

# The Moderating Effect of External Environment on the Relationship Between Strategic Entrepreneurship and Performance of Selected Oil and Gas Service Firms in Lagos and Rivers States, Nigeria

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## Abstract

Globally, oil and gas service industry is one of the major contributors to the economic development of many nations. However, the industry is faced with problems of poor entrepreneurial orientation, inflexible planning and poor management of external environmental challenges. These problems have negatively affected their overall performance. This study therefore examined the effect of strategic entrepreneurship on overall performance. The study adopted cross-sectional survey research design with a target population of 9,324 owners and managers of oil and gas service companies operating in Lagos and Rivers States, Nigeria. A multi-stage sampling technique was adopted to select the sample size of 733 using the Cochran (1997) formula. The data was analyzed using descriptive statistics and multiple and hierarchical regression methods of analyses. Findings revealed that strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) had significant effect on firm performance ( $R^2 = .216$ , F-stat = 34.743,  $p < 0.05$ ). Strategic entrepreneurship components significantly affected sales growth (Adj.  $R^2 = .582$ , F-stat = 98.422,  $p < 0.05$ ); market share (Adj.  $R^2 = .511$ , F-stat = 58.132,  $p < 0.05$ ); and profitability (Adj.  $R^2 = .410$ , F-stat = 42.982,  $p < 0.05$ ). External environment significantly moderated the relationship between strategic entrepreneurship and firm performance ( $\Delta R^2 = .593$ ,  $\Delta F = 19.256$ ; F-stat = 67.765,  $p < 0.05$ ) all at 5% level of significance. Implications of the findings and recommendations were made.

**Keywords:** entrepreneurial orientation, external environment, firm performance, planning flexibility, strategic entrepreneurship

## 1. Introduction

Achievement of overall organisational performance in different industries has become a major challenge faced by industry managers and scholars across the globe. Specifically, in the oil and gas industry, Arokodare and Asikhia (2020) pointed out that globally, most companies operating in the industry experienced difficulties in achieving overall performance in the areas of profitability, sales growth and market share as a result of the dynamic and volatile nature of the industry, the open market competition and the impact of globalization that characterized the 21st-century oil and gas industry. Professionals, managers and scholars have argued that oil and gas industry in developed, emerging and developing countries served as one of the major contributors to national revenue, growth and economic development of these nations (Cameron & Stanley, 2017). Arising from the challenges of unstable financial and non-financial performance and unpredictable market share facing these companies, there is therefore the need for a thorough examination of the oil and gas companies, since the oil and gas industry strategically reacts to dynamic national and international policies and external developments which create challenges of volatility in the performance indicators of firms operating in the industry (Mojarad, Atashbari & Tantau, 2018).

Considering the developed and emerging economies like United States of America, United Kingdom, France, Spain, Singapore, China, Austria among others, oil and gas companies were faced with issues of ramping up their targeted sales growth, profitability and market share advantage, triggered by industry environmental factors, task environment, natural and technological environments (Zafari, 2017). Likewise, PricewaterhouseCoopers (2018) stated that in developing economies like South Africa, Venezuela, Nigeria, Kenya, Zimbabwe, and Ghana among others, oil and gas companies do encounter unstable market performance and unsound profitability generated from oil price volatility, industry environmental factors, and natural and technological environments that constitute daunting challenges for these

companies. In these developing economies, issues of lack of appropriate regulatory environment, conflicting statutory requirements, complete institutional void and economic and political instability are environmental phenomena that plague the business of these organisations (Agwu & Onwuegbuzie, 2018; Doh, Rodrigues, Saka-Helmhout & Makhija, 2017).

The level of competitive landscape that evolved in the 21st century global business position presents oil and gas service companies with substantial changes, significant complexity and uncertainty. Arising from this uncertain external environment, oil and gas service firms cannot easily predict their future performance such as market share, profitability and sales growth without sound and environmental measures engendered in strategic entrepreneurship (SE). According to Gathenya (2012), the practice of SE focuses on the exploitation of opportunity through creativity and innovation to maximize potential profits and growth. Hence, Asikhia and Arokodare (2019) argued that oil and gas service companies in Nigeria must embrace SE measures of entrepreneurial orientation and planning flexibility in order to increase their entrepreneurial activity in the direction of new strategic action patterns. This will enhance the performance and competitive advantage of these oil and gas service firms among their competitors in the industry especially in today's external business environment.

A major concern in developing economies like Nigeria is the mis-match of SE with business environment which was triggered by the unpredictable external environmental factors which caused speedy decline in sales volume, market share, and profitability (Asikhia & Arokodare, 2019). They further pointed that ineffective planning flexibility and poor implementation of SE initiatives towards unstable external environment negatively affected overall performance of oil and gas service companies in Nigeria. In Nigeria, Arokodare (2018) claimed that poor external environmental consideration in strategic orientation and planning process by managers in the oil and gas industry caused unexpected decline in market share advantage, profitability and sales volume among oil and gas service companies in Nigeria.

Although several studies within and outside Nigerian context such as Abdalla, Ahmad, and Morsheda (2005), Altindag, Zehir, and Acar (2011), Anam and Antai (2016), Hitt, Ireland, Camp, and Sexton (2001), Kuratko and Audretsch (2009), Lerchenmueller (2014), Olawoye (2016), Otache and Mahmood (2015), Romero, Solis, and Banos-Monroy (2014), Srivastava, Yoo, Frankwick, and Voss (2013), Stam and Elfring (2008) among others, have examined the link between SE measures and firm performance in different industries but failed to consider oil and gas service firms especially in Nigeria. Similarly, a related study by Asikhia and Arokodare (2019) investigated the effect of planning flexibility and environmental uncertainty on the performance of selected oil and gas service firms in Lagos and Rivers states, Nigeria but also failed to consider how external environment moderated the effect of SE measures (entrepreneurial orientation and planning flexibility) on the performance of oil and gas service firms in Nigeria. Based on this problem and the gap identified, this study investigated the interaction effects between external environment, SE and overall performance measures of oil and gas service firms in Lagos and Rivers States, Nigeria.

The structure of this paper is as follows. The next section reviewed extant conceptual and empirical literature on the various concepts and study variables and their theoretical foundation, followed by hypotheses development and the conceptual model guiding the study. The next part detailed the methodology adopted for the study and the mathematical model specification. This is followed by the results of the statistical analysis and the discussion of the findings. Finally, the paper makes some concluding remarks, outlines recommendations to management, highlights the limitations and gives direction for further research.

## **2. Literature Review and Hypothesis Development**

This sub-section focused on the conceptual definitions of the study variables, empirical review, hypothesis development and theoretical foundation of the study.

