349	2.7307	1.24647
Reacts swiftly and seamless to market intelligence about current and future needs of buyers	349	2.9312	1.27796
Reacts swiftly to threats in the environment	349	3.4183	1.02683
Reacts swiftly to opportunities in the environment	349	2.8183	1.21975
Has the capacity to address internal issues speedily	349	2.0983	1.17184
Reacts quickly react to competitors' moves	349	3.2636	1.09183
Valid N (listwise)	349		

Source: SPSS Output (2023)

Table 3: presents the result of descriptive analysis of items on responsiveness. It showed that respondents affirm to all statements as being evident. The distribution reveals a dominant manifestation of the concept given the frequency distributions for the statements and their corresponding mean coefficients (where $x > 2.0$). As such the evidence shows that respondents agree to the prevalence of responsiveness among indigenous shipping firms in Nigeria.

Table 4: Descriptive Statistics of Item on Operational Flexibility

My firm	N	Mean	SD
Apply combinations of resources at hand for new operations	349	3.5845	1.13810
Use existing resources to respond to a new problem or opportunity	349	2.8711	1.26309
Improvise solutions from existing resource to solve new challenges	349	3.3696	1.24490
Apply combinations of existing resources to deal with new challenges	349	3.2837	1.32279
Find it difficult to switch from one use of a resource to an alternative	349	3.3381	1.00588
Require limited time to switch to alternative resource use	349	3.4413	1.15724
Exploit changes in environmental trends to improve your operations	349	3.5501	1.14768
Reconfigure resources to develop and deliver better customer value	349	3.5530	1.09632
Deploy resources through structures that support your strategies	349	3.2407	.89343
Have a range of alternative uses to which a resource can be applied	349	3.6246	1.14197
Optimize operational capabilities in response to customers' demands	349	2.9815	1.29340
Valid N (listwise)	349		

Source: SPSS Output (2023)

The outcome of the analysis on operational flexibility as presented in Table 4 shows that most respondents affirm to evidence and manifestations of operational flexibility in their organizations. The results show that respondents affirm to all statements reflecting operational flexibility and agreeing to a moderate extent (where $2.0 < x \leq 4.0$) that operational flexibility is prevalent in their firms.

Table 5: Descriptive Statistics of Items on Market Leadership

My Firm	N	Mean	SD
Has the largest market share in the industry	349	3.1920	1.09721
Has the highest profitability prospects in the industry	349	3.6304	1.18336
Is the most dominant player in the industry	349	2.8997	1.18114
Enjoy more market power than rivals	349	3.4928	1.07602
Maintain leadership position in the industry over a long period of time	349	3.6418	1.11189
Successfully influence the pricing of its service	349	3.2321	1.00602
Leads the industry in the most innovative ideas	349	3.0324	.99721
Most customer-focused firm in the industry	349	2.9328	1.09624
Valid N (listwise)	349		

Source: SPSS Output (2023)

Table 5: presents the result of descriptive analysis on market leadership as a measure of competitiveness. The items in the Table assess respondents' experience concerning how well their firms are leaders in the industry. The Table shows that respondents identify with all statement items on market leadership. The position of the respondents indicate that market leadership is prevalent marker of competitiveness considered among indigenous shipping firms in Nigeria. This position is premised on the evidence that all mean coefficients of responses to all the statement items surpassed the established threshold (where $x > 2.0$). Nigeria.

Table 6: Relationship between Supply Risk Mitigation and Measures of Competitiveness

			Supply Risk Mitigation	Responsiveness	Operational Flexibility	Market Leadership
Spearman's rho	Supply Risk Mitigation	Correlation Coefficient	1.000	.573**	.648**	.701**
		Sig. (2-tailed)	.	.000	.000	.000
		N	349	349	349	349
	Responsiveness	Correlation Coefficient	.573**	1.000	.708**	.718**
		Sig. (2-tailed)	.000	.	.000	.000
		N	349	349	349	349
	Operational Flexibility	Correlation Coefficient	.648**	.708**	1.000	.697**
		Sig. (2-tailed)	.000	.000	.	.000
		N	349	349	349	349
	Market Leadership	Correlation Coefficient	.701**	.718**	.697**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	349	349	349	349

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

Source: SPSS Output (2023)

Table 6: displays the result of test of correlation between supply risk mitigation and proxies of competitiveness. The analysis reveals that supply risk mitigation informs competitiveness substantially. This position is based on the test results which showed a rho of 0.573 and Pv of 0.000 between supply risk mitigation and responsiveness. The result also showed a rho coefficient of 0.648 and Pv = 0.000 on the link between supply risk mitigation and operational flexibility. while the connection between supply risk mitigation and market leadership manifested a rho coefficient of 0.701 and Pv = 0.000. These results suggest that supply risk

mitigation has moderate positive and statistically significant correlation with responsiveness, operational flexibility and market leadership of indigenous shipping firms. Therefore, the null hypothesis is hereby rejected in favour of the alternates. The study thus states that supply risk mitigation has significant relationship with responsiveness, operational flexibility and market leadership of indigenous shipping firms in Nigeria.

Discussion of Findings

The empirical tests carried out to situate the link between supply risk mitigation and metrics of competitiveness produced rho coefficients that demonstrate the existence of strong positive relationship between the variables, and probability values showed that there is a relationship between supply risk mitigation and competitiveness of indigenous shipping firms in Nigeria. This statistically significant align with the findings of Linton and Vakil (2020) states that firms must evolve risk mitigation strategies to avoid or reduce the impacts of supply risks that have the capacity to disrupt operations and threaten their competitive position. Supply risk mitigation efforts results in the elimination or reduction of the likelihood of occurrence or impact of risks in the firm's supply structure. Also, Bevilacqua et al. (2020) preferred that effective risk management is essential to preventing or mitigating supply breaks that disrupt business operations. Therefore, in line with our study, supply risk mitigation significantly enhances organizational competitiveness of indigenous shipping firms in Nigeria.

Conclusion and Recommendations

This study focused on concept of supply risk mitigation and organizational competitiveness of indigenous shipping firms in Nigeria. The results obtained from the statistical analyses showed that supply risk mitigation significantly relate with organizational competitiveness. Therefore, this study concludes that supply risk mitigation facilitates the attainment of organizational competitiveness through responsiveness, operational flexibility and market leadership. The study therefore recommends that indigenous shipping firms in Nigeria should Institute measures like switching suppliers, product substitution, shifting orders among suppliers, and bridging and buffering strategies to eliminate or reduce the occurrence of, or impact of supply risks.

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