



Strategic Flexibility and Corporate Resilience of Manufacturing Firms in South-South, Nigeria

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Abstract: *This study examined the relationship between strategic flexibility and corporate resilience in the manufacturing firms in South-South, Nigeria. Four objectives, research questions and hypotheses were postulated to examine the relationship between the dimensions (operational flexibility and market flexibility) and the measures (adaptability and agility). A structured questionnaire was prepared, while Google forms was used to gather the data from the 231 respondents. 224 respondents filled the form and these filled copies were used for the analysis. Structural Equation Modelling (SEM) with the aid of Smart PLS 3.3.3, was used to examine the relationship between the dimensions of Strategic Flexibility and the measures of Corporate Resilience. The results show that all the dimensions of strategic flexibility improved corporate resilience. The study recommends amongst others, that manufacturing firms executives should position their companies strategically to be among the first to recognize and collect external knowledge about their market trends, technology, and industry. This will help the company adjust quickly to environmental shocks and become more resilient.*

Keywords: *Strategic Flexibility, Corporate Resilience, Operational Flexibility, Market Flexibility, Adaptability, Agility*

Introduction

Generally, the business environment has been characterised by high dynamism, and this has been intensified as a result of the recent outbreak of COVID-19, which has affected many firms, irrespective of the industry. Thus, it becomes imperative for these firms to be resilient, if they must survive the attendant dynamics. For organisations to be resilient, it is important for firms to be able to adapt to the changing business environment. Akhigbe and Onuoha (2019) argued that the survival of a firm is not about its fitness, but its ability to be resilient in adapting to unforeseen circumstances. The capacity of an organization to muddle through the effect of internal and external environmental influences is critical to its survival (Osita-Ejikeme & Amah, 2021). Thus, it is important for firms to retain the elements that support renewal and reconstruction of the system in the event of disturbances (Walker *et al.*, 2004).

The organisation's ability to endure relies on its resilience, which is an interconnected network of both the organisation's internal and external factors. Organizations that have thriven over the decades are those that have high resilience capacity to withstand the impoundable nature

of the business world. A resilience firm is able to envision, get ready for and adjust to unexpected eventualities which could thus enable them to gain competitive ground over rivalries. Resilience is extremely important to any business because without it, they may not recover from unexpected disruptions or adapt fast enough to sudden changes in market demand or regulatory requirements.

In alignment with the above assertion, Onyokoko and Onuoha (2021) argued that only organizations with resilience ability are most likely to survive in a highly competitive industry. Annarelli and Nonino (2016) posited that the absence of firm's resilience makes it very tough for organizations to operate effectively when faced with high level of competitive force and uncertainties in the industry. Corporate resilience is the ability and capacity to endure system-wide interruptions to business as usual and the ability to adopt a new risk environment (Starr, Newfrock & Delurey, 2003). They add that a resilient company that can conveniently assemble many operational, managerial, corporate governance, and decision support systems, all of which can be rearranged according to any incoming risks or unexpected disruptions, creates a strategic competitive advantage over other firms (Starr *et al.*, 2003). In the same vein, according to Rexhepi and Modenesi (2016), corporate resilience is an organisation's capacity to handle crisis as well as its capability to react to an unanticipated interruption. In alignment with the following assertions, a resilient company gains an advantage through strengthened internal and external adaptation. Moreover, resilient organisations operate under the belief that risk is never just controlled within organisational borders; rather, they understand that risk is continuous and, thus, is managed by covering all contracts and vendors within their supply chain (Rexhepi & Modenesi, 2016).

Considering the dare need to ensure the resilience of organization, it is thus assumed that organisations that adopt strategic flexibility in their operations may stay agile and resilient when faced with turbulent moment. A resilient firm should be able to inculcate some element of flexibility in their strategy, in order to be able to adapt to changing circumstances and to move ahead of the game. Shimizu and Hitt (2004) explain that strategic flexibility involves identifying important shifts in the environment, immediately responding to those changes by allocating resources to a new course of action, and being able to both stop resources being spent on the wrong things, and redirecting current resources that no longer serve a resource. A business's ability to adjust strategy based on current market conditions demands that managers understand the benefits of spending enough on a project to ensure its success, while not wasting resources on failing ventures. A firm's strategic flexibility is its capability to quickly understand what is happening in the environment and to move quickly to exploit the most opportune sources to respond to its environment's ever-changing demands (Dehghan-Dehnavi & Nadafi, 2010). Firms may have to implement a systematic strategic approach to handle the growing diversity and complexity of the markets in which they operate (Hatch & Zweig, 2001).

Several empirical studies have been carried out by scholars over the years in an attempt to examine ways to enhance corporate resilience (Rice & Caniato, 2003; Muller, Koslowski &

Accorsi, 2013; Ahiauzu & Jaja, 2015; Liu *et al*, 2013; Sylva & Umoh, 2018; Corrales-Estrada *et al*, 2021; Akpan, Johnny, & Sylva, 2019). Despite the work done by scholars, there is still a shortage of work that explores how strategic flexibility relates with corporate resilience in manufacturing firms in Nigeria.

