

## **SUPPLY CHAIN AGILITY AND PERFORMANCE OF OIL AND GAS FIRMS IN RIVERS STATE**

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### **Abstract**

This study examined the relationship between supply chain agility and performance of oil and gas firms in Rivers State. Supply chain agility was used as a unidimensional variable, while performance was measured using profitability and market share. The theoretical foundation of the study was resource-based view. The study adopted a survey research design. The population of the study consisted 29 oil and gas firms. The sample size was the same as the population. The study collected primary data using questionnaire, while the hypotheses were tested using Pearson Product Moment Correlation (PPMC) with the aid of Statistical Package for Social Sciences 23.0. The findings are that supply chain agility has strong and positive relationship with profitability and market share, hence performance of oil and gas firms in Rivers state. Based on these findings, the study concludes that supply chain agility is significantly related to firm performance. On the basis of this conclusion, the study recommends that oil and gas firms in Rivers State should invest in resources that boost their agility.

**Keywords:** Firm performance, market share profitability, supply chain agility

### **Introduction**

Twenty-first organizations have found themselves working in a rapidly changing environment characterized by heavy technological advancements, globalization and serious competition. In the light of this reality, traditional management strategies and practices have become rather ineffective, and insufficient to outperform competitors and create more value (Puspita et al., 2020).

Thus, researchers have argued as to why some organizations succeed while others fail; and most studies attribute organizational failure to inability to implement supply chain integration (Jayaram & Keah-Choon, 2010). According to Mose (2015), the biggest challenge facing companies today is not the internet, by itself, or globalization or stakeholder needs, but inability to integrate supply chains from vendors through manufacturers and distributors to deliver and obtain value.

Companies face rapid technological changes, uncertainty of growth and market dynamics, decreased product life cycles and growing market segmentation in the global environment. Thus, organization's ability to quickly adapt to changing market conditions has become a critical subject (Christopher & Denis, 2001). Agile supply chains become essential because they respond quickly and effectively to market change (Teece et al., 1997).

No company has all the necessary resources with which to exploit market opportunities and secure competitive advantage. So, companies must cooperate with suppliers and customers to integrate operations and achieve a level of agility beyond sole operations (Hoek et al., 2001). Lin et al.

(2006) and Lou et al. (2004) argue that supply chain agility is one of the most important keys to winning the competition and increasing profit margins.

Despite the apparent importance of supply chain agility to strategic growth and performance (Wolf et al., 2015), there is relative scarcity of empirical studies on how it and relates to performance of companies in developing economies like Nigeria. The present study therefore, sought to close this gap by examining the relationship between supply chain agility and performance of oil and gas companies in Rivers State, Nigeria.

The study was guided by the following hypotheses and conceptual framework:

Ho: There is no significant relationship between supply chain agility and profitability of oil and gas companies in Rivers State.

Ho: There is no significant relationship between supply chain agility and market share of oil and gas companies in Rivers State.

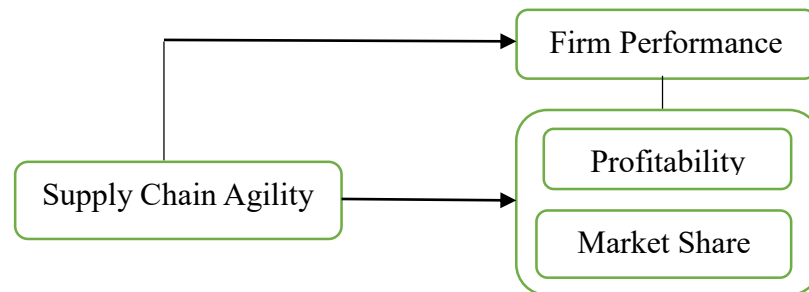


Fig. 1. Conceptual Framework of relationship between supply chain agility and firm performance of oil and gas firms in Rivers State.

### Theoretical Framework: Resource Based View (RBV)

RBV is a framework used to identify strategic resources available for any organization. Rumelt (1984) and Wernerfelt (1984) says that the core principles of RBV are to focus on competitive advantage for an organization with reference to the use of valuable and unique resources owned by that organization. In general, organization have two categories of resources: visible resources and invisible resources.

According to Runyan et al. (2006) and Ferreira et al. (2011), visible resources include capital, access to capital and location; while invisible resources include knowledge, skills, reputation and entrepreneurial orientation. These resources and capabilities constitute the core competence of the firm and serve as its source of competitive advantage. The static stream of research focuses on attributes that contribute to heterogeneity of resources and capabilities. Four barriers may prevent competitors from imitating a firm's resources and capabilities: durability, transparency, transferability and replicability (Miller & Ross, 2003).

These attributes may also apply to inter-organizational arrangements (Jap, 2001). The more dynamic aspects of RBV consider a firm's core competence to be its ability to react quickly to situational changes and build further competencies (Miller & Ross, 2003; Eisenhardt & Martin, 2000). Hence, a firm's competitiveness is associated with the configuration of resources and capabilities as markets evolve. However, inter-organizational relationships may also facilitate and advance organizational learning. So, relationships are not only output-oriented but are also learning oriented.