### *Strategic Entrepreneurship*

According to Hitt, Ireland, Camp, and Sexton (2001), SE is an emerging concept of business process combining strategic management and entrepreneurship functions, which emphasizes taking entrepreneurial actions with a strategic perspective and combines both opportunity-seeking actions and advantage-seeking actions to create wealth for firms. For Hitt et al. (2001), the entrepreneurial aspect of SE is about the ability to create new opportunities and the willingness of the individuals in firms to pursue these new opportunities, while the strategic perspective of SE enables firms to exploit those opportunities, which will most likely lead to competitive advantage. Ireland, Hitt and Sirmon (2003) conceptually viewed SE as a process that facilitates a firm's efforts to identify opportunities with the highest potential to gain a competitively advantageous position through the entrepreneurial actions component and to then exploit these opportunities through strategic actions. They posited that SE is the action of simultaneously engaging in the search for opportunities and competitive advantage for devising and implementing entrepreneurial strategies that create wealth. Therefore, SE involves opportunity-seeking and advantage-seeking behaviours that result in superior firm performance. Ireland and Webb (2007) identified four distinctive dimensions of SE as entrepreneurial mindset, entrepreneurial culture, entrepreneurial leadership, and applying creativity and developing innovation. The innovations

that are the key focal points of SE initiatives represent the means through which opportunity is capitalized upon (Kuratko & Audretsch, 2009). Strategic entrepreneurship is thus a strategic perspective of entrepreneurial activities and a strategic activity with entrepreneurial mindset (Hitt, Ireland, Sirmon & Trahms, 2011). Murugeswari and Cooper (2013) also argued that entrepreneurship has a strong effect on strategy process and the combination of both concepts lead to superior performance in organizations. In their study, they identified opportunity, innovation, evaluation, uncertainty and risk taking as some of the dimensions common to both entrepreneurship and strategy, all of which are key to wealth creation and the ultimate success of the firm.

Based on literature, it is believed that effective SE helps a firm position itself in such a way that it is capable of successfully responding to the types of significant environmental changes that affect many firms in the current competitive business arena (Ireland & Webb, 2007). The environment constitutes a major domain of SE as through its dynamics, complexity and munificence, the environment influences resources, organizational structure and entrepreneurial leadership of the firm, all of which lead to the development of capabilities by the firm (Teece, 2007). In SE, identification of opportunities in the environment is the beginning of entrepreneurial behavior (Kraus, Kauranen, & Reschke, 2011) and is the foundation for the firm in building its resources and capabilities which would eventually determine differential competitive advantages in different environments (Barney, Ketchen, & Wright, 2011). Hitt et al. (2011) asserted that SE allows the firm to apply its knowledge and capabilities in the current environmental context while exploring for opportunities to exploit in the future by applying new knowledge and new and/or enhanced capabilities. Specifically, in explaining firm performance, the combination of strategic and entrepreneurial actions does account for how firms create, renew and sustain competitive advantages and transcend, transform and exceed the dynamics of competition (Simsek, Heavey & Fox, 2017). According to Morris and Kuratko (2002), to obtain the optimal results from the engagement of SE, the combination of the various elements of SE must be balanced and managed effectively both within the organization and within the context of the changing external environment. In this regard, Hitt et al. (2011) asserted that to be effective in SE implementation, firms need to achieve a balance between the opportunity-seeking behaviours that entrepreneurship is known for and the advantage-seeking behaviours associated with strategic management. They felt that to a certain degree, “the entrepreneurship part of SE requires flexibility and novelty, while the strategic management part seeks stability and predictability” (p. 69). In order to help organizations to become more creative and innovative in creating values as well as to achieve and maintain a competitive advantage, the elements of SE are recommended for engagement (Tuluca & Yurtkur, 2015). Specifically, to sustain a competitive advantage, exploiting an entrepreneurial opportunity is often a necessary action (Alvarez, Barney & Anderson, 2013; Gumel, 2018). In this study SE was measured as entrepreneurial orientation and planning flexibility.

#### *Entrepreneurial Orientation*

Lumpkin and Dess (1996) gave the earlier conceptual definition of entrepreneurial orientation (EO) as processes, methods, practices, and decision-making styles that lead to new entry. Moreno and Cassilas (2008) defined EO as the organizational decision-making inclination favouring and enhancing entrepreneurial activities and overall performance. Yusof, Sandu, and Jani (2007) referred to EO as the set of psychological traits, values, attributes, and attitudes strongly associated with a motivation to engage in entrepreneurial activities; while Buli (2017) defined EO as the rules and norms used for decision making. Similarly, Odhiambo (2015) conceptualized EO as the processes, practices, and decision-making activities that lead up to a new business venture. Different angles of literature debate on the multi-dimensionality of the EO construct which include innovativeness, risk taking, pro-activeness, competitive aggressiveness and autonomy.

In addition, Pratono and Mahmood (2015) defined EO as firm’s strategic orientation and capturing of specific aspects of decision-making styles, methods and practices all of which indicate the entrepreneurial posture of the firm which in turn enhanced overall firm performance. Entrepreneurial orientation focuses on the processes and styles of strategy development, characterizes a firm’s entrepreneurial behavior, and refers to the extent to which a firm is entrepreneurial (Schillo, 2011). Entrepreneurial orientation is a firm-level behaviour that makes firms have the propensity to innovate, take risks, and become proactive so as to achieve overall performance (Fadda, 2018; Tuan, 2017). It is a key ingredient for attaining and sustaining organizational performance (Vij & Bedi, 2012). Through EO, firms can undertake uncertain and risky investments and proactively reach markets ahead of competitors thereby realizing high returns (Pimentel, Couto, & Scholten, 2017). It is an important phenomenon that plays a crucial role in aligning businesses to market demands and performance (Galvão, Ferreira, & Marques, 2017; Okeyo, Gathungu, & K’Obonyo, 2016). Research have shown that firms with EO do possess the ability to discover and exploit new market opportunities (Wales, Parida & Patel, 2013) and can respond to challenges effectively and prosper in a competitive and dynamic environment (Buli, 2017; Wolff, Pett, & Ring, 2015). It was also found by Wales (2016) that entrepreneurially oriented firms possess capabilities that enable them to innovatively reconfigure their resources and routines from time to time in order to proactively capture changing market opportunities. Thus, because a firm’s resources are made up of both tangible and

intangible assets, EO may also be considered a valuable resource or capability which plays a pivotal role in ensuring that the firm's resources are configured in ways that make it possible for the firm to attain competitive advantage (Pratono & Mahmood, 2015). This is because EO is considered an entrepreneurial method that firms can use to promote innovation, risk-taking behavior, and proactive management that seizes opportunities (Covin & Wales, 2012). In this study, EO was measured in a multi-dimensional scale of innovativeness, risk taking, pro-activeness, competitive aggressiveness and autonomy.

#### *Planning Flexibility*

Rudd, Greenly, Beatson, and Lings (2008) defined flexibility as "the extent to which new and alternative decisions are generated and considered in strategic planning, allowing for positive organisational change and adaptation to environmental turbulence" (p.99). Palanisamy (2012) suggested that flexibility is the ability to change direction quickly or deviate from a predetermined course of action. In the view of Alpkın, Yılmaz, and Kaya (2007), planning flexibility is about preparing strategic plans that are changeable, adaptive, and responsive; and the organizational ability to change them when necessary. Specifically, firms in highly complex environments need flexible planning systems and constant monitoring of the R&D because of the frequency of change in their business environments (Josefy, Kuban, Ireland, & Hitt, 2015). Bradley (2016) defined planning flexibility as the willingness and ability to adapt a company's strategies to suit varying factors that can affect the normal operations of the firm. These factors may be both internal and external and may include reallocating resources from one area of operations to another, assessing the strengths of individual employees and moving them to tasks that are better suited to their skills, and seeking out for cost saving measures by reassessing the budget. Planning flexibility therefore indicates the extent of the capability of the firm to change and respond quickly to changing conditions as environmental opportunities and threats emerge (Gathenya, 2012). Asikhia and Arokodare (2019) conceptually viewed planning flexibility as a company's ability and capacity to adapt and respond in a timely and appropriate manner to substantial, uncertain, and fast occurring environmental changes that play vital role on the firm performance.