Statement of the Problem

The Nigerian Government over the years has introduced national development plans, industrial policies, initiatives, monetary and fiscal measures and sectoral developments to enhance the sector. These plans, policies and initiatives included different periods of effective control and management of the exchange rate market among other policies and plans such as national industrial policy, privatisation policy, the creation of industrial estates in various cities in the country, the establishment of Bank of Industry to provide cheap loans to Small and Medium Scale Enterprises and the national export strategy to improve competitiveness in the foreign market and create job (Adekoya, 2021a). The goal of the Nigeria industrial plan is to increase the contribution of the manufacturing sector to GDP. Despite the numerous efforts on the part of Nigerian leaders, the Nigerian manufacturing sector has significantly failed to meet its full potential (Banjoko, Iwuji, & Bagshaw, 2012). The problem of poor resilience ability in the manufacturing sector has intensified over the years. This problem has manifested in the high liquidation of most manufacturing firms in the manufacturing industry. There is ultimately no business that operates under a problem free environment.

A World Bank Enterprise Survey found that over the 5 period from 2009 to 2014, Nigeria's harsh business environment led around 322 organised private enterprises to close their doors (Economic Confidential, 2019). Roughly 820 manufacturing enterprises in Nigeria shut down or ceased production between 2000 and 2008 (Vanguard, 2009). The severe operating business climate that is also evident in the Nigerian manufacturing industry drives its manufacturing sector to operate on more than 70% of the energy it generates, using generators. Operating these generators, however, considerably raises the cost of manufacturing goods. According to Premium Times (2012), at least 800 enterprises ceased operations in Nigeria between 2009 and 2011 because of this harsh operating business environment. 50 manufacturing plants were shut down in 2016 (Ojoye, 2016).

According to Segun Ajayi-Kadir, director-general of the Manufacturers Association of Nigeria (MAN), the negative impact of the Naira devaluation and acute lack of forex has created tremendous hurdles for manufacturers in the first quarter of 2021, the scenario calls for more intentional steps from the government in supporting productive activities to boost performance in the last quarters of the year (Adekoya, 2021b). Okuwa, Nwuche and Anyanwu (2016) found that to achieve corporate resilience is to allow companies to cope with the adverse effects of abrupt economic crises, adapt to present conditions, and survive the constantly changing business environment. Irrespective of these, there is still struggle for resilience within the manufacturing firm. Hence this study seeks to examine the relationship between strategic flexibility and corporate resilience in the manufacturing firms in South-South, Nigeria.

Aim and Objectives

The aim of this study is to examine the relationship between strategic flexibility and corporate resilience of manufacturing firms in South-South, Nigeria.

The specific objectives are to:

- i. Investigate the relationship between operational flexibility and adaptability of manufacturing firms in South-South, Nigeria.
- ii. Examine the relationship between operational flexibility and agility of manufacturing firms in South-South, Nigeria.
- iii. Investigate the relationship between market flexibility and adaptability of manufacturing firms in South-South, Nigeria.
- iv. Examine the relationship between market flexibility and agility of manufacturing firms in South-South, Nigeria.

Hypotheses

Ho₁: There is no significant relationship between Operational Flexibility and Adaptability.

Ho₂: There is no significant relationship between Operational Flexibility and Agility.

Ho₃: There is no significant relationship between Market Flexibility and Adaptability.

Ho₄: There is no significant relationship between Market Flexibility and Agility.

Literature Review

The theory underpinning this work is the Contingency theory. According to contingency theory, there is no best organisational structure; the optimal structure is determined by the nature of the firm's work environment (Donaldson, 2001). According to contingency theory, managers must be consistent with other components of the organisation and/or external environment in order to be effective (Harney, 2016). The organisational theorist's position is that, according to contingency theory, the optimal organisational structure is determined by the nature of the environment with which the organisation interacts (Scott, 1992 as cited in Betts 2003). Contingency theory is predicated on two fundamental assumptions: There is no single optimal organisational structure, and no organisational structure is equally successful (Galbraith, 1973 as cited in Betts, 2003).

The capacity of a firm to be resilient depends on its strategic flexibility. The capability of a firm to withstand the dynamism in the business environment is contingent upon a fit or match between the sort of technology, the organisation's size, the organisational structure's characteristics, and its information system (Islam & Hu, 2012). Theorists of strategic contingency highlight the importance of choice and incorporate an intermediary strategic process. They place a premium on the roles of power, politics, and individual aspirations and

aims (Islam & Hu, 2012). According to strategic contingency theory, a leader becomes a critical member of an organisation when he or she possesses the unique ability to resolve challenges or problems that others are unable to resolve. Such solutions can be actualised if the leaders is flexible in his strategies.

