THE MODERATING EFFECT OF THE EXTERNAL ENVIRONMENT ON THE ENTREPRENEURIAL ORIENTATION-ORGANISATIONAL PERFORMANCE RELATIONSHIP: THE CASE OF NIGERIA

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DECLARATION

I hereby declare that this thesis was put together with a lot of hard work from me, and all inputs and materials are properly referenced.

Paul Izuchukwu Orajiaka

DEDICATION

I dedicate this work to the memory of my late father, Chief Mathias Obinaso Orajiaka, Enwegbaraku 1 of the Azia kingdom. A man who taught me and my siblings the fundamentals of entrepreneurship from an early age in his crafts workshop. Again, I thank my mother for nurturing me and believing in my abilities to achieve all I set my heart upon. Importantly, to my wife Ifeyinwa and my five lovely daughters, Muna, Kaima, Mma, Ola and Salma.

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LIST OF ABBREVIATIONS AND ACRONYMS

SMEs - Small and Medium-Sized Enterprises

EO - Entrepreneurial Orientation

RBV - Resource-Based View

DCT - Dynamic Capabilities Theory

GDP - Gross Domestic Product

EE - External Environment

SMEDAN - Small and Medium Enterprises Development Agency of Nigeria

MSMEs - Micro, Small, and Medium Enterprises

OP - Organisational Performance

R&D - Research and Development

PESTLE - Political-Economic- Sociocultural -Technology-Legal-Ecological

VRIN - Valuable, Rare, Inimitable, and Non-Substitutable

RBV - Resource-Based View

AVE - Average Variance Extracted

HTMT - Heteroterit-monotrait Ratio

SPSS - Statistical Package for Social Sciences

MAE - Mean Absolute Error

RMSE - Root Mean Square Error

MAN - Manufacturers Association of Nigeria

SEM-PLS - Structural Equation Modelling – Partial Least Squares

VIF - Variance Inflated Factor

LRM - Linear Regression Model

ABSTRACT

It has been observed that a high entrepreneurial orientation (EO) leads to positive business performance among Small and Medium-sized Enterprises (SMEs) irrespective of location; therefore, this study examined the moderating role of the external environment (EE) in the relationship between EO and organisational performance (OP) of SMEs in Nigeria. Employing a quantitative research method anchored on the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), and Contingency Theory, a sample size of 790 was selected from 29,536 owners and top managers of SMEs across Nigeria's six geo-political zones (South-East, South-South, South-West, North-Central, North-East, and North-West); of the 750 questionnaires administered, 630 responded (an 84% response rate), with 304 responses found usable. Two research questions were raised in line with the study's objectives, and a Partial Least Squares-Structural Equation Modelling (PLS-SEM) analysis was performed to test the hypotheses. Findings revealed that three of the five dimensions of entrepreneurial orientation - innovativeness, competitive aggressiveness, and autonomy - have a significant positive influence on organisational performance, while risk-taking and proactiveness showed no significant influence. Furthermore, the external environmental factors of munificence, dynamism, and hostility were found to have no moderating effect on the EO-OP relationship of Nigerian SMEs; however, the environmental complexity of the Nigerian economy does exert a moderating influence on the relationship between entrepreneurial orientation and SMEs' performance. The study thus recommended that SMEs adopt strategies emphasising innovativeness, competitive aggressiveness, and autonomy, considering their significant positive impact on OP, improve their operational levels for enhanced performance and profitability, critically examine their external environmental factors when planning business strategies, and that government policy should guide regulatory authorities to prioritise strategies that mitigate the negative influence of specific EE constructs on the EO-OP relationship among Nigerian SMEs.