There is general agreement in literature that the forces in the contemporary competitive landscape of the new millennium require a continuous rethinking of existing strategic actions, organization structure, communication systems, technological advances, corporate culture, asset deployment, and investment strategies (Clarkin & Rosa, 2005; Gathenya, 2012; Kroeger, 2007). To achieve competitive advantage in the current rapidly changing environment, Otache and Mahmood (2015) asserted that firms must have strategic planning flexibility in order to support firm performance. This viewpoint aligns well with the entrepreneurial characteristics of innovation, risk-taking, and responding proactively, characteristics that support opportunity recognition (Freel, 2005; Gathenya, 2012), and the ability to strategically take advantage of given opportunities. This is also in congruence with the position of Gathenya (2012) and Otache and Mahmood (2015), that entrepreneurial behavior must be flexible because the essence of entrepreneurship is capitalizing and exploiting on changes in and opportunities arising from the environment. Thus, in a dynamic environment, flexible approach to planning process will be the most appropriate as it will allow firms to quickly adjust their strategic plans in order to exploit market opportunities and to monitor and control fluctuations in the environment (Petit, 2012). Dibrell, Down and Bull (2007) earlier asserted that the flexibility of the planning process is a critical factor for the adaptation of strategic plans to the everchanging competitive environment.

In this study planning flexibility was multi-dimensionally measured in terms of technology, economic policies and conditions, government regulations and environmental opportunities.

#### *Firm Performance*

Firm performance is a continuous positive result and benefit from tangible and intangible investment of firms. Firm performance could be financial and non-financial performance. Lumpkin and Dess (2001) and Arokodare and Asikhia (2020) viewed non-financial performance of a firm as the company's reputation, public image, sales growth, market share, goodwill, and employee commitment and satisfaction which may enhance continuous performance of the firm. Likewise, studies such as Ambad and Wahab (2013), Arokodare and Asikhia (2020) and Santos and Brito (2012) defined financial performance as a firm's continuous increase in financial indicators such as profit after tax, return on assets, return on equity, net income margin, return on investment among others. Firm performance is a multi-dimensional scale and therefore requires multiple performance measures. Syafarudin (2016) defined firm performance as the outcome or accomplishment affected by the operations of the company in utilizing the resources owned. Musyoka (2016) portrayed firm performance as having improvement over time as a result of the shared values in the company. In this study, firm performance was measured in terms of sales growth, market share and profitability.

#### *External Environment*

According to Nnamani and Ajagu (2014), Obasan (2001) and Osuagwu (2001), external environment was conceptually defined as the totality of external factors that affect, influence, or determine the operations or performance of firms

within and outside the context of where the firm operates or is located. Nnamani and Ajagu (2014) pointed out that firms do not just exist in their environment; they constantly interact with it and change in response to the conditions in that external environment. This conceptually indicated that external environment in turn influences how the firms thrive to survive in the industry. Gathungu and Ndungi (2018) defined external environment as economic policies, technological, socio-cultural, political legal framework and international forces which determine how firms operate, make decision and achieve firm overall performance. They further viewed external environment as those factors that exist beyond the control of firms which could only be managed in order to achieve targeted performance. The external environment within which the organisations operate is an open system that is characterised by turbulence, dynamism, and resource munificence among others (Ombaka, Machuki, & Mahasi, 2015). Therefore, it is contended that external environment were macroeconomic factors that go beyond the firm's functions, scope, and policies but affect its operations and could only be dynamically managed in determining overall firm performance. As such, business organizations are both environmental dependent and environmental serving: they depend on the environment for resource input and they produce goods or services for the consumption by the environment (Arokodare, 2018). Resources provide the means by which the organisation innovates, grows and expands, exploits external opportunities, satisfies a variety of stakeholder needs and ultimately outperform competitors.

In this study, external environment is measured by competition, cultural factors, technological factors, demand uncertainty, product obsolescence and global regulation.

#### *Theoretical Foundation*

The concept of Dynamic Capabilities Theory (DCT) was developed by Teece, Pisano and Shuen (1997). The DCT mitigated the shortcomings of resource-based view and resource dependence theory to explain the mechanism that links resources and product markets to competitive advantage and firm survival. The DCT explains how firms gain sustainable competitive advantage, survive in competitive and turbulent business environment in several ways. The DCT framework works on three fundamental presumptions: the capacity to sense and shape opportunities, to seize opportunities, and to maintain competitiveness through reconfiguring the enterprise's assets (Teece, 2007). Based on a review and synthesis of the literature, a DC is the enterprise's potential to systematically solve problems formed by its propensity to sense opportunities and threats, make timely and market-oriented decisions and to change its resource base (Barreto, 2010; Di Stefano, Peteraf & Verona, 2010). The DCT framework advances can help scholars to understand the foundations of long-run enterprise success while helping managers delineate relevant strategic considerations and the priorities they must adopt to enhance enterprise performance and escape the zero profit tendency associated with operating in markets open to global competition (Teece, 2007). The framework integrates the strategy and innovation literature and highlights the most important capabilities that the management needs in a dynamic business environment in order to sustain superior long run business performance (Teece, 2007). Dynamic capabilities include the sensing, seizing and transforming abilities that are needed to upgrade the ordinary capabilities of an enterprise and direct them through developing and coordinating the firm's resources to address and shape changes in the marketplace or in the business environment (Teece, 2018). The DCT theory was employed as the underlying theory for this study because the DCT perspective and ideology was tied on the presumption that firms dynamically manage their resources and business environment in order to achieve competitive advantage and overall performance in terms of market share, sales growth and profitability over other competitors in the industry.

#### **Empirical Review and Hypotheses Development**

In establishing the empirical gap and building up of study hypotheses, this study empirically reviewed and synthesized related past studies within and outside Nigerian context. Most empirical findings as regards the interaction between entrepreneurial orientation, planning flexibility, external environment and firm performance have been mixed. Some studies exert positive while others exert negative effect and this mixed result was due to the high level of competition and pattern of organizational structure of different organizations in different industries. The studies of Alarifi, Robson and Kromidhac (2019), Lurtz and Kreutzer (2017) and Nicolas, Rubio and Fernandez-Laviada (2018) empirically found that entrepreneurship orientation measures (excluding risk-taking) positively affected firm performance. Specifically, Alarifi et al. (2019) established that SE covered and enhanced a wide range of firm business operations and there was generally a positive effect of SE contexts on business performance; but these studies failed to investigate how SE measures reacted towards oil and gas service firm performance and also could not moderate for external environment in determining firm performance in relation to SE concept.

Studies have focused on the effect of entrepreneurial orientation, planning flexibility and firm performance. These studies revealed that both entrepreneurial orientation and planning flexibility have positive effects on firm performance in different industries except oil and gas industry that was not considered among these past studies (See Arshad *et al.*, 2014; Dibrel, Craig, & Neubaum, 2014; Gupta & Wales, 2017; Oladele & Olayiwola, 2018). Relatedly, Sumiati, Rofiq

and Pramono (2019) and Mbengue and Ouakouak (2011) were in supported of the positive and significant findings among past studies that planning flexibility and entrepreneurial orientation positively and significantly affected firm performance. Both Sumiati et al. (2019) and Mbengue and Ouakouak (2011) further asserted that external environment significantly affected firm overall performance in SMEs industry but they failed to investigate how external environmental factors affect both strategic entrepreneurship and firm performance in the oil and gas industry. In line with this finding, Kavale (2017) empirically supported the assertion that planning flexibility, efficient and proper management of external environment significantly influences firm performance in terms of profitability and competitive advantage.