Operational Framework

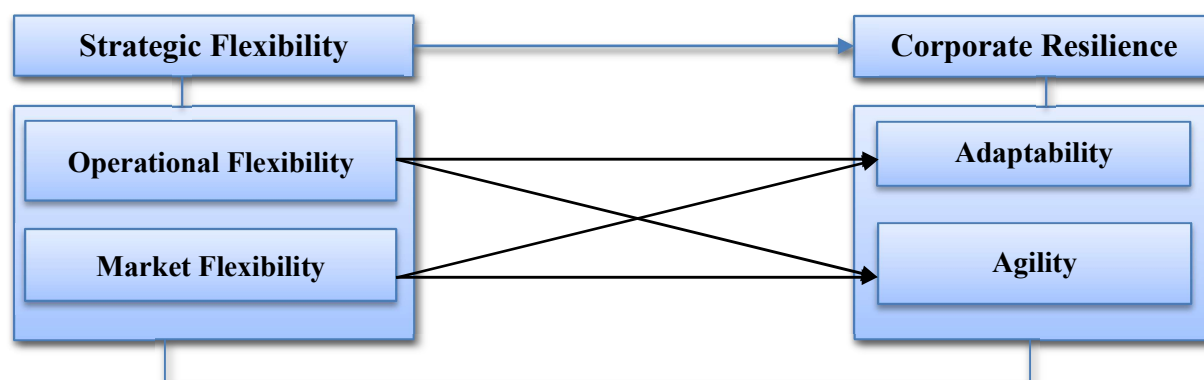


Figure 1: Operational Framework

Source: Dimensions of Strategic Flexibility adapted from Beach, Mahlemann, Price, Patterson and Sharp (2000), and Setijono (2010); and Measures of Corporate Resilience adapted from Annarelli, Battistella and Nonino (2019), and Kantur and Iseri-Say (2015)

Strategic Flexibility

According to Holweg (2005), flexibility is the capacity to adjust to internal and/or external factors. According to Escrig-Tena *et al.* (2011), flexibility refers to a firm's capacity to respond quickly to challenges, rethink its activities and strategy, and more effectively satisfy environmental demands. Flexibility is not a goal in itself, but a means to an end (Bernardes & Hanna, 2009). Flexibility refers to the innate ability to alter one's current course in capability to accommodate and successfully adapt to changes in the environment. Strategic flexibility refers to a firm's capability to recognize environmental dynamics and quickly tap into sources in order to initiate new operations in response to these dynamics (Dehghan-Dehnavi & Nadafi, 2010). Strategic flexibility refers to a business's ability to respond to uncertainties using the information and skills it possesses, while also pursuing its objectives through continual development (Eryesil, Esmen & Beduk, 2015). It is a firm's capacity to adjust to the many demands imposed by dynamic competitive settings. The degree to which a business is willing to change its strategy in response to opportunities, threats, and changes in the external environment is referred to as strategic flexibility (Zahra *et al.*, 2008).

Strategic flexibility enables firms to detect and respond to key changes in their environment (Grewal & Tansuhaj, 2001), eliminates organisational inertia, and stimulates creativity and innovation (Zhou & Wu, 2010). Thus, strategic flexibility may have an effect on the performance

of a business. However, published research reveals conflicting findings about this phenomenon. Numerous studies support the assumption that strategic flexibility enhances business performance (Grewal & Tansuhaj, 2001), but others have identified specific downsides of strategic flexibility, including greater expenses, increased stress, and a potential lack of strategic focus (Das & Elango, 1995). Strategic flexibility is one of the most critical assets an organisation can have in order to adapt to changing market conditions such as rising unemployment in the industry, technological advancements, economic competition, new regulations, and altered customer relationships (Gibson, 2000).

Strategic flexibility is concerned with identifying problems and reversing resource commitments in a timely manner if the initial activity and resource commitments prove ineffective (i.e., strategic mistakes). Strategic errors can occur as a result of an erroneous initial assessment of the environment or as a result of maintaining the status quo in the face of environmental change. Distinguishing strategic errors from temporary setbacks, on the other hand, is challenging. The decision-making process for retaining strategic flexibility is centered on the application of three capabilities, each at a different stage: (1) the capability to pay attention to negative feedback (attention stage), (2) the capability to collect and objectively assess negative data (assessment stage), and (3) the capability to initiate and complete change in a timely manner, even in the face of adverse circumstances (Shimizu & Hitt, 2004). Balancing commitment and change in a timely manner should result in outcomes that maximize possible advantages and minimize potential costs. Simultaneously, striking the proper balance is obviously difficult. Abandoning an endeavor prematurely due to initial difficulties may result in the loss of a significant future benefit, while an excessively strong commitment to a money-losing enterprise would only compound problems. Maintaining strategic flexibility is a critical yet challenging challenge for managers and organisations operating in a dynamic environment.

Operational Flexibility

Operational flexibility mostly refers to fluctuations in the volume of an organisation's activity. For instance, the establishment of a stock, the resource of temporary human resources, or the reserve of capacity at suppliers are all examples (Blakstad, 2001). Operational flexibility refers to an organisation's capability to adjust proactively or reactively to uncertainty in their business environment; this capability encompasses a number of variables that vary in importance across different contexts (Stevenson & Spring, 2007). Operational flexibility in the subunit is focused internally, on the participants and resources within the organisation that are required to deal with changes that frequently result in temporary changes in the subunit's activity level (Golden & Powell, 2000). Operational flexibility is compatible with integrated processes that allow for the reaction of a large number of operating variables (for example, scheduling, sequencing, and planning). Operational flexibility refers to a system's capacity to adapt to change. Routine management or operational flexibility is based by the organisation's current structures or goals. It is the most prevalent variety and has nothing to do with the sort of activity carried out within the business, but rather with the quantity of activities carried out. These routines are mostly concerned with operation and response. Operational flexibility enables swift response to

familiar changes. These modifications typically result in transient, short-term alterations in the company's business level. Although environmental diversity is significant, combinations of this type are reasonably foreseeable, allowing the organisation to adopt particular routines to mitigate this insecurity based on experience and extrapolation (Anderies, Volke, Walker & Ostrom, 2013).