Keywords: Entrepreneurial Orientation, External Environment, Organisational Performance, SMEs.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Small and medium-sized enterprises (SMEs) have become an increasingly essential component of economic growth and sustainable development representing a significant proportion of the national economies all around the world (Isichei, Agbaeze & Odiba, 2020; Susanto, Hoque, Shah, Candra, Hashim, & Abdullah, 2023.). Small businesses are essential to most of these economies; therefore, the investigation of their performance is a worthwhile scholarly endeavour (Meekaewkunchorn, Szczepańska-Woszczyna, Muangmee, Kassakorn & Khalid, 2021). SMEs have been known to be the bedrock of most developing economies, yet the external business environment is suggested to be so crucial in creating or destroying entrepreneurship in these countries (Olaore, 2024). The external environment consists of factors beyond the control of the entrepreneur and his organisation; this challenge is peculiar to all businesses. However, SMEs are at liberty to deploy the concept of Entrepreneurial Orientation (EO), which is renowned for helping organisations develop unique decision-making styles, practices in strategy-making processes and methods that are capable of mitigating the effects of macroeconomic distortions, hostilities and other associated challenges (Galbreath, Lucianetti, Thomas & Tisch, 2020).

Further, EO is a strategy-making process that guides organisations to create constant innovations, adopt a proactive posture in the market and embark on risky investments where necessary (Covin & Slevin, 1989; Rezaei & Ortt, 2018; Daradkeh & Mansoor, 2023). Barney's (1991) Resource-Based View theory establishes that firms achieve sustained competitive advantage by possessing and deploying internal resources that are valuable, rare, imperfectly imitable, and non-substitutable (VRIN), enabling superior value creation and economic rents through resource heterogeneity and

immobility (Barney, 1991, pp. 99-105). He also proposed the Resource-Based View (RBV) conceptual framework, which emphasises that for an organisation to achieve a competitive advantage, its resources must possess specific attributes. These attributes must not only be valuable but should also enable the organisation to capitalise on external opportunities or counteract external threats. This value-centric approach highlights that resources must provide strategic benefits by enhancing an organisation's ability to respond adaptively to its external environment, thus fostering sustained competitive advantage.

While Barney's (1991) RBV asserts that sustained competitive advantage stems from internal VRIN resources (valuable, rare, inimitable, non-substitutable), the Dynamic Capabilities Theory (DCT) extends this by emphasising strategic adaptability—the ability to reconfigure, integrate, and transform resources in response to turbulent environments (Teece, 2023). However, more extensively, the DCT framework rests on three core assumptions: the capability to anticipate and shape market opportunities, the capacity to seize these opportunities, and the ability to sustain competitiveness by continually reconfiguring organisational assets to align with changing conditions. A review of the literature positions dynamic capability as an organisation's capacity to systematically solve problems by detecting and responding to opportunities and threats, and by making agile, market-aligned decisions that strengthen its competitive standing (Baía & Ferreira,2024; Bojesson & Fundin, 2021).

Thus, this thesis examines the moderating role of the external environment on the relationship between entrepreneurial orientation and organisational performance, focusing specifically on the Nigerian context where dynamic capabilities play a crucial role in navigating a volatile business environment. This drives the need to develop robust, vibrant and viable entrepreneurs in order to

solve the numerous socio-economic problems facing countries such as Nigeria, with an estimated population of about 200 million people out of whom about 70% are classified as poor based on the international poverty threshold of less than 1.90 dollars per day (Ogabo, Ogbo Anastasia, Joshua & Mani, 2022). It has been argued that environmental factors external to the entrepreneurial business are capable of creating or destroying entrepreneurship by the nature of the climate they establish (Adam, Ramliy, Kohar, Kelana, Othman & Ho, 2020; Arokodare & Asikhia, 2020). The environmental context, which refers to the sets of events, circumstances, situations, settings and niches that surround entrepreneurial events, can play an enhancing or inhibiting role in the diffusion of entrepreneurship (Ruiz-Ortega, Córcoles-Muñoz, Parra-Requena & García-Villaverde, 2023). Several studies, for example, such as those by Aftab, Veneziani, Sarwar and Ishaq (2024), Omisakin, Arasanmi and Kularatne (2022), Isichei, Agbaeze and Odiba (2020) have been conducted in these contexts from different regions globally. However, business management scholars have been muted about the moderating effects of the external environment on the Entrepreneurial Orientation-Organisational Performance (EO-OP) relationship of SMEs in an emerging economy like Nigeria.