Furthermore, Gautam (2016) empirically found that planning flexibility has positive effect on handicraft business performance while Musi, Mukulu and Oloko (2018) revealed that financial resources strategic planning, human capital strategic planning, material resource strategic planning and information resource strategic planning influence firm's performance in agricultural research-based institutions. David and Okeyo (2018) revealed that there was a positive and significant relationship between strategic planning and performance. Regression results further revealed that external environment had a positive and significant effect on performance. In addition, external environment moderated the relationship between strategic planning and performance. On the other hand, Patil and Marathe (2016) findings suggest that market orientation and planning flexibility positively influence firm performance, while planning flexibility exerts a negative pressure on performance in highly dynamic markets. Considering all these past related empirical studies reviewed, none of these studies within and outside Nigerian contexts focused on the effect of strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) on performance of oil and gas service firms in Lagos and Rivers States, Nigeria. Likewise, to the best of the researcher's knowledge, no known studies have investigated the moderating effect of external environment on the relationship between strategic entrepreneurship and performance of oil and gas service firms in Lagos and Rivers States, Nigeria. This indicates that there exists an empirical gap among past related studies. Therefore, hypotheses development was generated from the empirical gap established from past studies. The hypotheses were formulated in alternate form as:

**H<sub>1</sub>:** *Strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) will significantly affect sales growth of oil and gas service firms in Lagos and Rivers States, Nigeria*

**H<sub>2</sub>:** *Strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) will significantly affect market share of oil and gas service firms in Lagos and Rivers States, Nigeria*

**H<sub>3</sub>:** *Strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) will significantly affect profitability of oil and gas service firms in Lagos and Rivers States, Nigeria*

**H<sub>4</sub>:** *Strategic entrepreneurship will significantly affect overall performance of oil and gas service firms in Lagos and Rivers States, Nigeria*

**H<sub>5</sub>:** *External environment has significant moderating effect on the relationship between strategic entrepreneurship and performance of oil and gas service firms in Lagos and Rivers States, Nigeria*

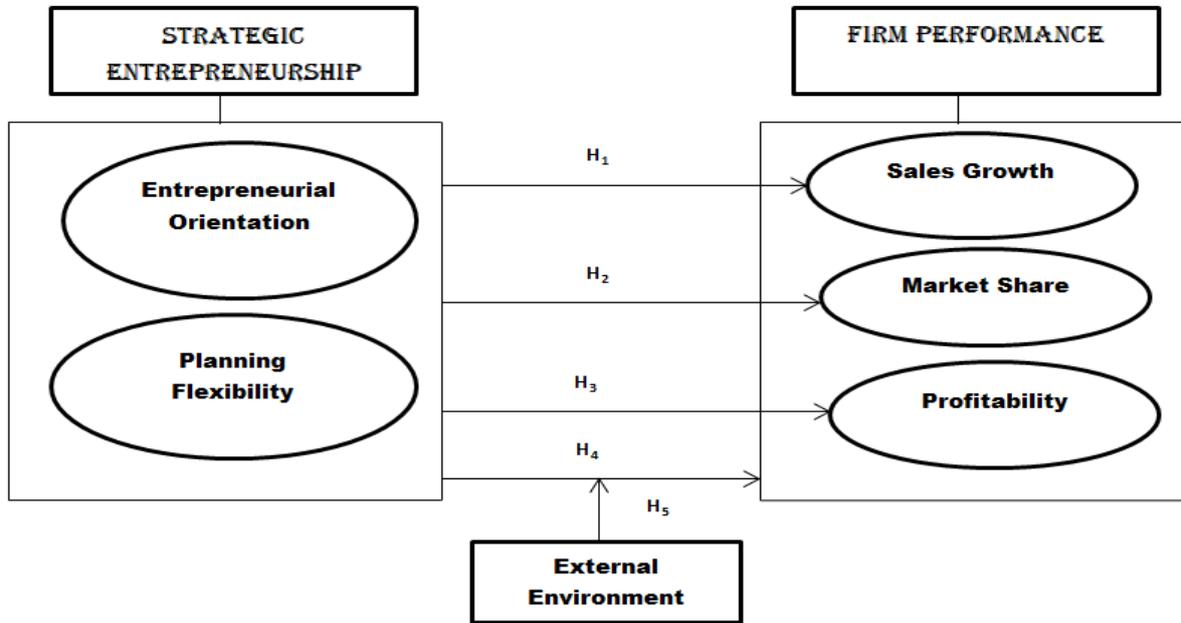


Figure 1.1. Conceptual model

Source: Researcher’s Conceptual Model (2020)

### 3. Methodology

This study employed survey research design through administration of questionnaire to gathered primary data in order to examine the interaction effect between strategic entrepreneurship, external environment and firm performance of selected oil and gas service firms in Lagos and Rivers States, Nigeria.

#### *Population and sampling*

The total population of oil and gas service firms in Nigeria was 14,038 as at 31<sup>st</sup> December, 2018 and both Lagos and Rivers States controlled 66.42% (9,324) of these firms, which was the major reason this study focused on both States. Therefore, the population for this study was 9,324 oil and gas service firms in both Lagos and Rivers States, Nigeria. The sample frame used in this study was the list of owner-managers and top managers like the heads of finance and planning functions of selected oil and gas service firms in Lagos and Rivers States. Hence, a multi-stage sampling method was adopted in selecting the sample from the working population of this study.

#### *Sample size*

The sample size for this study was determined by applying the Cochran (1977) formula. This is the standard method of randomization and it identifies the limits of errors considered as the most essential items in the survey. This helped the researcher to obtain the sample and use the results to make sampling decisions based on the data.

The formula is:

$$n = \frac{NZ^2pq}{d^2(N-1) + Z^2pq} \tag{3.1}$$

Where:

n = sample size

N = Total number of selected oil and gas service firms (N=9324)

Z = 95% Confidence Interval (Z = 1.96),

p = 0.5

q = 1 – p

d = degree of accuracy or estimation (d = 0.04)

Therefore:

$$n = \frac{9324(1.96)^2(0.5)(0.5)}{(0.04)^2(9324-1) + (1.96)^2(0.5)(0.5)} = 564$$

In order to compensate for the non-response and for wrong filling of questionnaires, the sample of 564 was increased by 169, or 30% of the total sample which brought the adjusted sample total to 733. This is as recommended by Zikmund (2000).