Market Flexibility

Market flexibility is necessary for market conditions to change. Harrigan (2005) defines market flexibility as a company's capacity to reposition itself in a market, adjust its game plan, or destroy its current methods. The change in this definition is on the customer, and through satisfying the consumer, the organisation's profitability is increased. Market-focused strategic flexibility is defined as the firm's intention and capability to produce firm-specific genuine choices for configuring and reconfiguring significantly higher customer value offers (Johnson, Lee, Saini & Grohmann, 2003). Jones, Jimmeson, and Griffiths (2005) provide a more articulate definition of a company's ability to respond to changing demands resulting from dynamic competitive environments that affect new product creation technologies that provide resources for product development, production, distribution, and marketing. The shortcoming of this definition is that, without a genuine emphasis on the client, it focuses exclusively on marketing's functional operations.

Market flexibility is critical for a business's survival in continually changing conditions. It enables the business to adapt to changes in the environment (change in customer tastes, short life cycles of the product, unsafe supply sources, and so on). Market flexibility is critical if the firm's market strategy emphasizes customized items and frequent product revisions. Market flexibility is critical for responding to changing markets, even more so when these markets are highly predictable and relatively stable. Market flexibility enables businesses to prosper in a chaotic environment, which is the primary cause of manufacturing failure (Small & Downey, 1996). Thus, the failure to render operational plans ineffective, including demand and capability strategies, is a result of the market's inability to adapt to anticipated or unforeseen changes in the environment. Zhang and Sharifi (2000), on the other hand, encourage organisations to utilize and capitalize on change as opportunities that emphasize market flexibility. Srivastava *et al.* (2001) emphasized the significance of frequent activities to enhance, nurture, and refresh market-based assets and capabilities, arguing that competitors would otherwise shoot at a 'sitting target'. However, businesses must be able to accomplish this in a timely and cost effective manner. To be market-driven, all business operations involving the generation and deployment of flexibility must be directed by market considerations. Indeed, customer-pleasing flexibility is synonymous with what we refer to as market-focused flexibility.

Corporate Resilience

Resilience is the capacity to anticipate disturbances and to recover quickly and effectively from unfavourable circumstances. Resilience enables individuals to regain control quickly in the face

of unanticipated change and to maintain a general sense of well-being while managing many changes concurrently without being affected. Corporate resilience refers to an organisation's capability to anticipate crises, respond to short-term shocks, and recover from unexpected disruptions. Additionally, organisational resilience is a critical approach for an organisation to thrive in today's dynamic world and may be built through time, ensuring long-term viability (Rexhepi & Modenesi, 2016). Historically, resilience has been defined as the capacity of an individual, group, or organisation to survive, adapt to, and recover from a disastrous event (Buckle, Mars & Smale, 2000). Although the term resilience originates in science, referring to a material's ability to revert to its original shape following deformation (Sheffi, 2006), it is also used to refer to a system's ability to absorb change, typically conceptualized as sudden shocks, while retaining its essential functionality (Walker *et al.*, 2006).

McPhee (2014) defines resilience as the capability to withstand shocks, whereas Pal, Westerlind, and Torstensson (2013) and Smallbone *et al.* (2012) define resilience as a firm's ability to adjust to a crisis or a change while retaining its competitive advantage. These studies define resilience as the capacity to revert to a previous level of equilibrium. They emphasize the adaptive components of resilience, such as dynamic shock absorption. Additionally, resilience has been quantified. According to this view, resilience refers to the degree of disruption that an organisation can tolerate while still surviving (Linnenluecke and Griffiths, 2010; Limnios *et al.*, 2014). Assuring the safety of an organisation's operations and systems is vital and necessary for organisations with highly distributed and infinite network environments (Rexhepi & Modenesi, 2016).

Adaptability

Walker *et al.* (2002) define adaptability as a component of resilience that represents learning, the flexibility to experiment and embrace novel solutions, and the development of generalized responses to a diverse range of difficulties. Adaptability can be defined as an individual's or group's capacity or disposition to keep an exploratory attitude toward novel conditions as they arise and to respond in response to changing circumstances. Dalziel and McManus (2004) define adaptability as "the engagement and involvement of organisational staff in such a way that they are responsible, accountable, and preoccupied with developing the organisation's resilience through their work because they understand the connections between resilience and long-term success." Adaptability is inextricably linked to an organisation's strategic plan, which focuses on identifying and developing critical competencies, resources, and other organisational processes in order to adjust to changing business requirements. According to Paliokaite (2012), adaptability provides a competitive edge, particularly in rapidly changing situations.

Firms with adaptability learn more quickly (Akgün, Keskin, & Byrne, 2012), respond swiftly to changes in line with firm priorities (Wang & Ahmed, 2007), and incorporate external information into the firm's knowledge base (Akgün, Keskin, & Byrne, 2012). For firms operating

in highly competitive markets, strategists must factor in future uncertainty and devise strategies to deal with it (Tseng & Lee, 2014). They must be able to detect and respond to change very fast. They must be more adaptable and seek evolutionary paths to ensure the company's longevity. Organisations that have chosen an adaptable approach have recognized that in order to be adaptive, they must share accountability and responsibility more widely throughout the organisation and foster change and risk-tolerant cultures. The rate of change in the environment of businesses is significant, even if the degree of the change is concealed in some sectors (Baba & Nwuche, 2021).