Miller (2003) states that most organizations are able to change the asymmetries that belongs to a sustainable capacity. It encompasses the skills, processes, talent, assets, or outputs that are owned or produced by the organization and are not owned and cannot be duplicated by competitors. It is rare, may not be copied, and no replacement. RBV is an implicit assumption in many supply chain decisions. Often, outsourcing decisions are based on the idea of focusing on core competencies and outsourcing complementary competencies to external partners.

### **Concept of Supply Chain Agility**

Companies dynamically integrate with suppliers, build customer relationships, form alliances and share knowledge to foster their capacity to compete favourably (Banjo, 2018); and being agile to adapt to changing condition is key to this capacity. Khan et al. (2009) states that agility means using market knowledge to exploit profitable opportunities. Ngai et al. (2011) adds that supply chain agility is ability to respond to changing conditions and convert change into business opportunities.

According to Huang et al. (2014), the purpose of an agile supply chain is to understand customer requirement by interfacing with market and being adaptable to future change, with the aim to produce in any volume and deliver to a wide range of market currently served, and provide customized products at short lead times. Lee (2000, as cited in Damien & Shams, 2011) describe an agile supply chain is one that utilize strategies aimed at being responsive and flexible to customer needs, while hedging risks of supply shortages and disruptions by pooling inventory or other capacity resources.

Supply chain agility facilitates cooperation and collaboration with suppliers, customers, and business partners (Chang et al., 2016). Thus, it is believed that agility is a feature needed to withstand competitive pressure (Giachetti et al., 2003; Yusuf et al., 1999). Rahimnia and Moghadasian (2010) opine that supply chain agility include flexibility and responsiveness; and can be achieved through strategies aimed at being responsive and flexible to customer needs, while hedging risks of supply disruptions (Mensah et al., 2014).

Supply chain agility inform rapid identification of changes, opportunities, and threats (vigilance); swift access to relevant data (accessibility); decisive actions (decisiveness); quick implementation of decisions (swiftness); and modification of the range of tactics and operations (flexibility) (Gligor, 2015). In order that the firm can manufacture in response to what customers require, its supply chain should be agile, that is, respond quickly to volatile demand and short product life cycles (Blome et al., 2013; Gligor et al., 2015).

### **Concept of Firm Performance**

Performance consists achieving goals. According to Radipere and Dhliwayo (2014), company performance is described as how good an organization is accomplishing its objectives. Firm performance can also be explained as the capacity of a company to satisfy the intent of the organization and main stakeholders (Aminu & Shariff, 2015). In Ateke and Nwulu (2018), business performance is viewed as a measure of the extent to which a firm achieves its objectives based on its business programmes and activities and constraints of the operating environment.

Performance is organizational accomplishment affiliated with set goals. It embraces behavioral outcomes and economic achievements. Performance management explains the manner in which employees are methodologically handled in order to bring about productivity, revolution,

satisfaction and goal motivation in the organization (Uke, 2018). Businesses operate in challenging environments that present both threats and opportunities, thus, to achieve and maintain desired levels of performance, firms must cultivate a resilient culture that better positions them to prosper (Harcourt & Ateke, 2018).

Etzioni (1960, as cited in Hashem, 2015) believe that frequent assessments of organizations have been carried out in relation to the achievement or non-achievement of set objectives. Handler (1962, as cited in Hashem, 2015) argue that the ultimate criterion of organization performance is its growth and long term survival. An organization is successful if there are efficient operations between the organization and its environment and its staff are content to contribute to its growth.

Ateke and Kalu (2016) states that business performance is a concept with multiple indicators that can be used in different contexts between profit and non-profit oriented organisations; and suggests that it can be measured using sales growth, market share and profitability. In this study, we adopt profitability and market share.

### **Profitability**

According to Nimalathasan (2009), profit is the primary objective of a business, which measures not only its success, but also serve as a cue to how much it can develop. Weidenfeld and Nimalathasan (2009) noticed that profitability provide firms with more accurate ways to assess their performance. Profitability is also used to gauge efficiency (Nishanthini & Nimalathasan, 2013).

Orban and Dekan (2009) states that profitability is essential to businesses because it is a key requirement for growth and survival. Also, highly profitable businesses rewards owners with a large return on investment. Barad (2010) defines profitability as the ability to earn profit from all the activities of an enterprise He said it indicates how well the management of an enterprise generates earnings with the' resources at its disposal. He described profitability as a full-fledged measure of evaluating overall business performance.

### **Market share**

Didia (2015) define market share as the percentage of the entire market that a firm serves. It refers to the percentage of the overall growth of business in a given market that is contributed by one company in relation to its competitors. It is the percentage of a market (defined in terms of either units of revenue) accounted for by a specific entity (Farris et al, 2010). An organization's share of a market is an indicator of how well the organization is getting along. Organizations use market share to pass judgment or discover the viability of their marketing efforts and systems.