#### *Research instrument*

The questionnaire used was validated and the reliability of the study variables was established. Construct and content validity were ascertained through checks and corrections from senior academics in the field of entrepreneurship and strategic management. The reliability of the research instrument was ascertained based on the Cronbach Alpha measure of reliability which is greater than 0.7. In this study strategic entrepreneurship measures (entrepreneurial orientation and planning flexibility) served as the independent variables, firm performance indicators (sales growth, market share and profitability) were the dependent variables while external environment served as the moderating variable. For dependent and independent variables, a six points modified Likert scale type was used to elicit responses from every question in the questionnaire and this covered: Very High (VH) – 6; High (H) – 5; Moderately High (MH) – 4; Moderately Low (ML) – 3; Low (L) – 2; Very Low (VL) – 1. For the dependent variable: Decrease Greatly (DG) -6; Little Decrease (LD) -5; Almost the Same (AS) -4; The Same (TS) -3; Little Increase (LI) -2; and Increase Greatly (IG) -1.

#### The Validity and Reliability Result

Table 1. KMO, Bartlett's Test of Sphericity and Reliability Result

Variables	Number of Questions	KMO	Bartlett test of Sphericity	Cronbach's Alpha	Average Variance Explained
<b>Firm Performance</b>	15	0.873	0.000	0.881	0.783
Firm Profitability	5	0.832	0.001	0.872	0.721
Market Share	5	0.731	0.000	0.830	0.801
Sales Growth	5	0.734	0.002	0.784	0.793
Planning Flexibility	9	0.891	0.003	0.884	0.832
Entrepreneurial Orientation	9	0.782	0.000	0.782	0.762
<b>Strategic Entrepreneurship</b>	18	0.886	0.000	0.894	0.84
External Environment	12	0.891	0.000	0.872	0.793

Source: Field Survey (2020)

The result in Table 1 shows that the KMO is greater than 0.5, meaning that the questions actually measured the variables in the study. The result of the Bartlett test of Sphericity at 0.000, which is less than 5%, indicates that there is a highly significant relationship among the variables in measuring the variables under study. In this study, the KMO test is greater than 5% and Bartlett test of Sphericity result is less than 5% indicating that statements that comprised the research instruments of each variable actually measured what were intended to be measured. The result of the KMO and Bartlett test of Sphericity are shown in Table 1. The construct validity of the research instrument was further established through confirmatory factor analysis. Average Variance Extracted (AVE) greater than 0.5 was used as an additional evidence of construct validity of all variables in the research instrument. The results of the Cronbach Alpha were greater than 0.70 for each of the variables which indicated that the items used to measure the study variables were reliable.

#### *Model Specification*

The empirical model for the study was denoted as:

Y = Dependent Variable

X = Independent Variable

Z = External Environment (EE) = Moderating Variable

Y = Firm Performance (FP)

Where:

Y = Firm Performance (FP) =  $y_1, y_2$  and  $y_3$

$y_1$  = Sales Growth (SG)

$y_2$  = Market Share (MS)

$y_3$  = Profitability (PR)

X = Strategic Entrepreneurship (SE) - Independent Variable

and

$x_1$  = Entrepreneurial Orientation (EO)

$x_2$  = Planning Flexibility (PF)

$\beta_0$  = the constant term

$\beta_1$ -  $\beta_2$  = the regression coefficients

The model formulated for each of the hypotheses were written as:

#### Hypothesis One

$$y_1 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon_i$$

$$SG = \beta_0 + \beta_1 EO + \beta_2 PF + \varepsilon_i \text{ ----- Eqn 1}$$

#### Hypothesis Two

$$y_2 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon_i$$

$$MS = \beta_0 + \beta_1 EO + \beta_2 PF + \varepsilon_i \text{ ----- Eqn 2}$$

#### Hypothesis Three

$$y_3 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon_i$$

$$PR = \beta_0 + \beta_1 EO + \beta_2 PF + \varepsilon_i \text{ ----- Eqn 3}$$

#### Hypothesis Four

$$Y = \beta_0 + \beta_i X_i + \varepsilon_i$$

$$FP = \beta_0 + \beta_i SE + \varepsilon_i \text{ ----- Eqn 4}$$

#### Hypothesis Five

$$Y = \beta_0 + \beta_i X + \beta_z Z + \beta_{iz} XZ + \varepsilon_i$$

$$FP = \beta_0 + \beta_i SE_i + \beta_z EE_i + \beta_{iz} SE * EE_i + \varepsilon_i \text{ ----- Eqn 5}$$

### 4. Results and Discussions

A total of 733 questionnaire were administered out of which 687 (or 93.72%) were returned and found useable for further analysis. However, 46 (or 6.28%) were found unfit for further analysis either because they were not properly completed or were partially completed. The response rate of 93.72% was considered good for purposes of the study.

Following are the preliminary statistics of the responses of the respondents to the items in respect of the study variables:

Table 2. Descriptive Statistics of Entrepreneurial Orientation

Items	Very High	High	Moderately High	Moderately Low	Low	Very Low	Mean	STD
Marketing of tried and true Products	180 26.2%	103 15.0%	111 16.2%	277 40.3%	12 1.7%	4 0.6%	4.22	1.295
Adoption of Low Risk Projects	78 11.4%	199 29.0%	156 22.7%	236 34.4%	16 2.3%	2 0.3%	4.12	1.093
Risk taking	138 20.1%	104 15.1%	136 19.8%	287 41.8%	18 2.6%	4 0.6%	4.07	1.236
Introduction of New Product Lines	84 12.2%	138 20.1%	152 22.1%	289 42.1%	23 3.3%	1 0.1%	3.95	1.121
Changes in Product/Service lines	89 13.0%	131 19.1%	180 26.2%	242 35.2%	40 5.8%	5 0.7%	3.96	1.166
Response to Competitors' moves	91 13.2%	140 20.4%	153 22.3%	246 35.8%	54 7.9%	3 0.4%	3.94	1.202
Initiation of Competitive Actions	100 14.6%	131 19.1%	175 25.5%	225 32.8%	49 7.1%	7 1.0%	3.98	1.216
Introduction of New Technology	109 15.9%	143 20.8%	161 23.4%	222 32.3%	46 6.7%	6 0.9%	4.04	1.230
Cautious behaviour to Environmental Dynamics	120 17.5%	144 21.0%	137 19.9%	234 34.1%	37 5.4%	15 2.2%	4.05	1.289
Grand Average/STD							4.04	1.205

Source: Field Survey (2020)

Table 3. Descriptive Statistics on Planning Flexibility

Items	Very High	High	Moderately High	Moderately Low	Low	Very Low	Mean	STD
Technology	118 17.2%	119 17.3%	170 24.7%	239 34.8%	34 4.9%	7 1.0%	4.04	1.224
Economic Conditions	82 11.9%	177 25.8%	182 26.5%	220 32.0%	21 3.1%	5 0.7%	4.09	1.112
Competition	110 16.0%	136 19.8%	174 25.3%	240 34.9%	24 3.5%	3 0.4%	4.09	1.167
Government Regulation	243 35.4%	111 16.2%	103 15.0%	181 26.3%	38 5.5%	11 1.6%	4.45	1.417
Customer Needs and Preferences	105 15.3%	195 28.4%	125 18.2%	222 32.3%	35 5.1%	5 0.7%	4.14	1.212
Suppliers' Strategies	126 18.3%	107 15.6%	131 19.1%	286 41.6%	34 4.9%	3 0.4%	3.99	1.243
Opportunities	78 11.4%	154 22.4%	152 22.1%	260 37.8%	34 4.9%	9 1.3%	3.93	1.171
Threat	121 17.6%	142 20.7%	142 20.7%	242 35.2%	33 4.8%	7 1.0%	4.08	1.242
Political situation	181 26.3%	142 20.7%	116 16.9%	204 29.7%	34 4.9%	10 1.5%	4.29	1.343
Grand Average/STD							4.12	1.236