Agility

Agility in an organisation refers to a collection of processes that enables it to detect changes in its internal and external environment, respond efficiently and effectively in a timely and cost-effective manner, and learn from its experiences in order to improve its competences (Seo & La Paz, 2008). Worley, Williams, and Lawler (2014) define agility as an organisation's capacity for rapid, efficient, and sustainable change; it is a replicable organisational resource. Agility is the effective integration of response capabilities and knowledge management capabilities such that unforeseen (or unpredictable) changes in proactive and responsive business and customer needs and opportunities can be adapted quickly, efficiently, and accurately without compromising the product's or process's cost or quality. Agility refers to the variety of strategies used to attain success.

Sambamurthy, Bharadwaj, and Grover (2003) define agility as a business's capacity to detect opportunities and threats, assemble the assets and skills necessary to launch an acceptable response, weigh the benefits and risks associated with those responses, and take competitively swift action. According to Van Oosterhout, Waarts, and Van Hillegersberg (2006), a company's agility enables it to rapidly change its businesses and processes above and beyond the regular amount of flexibility required to manage unanticipated changes internally and externally. Agility is contingent upon leadership at all levels advocating for agility as an organisational value and establishing an agile vision and mission (Crocitto *et al.*, 2003). Leaders must foster an environment that fosters innovation, information dissemination, teamwork efficiency, employee learning, and rewards for agile employees (Kranicka, Gód, & Wronka-Popiech, 2016). Park (2011) defined organisational agility in terms of three dimensions: sensing agility, decision-making agility, and acting agility.

Relationship between Strategic Flexibility and Corporate Resilience

A strategy is intended to assist an organisation in adapting to a changing environment. In a strategic sense, adaptability refers to a firm's capacity to develop and implement a successful strategy. However, it appears as though the capacity to adapt encompasses much more than the capacity to execute strategy (Baba & Nwuche, 2021). Opportunities can materialize unexpectedly as the environment changes, necessitating an inventory of previously ignored

replies due to their lack of relevance to current requests. In those instances, operational flexibility is required to modify present processes in order to respond to non-transient environmental changes (Stohr & Muehlen 2008). The capacity of manufacturing firms to change their technology and consumer orientation dynamically in response to environmental demands can be used to predict, to a large extent, their rapid, continuous, and systematic evolutionary adaptation and entrepreneurial innovation aimed at gaining and maintaining competitive advantage (Onyokoko & Needorn, 2021).

Agile organisations envision new products and methods of conducting business and are adaptable in their operational actions (Shams *et al*, 2007). Agility is a product of operational flexibility (Azar & Pishdar, 2011). According to Chan, Ngai, and Mon (2017), operational flexibility positively affects agility. According to Grinstein (2008), a firm's market orientation is a crucial adjustability component. Businesses with a strong capacity for adaptation exhibit market flexibility and dynamic capability (Staber & Sydow 2002).

High market flexibility entails an agility to discover new opportunities, overcome inertia, and adapt to unstructured situations, rather than being constrained to a few predefined answers (e.g., unplanned change) (Worley, Williams & Lawler, 2014). Firms must strive for a level of flexibility that is acceptable to customers, as customers do not value the firm's flexibility in and of itself (Zhang *et al.*, 2002). Rather than that, the market rewards enterprises that deliver items and services at the proper time and location that meet or exceed customer expectations. As a result, managers' resource reallocation decisions must be guided by the extent to which the resulting skills are expected to contribute to attractive customer propositions and the establishment or maintenance of competitive advantage in fast changing circumstances (Sirmon *et al.*, 2007). To continue doing so in stormy times, enterprises must be market-focused in their flexibility, i.e., they must be able to rapidly reallocate their resources in response to market needs.

Methodology

The study's target demographic is the ninety-seven (97) manufacturing enterprises registered with the Manufacturing Association of Nigeria in south-south Nigeria (MAN). The six states that comprise the south-south are Akwa Ibom, Bayelsa, Cross Rivers, Delta, Edo, and Rivers. The data for this research was gotten from an online survey. Google forms was used to gather the data from the respondents. A link was sent to the two-hundred and thirty-one (231) respondents of which questionnaire information was displayed for them to answer. Structural Equation Modelling (SEM) with the aid of Smart PLS 3.3.3, was used to examine the relationship between the dimensions of Strategic Flexibility and the measures of Corporate Resilience.

Data Analysis

224 respondents, accounting for 97% of the sample size, filled the form and these filled copies were used for the analysis.

Reliability Test

The values of standardized factor loadings, indicator reliability, internal consistency reliability (composite reliability, reliability coefficients, Cronbach alpha) and convergent validity (Average Variance Extracted) are shown in Table 1 as initial SEM assessment of measurement (outer) models.