Market share gives an idea of the size of the company in relation to its market and its competitors (Didia & Nwokah 2015). Market share is usually used to express competitive position. It is also generally accepted that increased market share can be equated with success whereas decrease market share is a manifestation of unfavourable actions by firms and usually equated with failure.

Market share is closely monitored by signs of change in the competitive landscape (Farris et al, 2010). Increase in market share in one of the most important objectives of business. The main advantage of using market share as a measure of performance is that it is less dependent upon macro environmental variable such as state of the economy or changes in tax policy.

Change in market share help managers evaluate both primary and selective demand in the market, that is, it enables them to judge not only total market growth or decline but also trends in customers' selection among competitors.. argo and Lusch (2004, as cited in Denis, 2017) argued that practitioners interpret market share as a measure of how well a company has been able to predict market dynamics and needs of customers.

## Methodology

The study adopted a survey research design. The population of the study was twenty-nine (29) oil and gas firms operating in Rivers State as registered by finelib.com. The study adopted a census approach. Copies of the questionnaire were given to five (5) respondents from each of the twenty-nine (29) oil and gas firms in Rivers State. The respondents included purchasing, marketing, production managers, customer service and account managers. Data was collected through a questionnaire which was administered to respondents. The questionnaire was a 5-point Likert scale. The test of hypotheses was done using Pearson Product Moment Correlation analysis with the aid of Statistical Package for Social Sciences 23.0.

## Results

**Table 1: Relationship between Supply Chain Agility and Profitability**

		Supply Chain Agility	Profitability
Supply Chain Agility	Pearson Correlation	1	.733**
	Sig. (2-tailed)		.000
	N	120	120
Profitability	Pearson Correlation	.733**	1
	Sig. (2-tailed)	.000	
	N	120	120

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

Source: Outcome of analyses of field date (2024).

From the analysis in Table 1, with a significance level of 0.05, the test indicates a correlation coefficient of 0.733 which shows a strong and positive relationship between supply chain agility and profitability of oil and gas firms in Rivers State. The relationship between internal integration and profitability are significant because the probability value is less than 0.05( $P < 0.05$ ,  $P = 0.000$ ). Therefore, the null hypothesis that there is no significant relationship between supply chain agility and profitability of oil and gas firms in Rivers State is rejected.

**Table 2 Relationship between Supply Chain Agility and Market Share**

		Supply Chain Agility	Market Share
Supply Chain Agility	Pearson Correlation	1	.639**
	Sig. (2-tailed)		.000
	N	120	120
Market Share	Pearson Correlation	.639**	1
	Sig. (2-tailed)	.000	
	N	120	120

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

Source: Outcome of analyses of field date (2024).

From the analysis in Table 2, with a significance level of 0.05, the test indicates that correlation coefficient is 0.639 which shows that there is a strong and positive relationship between supply chain agility and market share of oil and gas firms in Rivers State. The relationship between internal integration and market share are significant because the probability value is less than 0.05 ( $P < 0.05$ ,  $P = 0.000$ ). Therefore, the null hypothesis which states that there is no significant relationship supply chain agility and market share of oil and gas firms in Rivers State is rejected.

### **Discussion of Findings**

The relationship between supply chain agility and profitability was found to be strong and positive with correlation coefficient of 0.733. The relationship between supply chain agility and profitability is significant because the probability value is less than 0.05 ( $P < 0.05$ ,  $P = 0.000$ ). Similarly, a strong and positive relationship was found between supply chain agility and market share with a correlation coefficient of 0.639. The relationship between supply chain agility and market share is significant because the probability value is less than 0.05 ( $P < 0.05$ ,  $P = 0.000$ ). Based on these results, hypotheses one and two were rejected.

These findings are in line with the findings of Horn et al. (2014) that supply chain agility is a precondition for supply chain integration, which accordingly has a strong positive influence on global sourcing success. Similarly, our findings corroborate the findings Riley et al. (2016) that internal integration and training positively affect organizations' warning and recovery capabilities, in both a direct and indirect manner.

Also, our findings are in with that of Hendijani and Saei (2020), that internal and process dimensions of integration had a positive effect on operational performance; and that of Dzogbewu et al. (2021) that operational performance could only be achieved when manufacturing firms' pay critical attention to supply chain agility.

### **Conclusion and Recommendations**

This study assessed the relationship between supply chain agility and performance of oil and gas firms in Rivers State. Data analysis showed that supply chain agility has positive and statistically significant relationship with performance of oil and gas firms in Rivers State.

Based on the findings, the study concludes that supply chain agility is a critical requirement for performance of oil and gas firms in Rivers State; and recommends that oil and gas firms in Rivers State should invest in structures that promote supply chain agility in order to improve their performance in terms of profitability and market share. This recommendation serve to identify supply chain agility as a key to improving performance of oil and gas firms.

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