Source: Field Survey (2020)

Table 4. Descriptive Statistics on Sales Growth

Year	Increase Greatly	Little Increase	The Same	Almost The Same	Little Decrease	Decrease Greatly	Mean	STD
2012	54 7.9%	202 29.4%	177 25.8%	119 17.3%	71 10.3%	64 9.3%	3.79	1.412
2013	62 9.0%	249 36.2%	137 19.9%	119 17.3%	87 12.7%	33 4.8%	3.97	1.356
2014	75 10.9%	252 36.7%	107 15.6%	147 21.4%	68 9.9%	38 5.5%	4.01	1.383
2015	61 8.9%	289 42.1%	92 13.4%	117 17.0%	87 12.7%	41 6.0%	4.00	1.412
2016	53 7.7%	245 35.7%	126 18.3%	132 19.2%	92 13.4%	39 5.7%	3.88	1.376
Grand Average/STD							3.93	1.387

Source: Field Survey (2020)

Table 5. Descriptive Statistics of Profitability

Year	Increase Greatly	Little Increase	The Same	Almost The Same	Little Decrease	Decrease Greatly	Mean	STD
2012	62 9.0%	201 29.3%	184 26.8%	136 19.8%	48 7.0%	56 8.2%	3.89	1.362
2013	67 9.8%	239 34.8%	155 22.6%	128 18.6%	74 10.8%	24 3.5%	4.04	1.293
2014	62 9.0%	250 36.4%	100 14.6%	183 26.6%	61 8.9%	31 4.5%	3.97	1.324
2015	57 8.3%	254 37.0%	108 15.7%	140 20.4%	98 14.3%	30 4.4%	3.92	1.365
2016	54 7.9%	246 35.8%	116 16.9%	151 22.0%	86 12.5%	34 4.9%	3.90	1.353
Grand Average/STD							3.94	1.339

Source: Field Survey (2020)

Table 6. Descriptive Statistics of Market Share

Year	Increase Greatly	Little Increase	The Same	Almost The Same	Little Decrease	Decrease Greatly	Mean	STD
2012	51 7.4%	187 27.2%	199 29.0%	123 17.9%	59 8.6%	68 9.9%	3.77	1.391
2013	51 7.4%	255 37.1%	133 19.4%	125 18.2%	92 13.4%	31 4.5%	3.93	1.338
2014	68 9.9%	242 35.2%	117 17.0%	160 23.3%	71 10.3%	29 4.2%	3.98	1.333
2015	71 10.3%	283 41.2%	108 15.7%	99 14.4%	79 11.5%	47 6.8%	4.04	1.431
2016	52 7.6%	257 37.4%	130 18.9%	125 18.2%	92 13.4%	31 4.5%	3.94	1.342
Grand Average/STD							3.93	1.367

Source: Researcher's Field Survey (2020)

Table 7. Descriptive Statistics on External Environment

Items	Very High	High	Moderately High	Moderately Low	Low	Very Low	Mean	STD
Competition	133 19.4%	105 15.3%	131 19.1%	276 40.2%	36 5.2%	6 0.9%	4.01	1.273
Social	92 13.4%	211 30.7%	141 20.5%	205 29.8%	27 3.9%	11 1.6%	4.15	1.193
Cultural	112 16.3%	121 17.6%	171 24.9%	256 37.3%	24 3.5%	3 0.4%	4.05	1.175
Economic	96 14.0%	162 23.6%	174 25.3%	221 32.2%	29 4.2%	5 0.7%	4.09	1.160
Technological	102 14.8%	139 20.2%	181 26.3%	233 33.9%	27 3.9%	5 0.7%	4.06	1.165
Political	107 15.6%	180 26.2%	167 24.3%	202 29.4%	24 3.5%	7 1.0%	4.18	1.175
Demand Uncertainty	129 18.8%	129 18.8%	161 23.4%	220 32.0%	41 6.0%	7 1.0%	4.09	1.258
Market	104 15.1%	148 21.5%	179 26.1%	208 30.3%	44 6.4%	3 0.4%	4.12	1.649
Price Change	126 18.3%	107 15.6%	131 19.1%	286 41.6%	34 4.9%	3 0.4%	3.99	1.243
Product Obsolescence	54 7.9%	151 22.0%	116 16.9%	246 35.8%	86 12.5%	34 4.9%	3.90	1.353
Global Regulation	52 7.6%	257 37.4%	130 18.9%	125 18.2%	92 13.4%	31 4.5%	3.94	1.342
Grand Average/STD							4.05	1.271

Source: Field Survey (2020)

Resulting from Table 2,3,4,5,6 and 7 on entrepreneurial orientation, planning flexibility, sales growth, market share, profitability and external environment where the grand average were 4.04, 4.12, 3.93, 3.94, 3.93 and 4.05. These grand mean of study variables such as entrepreneurial orientation, planning flexibility, sales growth, market share, profitability and external environment were greater than the average bench mark of 3.00 for this study. This indicates that items used moderately measure and reflect each of the study variables. Likewise, the standard deviation indicates that the responses were widely distributed since the standard deviation is more than one.

### Correlation Matrix

Table 8. Correlation Coefficients for Multicollinearity Test

Variables	SG	MS	PR	EO	PF	Variance Inflation Factor (VIF)
SG	1					3.77
MS	0.421	1				1.31
PR	0.451	0.173	1			1.53
EO	0.193	0.335	0.421	1		2.63
PF	0.261	0.610	0.522	0.310	1	2.81

Source: Field Survey (2020)

The correlation matrix of variables is presented in Table 8 in order to show the relationship that exists among the variables and to also verify if none of the relationships among the explanatory variables of the models have correlation coefficient as high as 0.8, which is a threshold above which inclusion of such variables in the same model would cause a problem of severe multicollinearity in the model. Since the correlation coefficient of the explanatory variables were less than 0.8 for all the variables measured, this shows that no existence of multicollinearity among the study explanatory variables. Furthermore, the result of the VIF shows that the value of the VIF; 3.77, 1.31, 1.53, 2.63 and 2.81 for SG, MS,

PR, EO and PF respectively were less than 5. Therefore, there is no problem of multicollinearity in the model.