Table 1: SEM Assessment Results of Measurement Models

Latent Variable	Indicators	Convergent validity			Internal Consistency reliability	
		Loadings	Indicator reliability	AVE	Composite reliability ρ_c	Cronbach's Alpha (CA)
		> 0.70	> 0.50	> 0.50	> 0.70	0.70 - 0.90
OPF	OPF ₁	-0.354	0.125	0.539	0.810	0.703
	OPF ₂	0.550	0.303			
	OPF ₃	0.864	0.746			
	OPF ₄	0.894	0.799			
	OPF ₅	0.837	0.701			
	OPF ₆	0.769	0.591			
MAF	MAF ₁	0.822	0.676	0.501	0.855	0.800
	MAF ₂	0.715	0.511			
	MAF ₃	0.572	0.327			
	MAF ₄	0.750	0.563			
	MAF ₅	0.657	0.432			
	MAF ₆	0.704	0.496			
ADY	ADY ₁	0.755	0.570	0.550	0.877	0.828
	ADY ₂	0.817	0.667			
	ADY ₃	0.877	0.769			
	ADY ₄	0.788	0.621			
	ADY ₅	0.489	0.239			
	ADY ₆	0.657	0.432			
AGY	AGY ₁	0.895	0.801	0.731	0.942	0.926
	AGY ₂	0.831	0.691			
	AGY ₃	0.827	0.684			
	AGY ₄	0.867	0.752			
	AGY ₅	0.812	0.659			
	AGY ₆	0.894	0.799			
Note: OPF = Operational Flexibility, MAF = Market Flexibility, ADY = Adaptability, AGY = Agility, ROB = Robustness Note: Bold and italicized items/scores did not meet recommended threshold, so they were treated as free or redundant items – not included in further analysis.						

Source: SmartPLS 3.3.3 output on Research Data, 2021

Both the reliability coefficients of the latent variables and their corresponding Cronbach's alpha values exceeded the 0.7 threshold. Consequently, the results verify that the extracted variables are consistent in explaining the variances that constitute them.

Validity Test

Analysis on discriminant (divergent) validity reveals the magnitude of empirical difference between a construct and other constructs. Each latent variable shares more variance with its own block of indicators than with another latent variable representing a different block of indicators.

Table 2: Test of Convergent and Discriminant Validity

	AVE	ADY	AGY	MAF	OPF
ADY	0.550	0.742			
AGY	0.731	0.309	0.855		
MAF	0.501	0.227	0.168	0.708	
OPF	0.539	0.201	0.177	0.215	0.734
Note: AVE = Average Variance Extracted; OPF = Operational Flexibility, MAF = Market Flexibility, ADY = Adaptability, AGY = Agility The off-diagonal values are the correlations between latent variables, while the diagonal values (in bold) denote the square roots of AVEs.					

Source: SmartPLS 3.3.3 Output on Research Data, 2021

Convergent validity is assessed by the Average Variance Extracted (AVE) across all items connected to a particular construct. Table 2 shows that all the variables have AVE values exceeding the 50% threshold. Thus, the model satisfied the conditions for convergent validity.

Result on discriminant validity concerning the study constructs is shown in Table 2. The table reveals that all the diagonal figures (square roots of the Average Variances Extracted) are higher than 0.7; and are far greater than the off-diagonal figures (correlations between the constructs), thus confirming that each construct is distinct from any other one. Therefore, the second model endorsed discriminant validity for all the constructs.

Test of Hypotheses

In order to test the hypotheses via the SEM, the bootstrap method was applied in SmartPLS. As a rule, path coefficients (β values) of .10 to 0.29, .30 to .49 and .50 to 1.0 are weak, moderate and strong correlations, respectively. Also, for a two tailed test, t values greater than 1.96 are significant, while t values less than 1.96 are non-significant. Furthermore, hypotheses with p -values less than 0.05 level of significance were rejected, while those above 0.05 were accepted. Values for $f^2 \geq 0.020$ and < 0.15 are small, values ≥ 0.15 and < 0.35 are medium, while values ≥ 0.35 are large. R^2 values should be greater than or equal to 0.10 are deemed adequate

Test of Hypotheses 1 and 2

Operational flexibility (OPF) and Corporate Resilience (ADY, AGY)

Ho₁: There is no significant relationship between operational flexibility and adaptability.

Ho₂: There is no significant relationship between operational flexibility and agility.

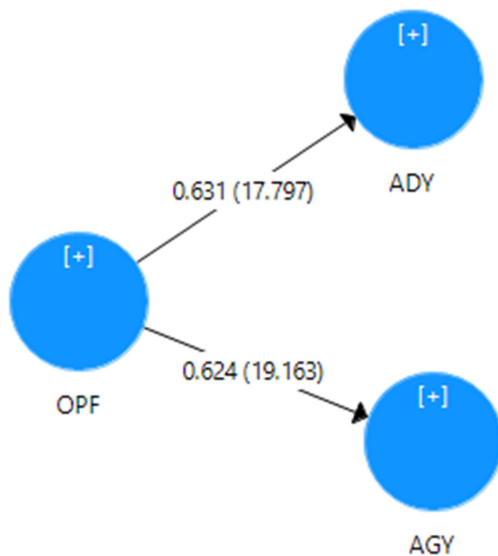


Figure 2: Specific Path Model of OPF and COR (ADY, AGY)

Source: SmartPLS 3.3.3 Output on Research Data, 2021

The path relationship analysis presented in table 1 and figure 2 indicate that there are positive and significant paths between operational flexibility and adaptability ($\beta = 0.631$, $t = 17.797$, $p = 0.000$), and operational flexibility and agility ($\beta = 0.624$, $t = 19.163$, $p = 0.000$). Therefore, H_{01} and H_{02} were not supported.

Test of Hypotheses 3 and 4

Market flexibility (MAF) and Corporate Resilience (ADY, AGY)

H_{03} : There is no significant relationship between market flexibility and adaptability.

H_{04} : There is no significant relationship between market flexibility and agility.

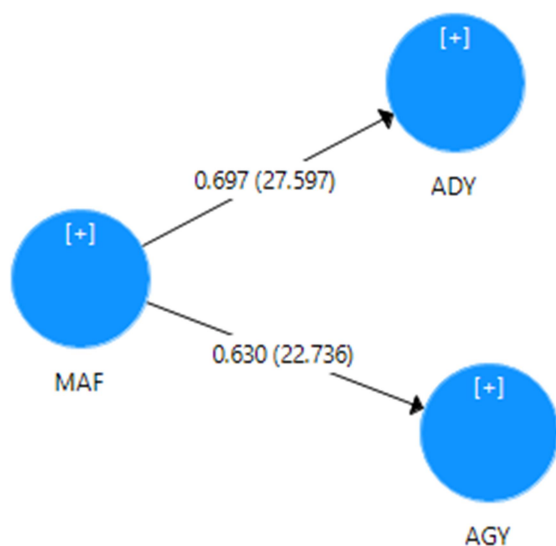


Figure 3: Specific Path Model of MAF and COR (ADY, AGY)

Source: SmartPLS 3.3.3 Output on Research Data, 2021

The path relationship analysis presented in table 1 and figure 3 indicate that there are positive and significant paths between market flexibility and adaptability ($\beta = 0.697$, $t = 27.597$, $p = 0.000$) and market flexibility and agility ($\beta = 0.930$, $t = 22.736$, $p = 0.000$). Therefore, H_{03} and H_{04} were not supported.

Table 3: Results of Hypotheses Testing

Null Hypothesis	Path (Relationship)	Path Coefficient (β)	T Statistics (t)	P Values (p)	Predictive Accuracy (R^2)	Effect size (f^2)	Level of Relationship	Decision on Hypothesis
H_{01}	OPF -> ADY	0.631 (Strong)	17.797 (Significant)	0.000 (Accepted)	0.398 (Moderate)	0.662 (Large)	Substantial, Positive and Significant	Rejected
H_{02}	OPF -> AGY	0.624 (Strong)	19.163 (Significant)	0.000 (Accepted)	0.389 (Moderate)	0.638 (Large)	Substantial, Positive and Significant	Rejected
H_{03}	MAF -> ADY	0.697 (Strong)	27.597 (Significant)	0.000 (Accepted)	0.486 (Moderate)	0.944 (Large)	Substantial, Positive and Significant	Rejected
H_{04}	MAF -> AGY	0.630 (Strong)	22.736 (Significant)	0.000 (Accepted)	0.397 (Moderate)	0.658 (Large)	Substantial, Positive and Significant	Rejected
Note: OPF = Operational Flexibility, MAF = Market Flexibility, ADY = Adaptability, AGY = Agility T-statistic greater than 1.96 at 0.05% level of significance.								

Source: Output on Research Data, 2021

Discussion of Findings

Operational Flexibility and Adaptability

The results on operational flexibility and adaptability show that $\beta = 0.631$, $p = 0.000$, $R^2 = 0.398$. This shows that operational flexibility has a positive, substantial and significant relationship with adaptability. An increase in operational flexibility will lead to an increase in adaptability. The coefficient of determination ($R^2 = 0.398$) implies that a unit change in operational flexibility will account for up to 39.8% total variation in adaptability. Hence, operational flexibility is important if a firm desires to be adaptable. This finding is supported by Stohr and Muehlen (2008) who asserted that operational flexibility is required to modify present processes in order to respond to non-transient environmental changes.

Operational Flexibility and Agility

The results on operational flexibility and agility show that $\beta = 0.624$, $p = 0.000$, $R^2 = 0.389$. This shows that operational flexibility has a positive, substantial and significant relationship with agility. An increase in operational flexibility will lead to an increase in agility. The coefficient of determination ($R^2 = 0.389$) implies that a unit change in operational flexibility will account for up to 38.9% total variation in agility. Hence, operational flexibility is important for a firm to be agile. This finding is in congruence with that of Azar and Pishdar (2011) who opined that agility is a product of operational flexibility. Agile organisations envision new products and methods of conducting business and are adaptable in their operational actions (Shams et al, 2007).

Market Flexibility and Adaptability

The results on market flexibility and adaptability show that $\beta = 0.697$, $p = 0.000$, $R^2 = 0.486$. This shows that market flexibility has a positive, substantial and significant relationship with adaptability. An increase in market flexibility will lead to an increase in adaptability. The coefficient of determination ($R^2 = 0.486$) implies that a unit change in market flexibility will account for up to 48.6% total variation in adaptability. Hence, market flexibility is important if a firm desires to be adaptable. This finding is supported by Staber and Sydow (2002) businesses with a strong capacity for adaptation exhibit market flexibility and dynamic capability.

Market Flexibility and Agility

The results on market flexibility and agility show that $\beta = 0.630$, $p = 0.000$, $R^2 = 0.397$. This shows that market flexibility has a positive, substantial and significant relationship with agility. An increase in market flexibility will lead to an increase in agility. The coefficient of determination ($R^2 = 0.397$) implies that a unit change in market flexibility will account for up to 39.7% total variation in agility. Hence, market flexibility is important for a firm to be agile. This finding is in congruence with that of Worley, Williams and Lawler (2014) who avowed that High market flexibility entails an agility to discover new opportunities, overcome inertia, and adapt to unstructured situations, rather than being constrained to a few predefined answers. Firms must strive for a level of flexibility that is acceptable to customers, as customers do not value the firm's flexibility in and of itself (Zhang *et al.*, 2002).