Table 9. Model One: Regression Results on the Effect of Strategic Entrepreneurship Components (entrepreneurial orientation and planning flexibility) on Sales Growth of oil and gas service firms in Lagos and Rivers States, Nigeria

Model	B	Std. Error	Beta	t	Sig.	R	Adj.R <sup>2</sup>	F-Value	Sig.	Durbin-Watson
(Constant)	.647	.394		1.821	.102	0.658	0.582	98.422	0.000	1.923
Entrepreneurial Orientation	1.102	.041	.152	2.972	.021					
Planning Flexibility	1.943	.023	1.032	3.954	.014					

Dependent Variable: Sales Growth (SG)

Source: Author's Computation (2020)

Table 9 for model one, revealed that coefficient of relative effect (R= 0.658) shows a strong positive correlation exists between strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) and sales growth. The coefficient of determination (Adj.R<sup>2</sup>) of 0.582 shows that strategic entrepreneurship components explained 58.2% of variation in sales growth. However, the model did not explain 41.8% of the variation in sales growth, implying that there are other factors associated with sales growth which were not captured in the model. Furthermore, Table 9 also shows the ANOVA result. The result revealed that overall, the explanatory power of the model was considered statistically significant with the F-stat value output of the model reporting a p-value of .000 (F= 98.422, p<0.05). This indicated that strategic entrepreneurship components have significant effect on sales growth of oil and gas service firms in Lagos and Rivers States, Nigeria. Therefore, this study did not reject the alternate hypothesis one that: *H<sub>1</sub>: Strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) do significantly affect sales growth of oil and gas service firms in Lagos and Rivers States, Nigeria.*

Table 10. Model Two: Regression Results on the Effect of Strategic Entrepreneurship Components (entrepreneurial orientation and planning flexibility) on Market Share of oil and gas service firms in Lagos and Rivers States, Nigeria

Model	B	Std. Error	Beta	t	Sig.	R	Adj.R <sup>2</sup>	F-Value	Sig.	Durbin-Watson
(Constant)	.527	.394		2.321	.002	0.639	0.511	58.132	0.000	1.612
Entrepreneurial Orientation	3.302	.041	1.012	4.562	.001					
Planning Flexibility	2.813	.016	2.012	3.174	.004					

Dependent Variable: Market Share (MS)

Source: Author's Computation (2020)

Table 10 for model two, revealed that coefficient of relative effect (R= 0.639) shows a strong positive correlation exists between strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) and market share. The coefficient of determination (Adj.R<sup>2</sup>) of 0.511 shows that strategic entrepreneurship components explained 51.1% of variation in market share. However, the model did not explain 48.9% of the variation in market share, implying that there are other variables that explained market share which were not captured in the model two. Furthermore, Table 10 also shows the ANOVA result. The result revealed that overall, the explanatory power of the model was considered statistically significant with the F-stat value output of the model reporting a p-value of .000 (F= 58.132, p<0.05). This indicated that strategic entrepreneurship components have significant effect on market share of oil and gas service firms in Lagos and Rivers States, Nigeria. Therefore, this study did not reject the alternate hypothesis two that: *H<sub>2</sub>: Strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) do significantly affect market share of oil and gas service firms in Lagos and Rivers States, Nigeria.*

Table 11. Model Three: Regression Results on the Effect of Strategic Entrepreneurship Components (entrepreneurial orientation and planning flexibility) on profitability of oil and gas service firms in Lagos and Rivers States, Nigeria

Model	B	Std. Error	Beta	t	Sig.	R	Adj.R <sup>2</sup>	F-Value	Sig.	Durbin-Watson
(Constant)	4.247	.724		1.101	.034	0.636	0.416	42.982	0.001	1.998
Entrepreneurial Orientation	5.122	.239	1.282	7.132	.001					
Planning Flexibility	3.521	.351	2.672	5.854	.000					

Dependent Variable: Profitability (PR)

Source: Author's Computation (2020)

Table 11 for model three, revealed that coefficient of relative effect ( $R = 0.636$ ) shows a strong positive correlation exists between strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) and profitability. The coefficient of determination ( $Adj.R^2$ ) of 0.416 shows that strategic entrepreneurship components explained 41.6% of variation in profitability. However, the model did not explain 58.4% of the variation in profitability, implying that there are other variables that explained profitability which were not captured in the model three. Furthermore, Table 11 also shows the ANOVA result. The result revealed that overall, the explanatory power of the model was considered statistically significant with the F-stat value output of the model reporting a p-value of .000 ( $F = 42.982, p < 0.05$ ). This indicated that strategic entrepreneurship components significantly affect profitability of oil and gas service firms in Lagos and Rivers States, Nigeria. Therefore, this study did not reject the alternate hypothesis three that:

**H3:** Strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) do significantly affect profitability of oil and gas service firms in Lagos and Rivers States, Nigeria.

Table 12. Model Four: Simple Regression Results on the Effect of Strategic Entrepreneurship on performance of oil and gas service firms in Lagos and Rivers States, Nigeria

Model	B	Std. Error	Beta	t	Sig.	R	R <sup>2</sup>	F-Value	Sig.	Durbin-Watson
(Constant)	8.897	2.092		5.532	.000	0.364	0.216	34.743	0.000	1.061
Strategic Entrepreneurship	4.932	1.764	1.722	6.412	.001					

Dependent Variable: Firm Performance (FP)

Source: Author's Computation (2020)

Table 12 for model four revealed that coefficient of relative effect ( $R = 0.364$ ) shows that a relative positive correlation exists between strategic entrepreneurship and firm performance. The coefficient of determination ( $R^2$ ) of 0.216 shows that strategic entrepreneurship can only be explained by 21.6% of variation in firm performance of oil and gas service firms. However, the model did not explain 78.4% of the variation in overall performance, implying that there are other variables that explained overall performance which were not captured in the model four. Furthermore, Table 12 also shows the ANOVA result. The result revealed that overall, the explanatory power of the model was considered statistically significant with the F-stat value output of the model reporting a p-value of .000 ( $F = 34.743, p < 0.05$ ). This indicated that strategic entrepreneurship significantly affects overall performance of oil and gas service firms in Lagos and Rivers States, Nigeria. Therefore, this study did not reject the alternate hypothesis four that:

**H4:** Strategic entrepreneurship does significantly affect overall performance of oil and gas service firms in Lagos and Rivers States, Nigeria.

For model five:

Table 13a. Model Summary for Moderating Effect of External Environment on the Relationship Between Strategic Entrepreneurship and Performance of oil and gas service firms in Lagos and Rivers States, Nigeria

<b>(a) Model Summary</b>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	0.531 <sup>a</sup>	0.390	0.412	1.3661074	0.480	115.113	1	687	0.000
2	0.584 <sup>b</sup>	0.481	0.487	1.0328020	0.532	42.124	1	686	0.000
3	0.633 <sup>c</sup>	0.520	0.593	.94383611	0.621	19.256	1	685	0.001

a. Predictors: (Constant), Strategic Entrepreneurship

b. Predictors: (Constant), Strategic Entrepreneurship, External Environment

c. Predictors: (Constant), Strategic Entrepreneurship, External Environment, Strategic Entrepreneurship x External Environment

d. Dependent Variable: Firm Performance

Table 13b. ANOVA Result

<b>ANOVA</b>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	512.305	1	292.035	102.425	.000 <sup>b</sup>
	Residual	174.695	687	.391		
	Total	687.000	686			
2	Regression	549.696	2	98.918	89.215	.000 <sup>c</sup>
	Residual	137.304	685	.370		
	Total	687.000	687			
3	Regression	572.812	3	76.301	67.765	.000 <sup>d</sup>
	Residual	114.188	684	.370		
	Total	687.000	687			

Table 13c. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.201E-15	0.029		0.000	1.000
	Strategic Entrepreneurship	1.541	0.215	0.921	34.144	0.000
2	(Constant)	2.606E-15	0.028		0.000	1.000
	Strategic Entrepreneurship	0.654	0.037	0.654	22.721	0.000
	External Environment	-0.196	0.037	-0.346	-6.720	0.000
3	(Constant)	0.119	0.056		0.093	0.114
	Strategic Entrepreneurship	0.958	0.012	0.655	17.612	0.000
	External Environment	-0.123	0.037	-0.196	-5.353	0.000
	Strategic Entrepreneurship x External Environment	-0.228	0.012	-0.076	-3.105	0.001