Summary

This study investigated the nexus between strategic flexibility and corporate resilience of manufacturing firms in Nigeria. The study employed a sample of 224 respondents. Having conducted both quantitative and qualitative analyses of the data, coupled with interpretations the following has emerged as summary of findings:

- i. Higher level of strategic flexibility promotes corporate resilience of the manufacturing firms.
- ii. Adaptability will be boosted by increased operational flexibility.
- iii. Agility will be aided by more operational flexibility.
- iv. Improved adaptability will result from increased market flexibility.
- v. Increased market flexibility will lead to increased agility.

Conclusions

Based on the results of the analysis of the data, this study comes up with certain conclusions. The key conclusion is based on how manufacturing businesses and other important stakeholders view strategic flexibility and its link with corporate resilience, which is in accordance with the study's goal. Strategic flexibility, according to this study, improves corporate resilience greatly.

Theoretical Implications

Scholars have spent a great deal of time studying the relationship between strategic flexibility and corporate resilience. Several research, including Donaldson (2001), Harney (2016), Bastian and Andreas (2012), and Islam and Hu (2012), have confirmed that strategic flexibility is an excellent concept for corporate resilience. As a result, the study discovers empirical evidence indicating the dimensions of strategic flexibility examined in this study are crucial in strengthening corporate resilience. The findings and conclusions drawn from this study have far-reaching ramifications. The study's main theoretical conclusion is that in a competitive business environment, different levels of strategic flexibility are required for different levels of corporate resilience. These theories are applicable to this study because there will be increased resilience if the manager is able to deploy appropriate talents and take essential measures based on the prevalent circumstance.

Practical Implications

Managers and key players in the manufacturing business are becoming increasingly interested in the current competitive market and the need to be responsive and improve their operations in order to stay competitive. This study provides an opportunity for practicing managers to embrace the notion of strategic flexibility, which is critical to a firm's performance in a competitive market and can improve corporate resilience. This is supported by Shimizu and Hitt (2004), who stated that strategic flexibility entails recognizing significant changes in the environment, responding quickly by allocating resources to a new course of action, and being

able to both stop resources from being wasted and redirect current resources that no longer serve a resource. This suggests that strategic flexibility is a driving force, particularly in a competitive industrial market. As a result of the study's findings, managers, supervisors, unit heads, and practitioners should be aware of how they may foster corporate resilience by instilling strategic flexibility in a tumultuous business environment.

Recommendations

- 1) Managers of manufacturing firms should ensure that product development teams use flexible new product development and modification approaches to accomplish targeted project objectives, which would enable them to be adaptable to the business environment.
- 2) Managers of manufacturing firms' should ensure organisational products and services are always available; products are not diverted; and they are in compliance with the rules and regulations of their business environment.
- 3) Managers should ensure strategic flexibility in their market, as it acts as a driver of organisational positioning in a dynamic business environment and since it exists on a continuum characterized by the degree to which a firm acquires, allocates and reconfigures its resource portfolio.
- 4) Managers of manufacturing firms should establish competitive market strategies that focus on business agility, sensing and responding capabilities linked to promptly find new market opportunities.

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Appendix
Statement Items

Strategic Flexibility					
Operational Flexibility		SD	D	A	SA
OPF1	Our organization has difficulty accommodating major changes in basic product designs or service offerings				
OPF2	We operate efficiently at different levels of output.				
OPF3	My organisation changes the quantities for our products produced quickly.				
OPF4	My organisation can vary aggregate output from one period to the next				
OPF5	My organisation produces, simultaneously or periodically, multiple products in a steady-state operating mode				
OPF6	My organisation can easily modify a product.				
Market Flexibility		SD	D	A	SA
MAF1	My organisation is able to build excess resources in relation to their product/market option.				
MAF2	Our organisation attempts to build capabilities to respond to desperate situations.				
MAF3	We emphasise on managing macro environmental risks (i.e. political, economic, and financial risks).				
MAF4	We utilise excess liquidity resources or options to enhance speed and manoeuvring capabilities.				
MAF5	My organisation has preference for projects that generate product-market options.				
MAF6	My organisation focuses on option generation and identification (e.g. selection of new product projects).				

Corporate Resilience					
Adaptability		SD	D	A	SA
ADY1	There is continuous communication during change processes.				
ADY2	The change(s) happen quickly and effectively.				
ADY3	The business finds it easy to adapt to changing situations.				
ADY4	The management team is usually calm in absorbing shocks.				
ADY5	The leader/manager feels confident in the abilities of employees to tackle problems.				
ADY6	The management team knows the key trends and changes in the environment that could impact the business.				
Agility		SD	D	A	SA
AGY1	The organisation is fast in detecting changes that occur.				
AGY2	The organisation quickly detects changes in technology.				
AGY3	The organisation analyses important events concerning customers, competitors and technology without delay.				
AGY4	The organisation implements a plan of action in order to respond to the movements in the business external environments without delay.				
AGY5	The organisation can reconfigure its resources in the proper time.				
AGY6	The organisation can readjust operations carried out in a timely manner.				