- a. Dependent Variable: Firm Performance
- b. Predictors: (Constant), Strategic Entrepreneurship
- c. Predictors: (Constant), Strategic Entrepreneurship, External Environment
- d. Predictors: (Constant), Strategic Entrepreneurship, External Environment, Strategic Entrepreneurship x External Environment

**Source:** Field Survey Result (2020).

Tables 13a depicted hierarchical multiple regression results for the moderating effect of external environment on the relationship between strategic orientation and firm performance. Results in Table 13a summarise the output for the analysis if moderation effect is not considered. Therefore, in this model, the independent variable was firm performance. From Table 13a, Model 1 revealed that  $R = 0.531$ ,  $R^2 = 0.390$  and  $[F(1, 687) = 115.113, p = .0000]$ . The value of coefficient of determination,  $R^2$  indicates that 39% of the variance in the performance of oil and gas service firms in Lagos and Rivers States, Nigeria was accounted for by strategic entrepreneurship. The remaining 61% of the total variation in firm performance was explained by factors not included in the model. After considering the moderator (external environment), the adjusted R-square value was 0.593 (59.3%) and the explained variation in the relationship of study variables was found to be significant ( $p = 0.001 < 0.05$ ). This indicated that external environment as moderator with strategic entrepreneurship significantly determined firm performance of oil and gas service firms in Lagos and Rivers States, Nigeria. Furthermore, in Table 13b, after considering the moderating variable (external environment) with independent variable (strategic entrepreneurship), the F-statistics is 67.765 with a corresponding p-value of 0.000 ( $p\text{-value} < 0.05$ ). The results in Table 13c indicate that the interaction term of strategic entrepreneurship and external environment has a beta coefficient of -0.228 and a corresponding p-value of 0.001 which implies that the relationship is negative and statistically significant ( $p < 0.05$ ). This indicates that external environment significantly moderates the relationship between strategic entrepreneurship and performance of oil and gas service firms in Lagos and Rivers States, Nigeria. Based on the results in Table 13a, 13b and 13c, this study therefore did not reject alternate hypothesis five ( $H_5$ ) that: *External environment has significant moderating effect on the relationship between strategic entrepreneurship and performance of oil and gas service firms in Lagos and Rivers States, Nigeria.*

Prior to the empirical support of studies for this study findings, Anlesinya, Eshun, and Bonuedi (2015), Farja, Gimmon, and Greenberg (2016) and Okangi (2019) conceptually stressed that entrepreneurial orientation enhanced firm's sales volume and profitability. Okangi (2019) further pointed that entrepreneurial orientation and firm planning flexibility serve as important drivers of firm growth and success as well as economic growth. In addition, Arokodare (2018), Asikhia and Arokodare (2019) and Sumiati et al. (2019) viewed planning flexibility as a conceptual instrument employed by today's organizations in order to achieve firm's growth in terms of market performance and profitability. They further asserted that organisations cannot survive and attain overall targeted performance in the 21st century global business environmental dynamism without sound strategic entrepreneurship, entrepreneurial orientation and strategic planning flexibility. Similarly, studies have shown that entrepreneurial orientation and planning flexibility drive firm's overall performance in terms of financial and non-financial performance (Alarifi *et al.*, 2019; Ambad & Wahab, 2013; Arshad *et al.*, 2014; Dibrel *et al.*, 2014; Gupta & Wales, 2017; Oladele & Olayiwola, 2018).

Empirically, past related studies on the link between SE and firm performance (Arshad *et al.*, 2014; Dibrel *et al.*, 2014; Gupta & Wales, 2017; Oladele & Olayiwola, 2018) supported our empirical findings that SE measures such as entrepreneurial orientation and planning flexibility have positive and significant effect on firm performance. Relatedly, Asikhia and Arokodare (2019), Mbengue and Ouakouak (2011) and Sumiati et al. (2019) were consistent with the study findings that planning flexibility and external environment significantly affect firm performance. Furthermore, studies such as Adeoye and Elegunde (2012), Asikhia and Arokodare (2019), Obiwuru, Oluwalaiye and Okwu, (2011), Ghouri, Khan, Malik, and Razzaq (2011), and Njeru (2013) found that entrepreneurial orientation, business external environment and strategic planning flexibility directly influence firms' performance. Kreiser, Marino, and Weaver (2002) found evidence that environmental conditions have a direct impact on the level of entrepreneurial behavior displayed by SMEs; and Alexandrova (2004) suggested that improvement in business environment was critical to SMEs development policy formulation as EO was found to be increasingly being shaped by environmental forces. Likewise, Lumpkin and Dess (2001) found that the environments in which firms exhibit EO approaches to strategy making do cause differences in the functions of the EO dimensions and how they relate to performance. On the other hand, Emami and Motavasseli (2012) revealed that environmental uncertainty factors do not significantly affect firm performance and that, there are other important factors that significantly determine firm performance.

## 5. Conclusion and Recommendations

Based on the findings of this study, it is concluded that strategic entrepreneurship components (entrepreneurial orientation and planning flexibility) predict and affect firm performance (sales growth, market share and profitability) of oil and gas service firms in Lagos and Rivers States, Nigeria. In addition, the study also concluded that external environment moderates the relationship between strategic entrepreneurship and performance of oil and gas service firms in Lagos and Rivers States, Nigeria. Based on the findings, this study recommends that oil and gas service firms in Nigeria should: (i) continuously employ entrepreneurial orientation measures in their oil and gas business functions in order to achieve sales growth; (ii) be more entrepreneurial and properly engage in strategic flexible planning to suit today's dynamic business environment as this will enhance their desired market share performance; (iii) strategically minimize risk taking and dynamically and efficiently plan oil and gas business activities so as to achieve firm profitability; and finally, (iv) take cognizance of local and global business environmental factors in planning their oil and gas business operations in order to survive and achieve overall firm performance.

## 6. Limitations and Suggestions for Further Studies

Like other studies, this study has some limitations which must be considered in determining areas for further research. First, the study was focused on the oil and gas service firms in Rivers and Lagos States, Nigeria. This limits the findings and conclusions only to oil and gas service firms in Rivers and Lagos States, Nigeria and restricts the generalizability of the findings to cover oil and gas service firms in other states in Nigeria. Second, the study, though limited to oil and gas service sector of the industry, could also be conducted in both the upstream (exploration and production) and downstream (refining, distribution and marketing) sectors of the oil and gas industry for a more holistic picture of SE engagements in the entire industry. Third, this study was conducted in Nigeria, a developing country with its attendant institutional weaknesses. Therefore, there is need to study these variables in both developed and other emerging oil producing countries for comparison of results. Fourth, the study used a cross sectional survey design and such studies do not detect causal effects of variables as a longitudinal survey would do and would also provide a better understanding of the strategic entrepreneurship-firm performance relationship over time. Fifth, the study limited the dimensions of SE to entrepreneurial orientation and planning flexibility, whereas there are other dimensions like opportunity recognition and entrepreneurial alertness that could also affect the relationship between SE and firm performance. Sixth, entrepreneurial orientation was treated as a unidimensional construct in this study though literature has confirmed that its different dimensions do relate differentially to performance under different circumstances including under different environmental conditions, whether dynamic or hostile (Lumpkin & Dess, 2001).

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