Against this background, RBV considers an organisation's internal resources that are valuable, rare, inimitable and non-sustainable as key to achieving and sustaining competitive advantage but does not explain how firms maintain and adjust these resources in changing environments, while DCT explains how firms continuously align resources and capabilities with shifting environmental demands. Hence, combining the two theories addresses both static and dynamic dimensions of competitive advantage, which drive enhanced organisational performance.

1.2 Statement of the Problem

Entrepreneurship plays a critical role in most economies, particularly in emerging economies, where the small and medium enterprise sector constitutes the spine and an essential contributor to economic growth, sustainable development and employment creation (World Bank, 2018). While their definitions vary across countries, an SME is broadly defined as a business with a turnover of less than 100 million Naira per annum (70,000 USD) and fewer than 300 employees (Central Bank of Nigeria, 2020). SMEs account for most businesses globally and are essential contributors to job creation and global economic development (World Bank, 2018). In Nigeria, SMEs account for 96% of businesses, 84% of employment generation and contribute 48% of national GDP (Muhammad & Rana, 2020). According to the National Bureau of Statistics (NBS) (2021), SMEs accounted for 46.32% of Nigeria's GDP in 2021, and their indirect job support was approximately 17.4 million jobs, almost 50% of industrial employment, and about 90% of manufacturing sector jobs. This substantial role underscores their importance in fostering economic stability and reducing unemployment.

SMEs represent an estimated 90% of businesses and more than 50% of employment globally. Formal SMEs contribute up to 40% of the national income Gross Domestic Product (GDP) in developing economies, and these numbers are significantly higher when informal SMEs are included (Umar, Alasan & Mohammed, 2020). Formal SMEs typically operate within recognised regulatory frameworks, including business registration, taxation, and access to formal financial institutions, whereas informal SMEs often operate outside these regulatory systems and rely largely on informal financing and unregistered business structures. The World Bank's 2023 Jobs and Development Report highlights that over 675 million new jobs will be needed globally by

2030 to absorb the expanding workforce, with Sub-Saharan Africa alone requiring 100 million jobs to match its demographic growth (World Bank, 2023). This unprecedented demand has made SME development a critical policy priority, as small and medium enterprises (SMEs) remain the backbone of employment creation, contributing 80% of formal jobs in emerging economies and up to 90% in low-income countries (World Bank SME Finance Gap Report, 2024).

While there is ample evidence that SMEs are critical to Nigeria's economy, many new SMEs in the country face high failure rates. According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), a high percentage of Nigerian SMEs fail within their first five years of operation, underscoring the acute vulnerability of this critical sector (SMEDAN, 2019). Even though this trend is not uncommon to start-ups globally, due to challenges such as limited access to capital, competitive markets, and operational difficulties (Kalyanasundaram et al., 2021), the particularly challenging economic landscape in Africa, characterised by infrastructure gaps, regulatory challenges, and limited access to financial services, presents additional hurdles that can elevate SME failure rates (Ajide, 2020).

According to the African Development Bank (2019), the top five economies that experienced the highest shutdown rates among start-ups between 2010 and 2018 were Ethiopia (75%), Rwanda (75%), Ghana (73.91%), Zimbabwe (66.7%), and the Democratic Republic of the Congo (66.7%). Over the same period, Nigeria recorded an average start-up failure rate of approximately 61%. High failure rates among SMEs have important implications for financial institutions and credit markets. From a lender’s perspective, the high probability of business failure increases the perceived risk associated with lending to SMEs. As a result, financial institutions may become more cautious in extending credit to small businesses, often imposing stricter lending conditions

or limiting loan availability. This dynamic contributes to the persistent financing gap faced by many SMEs in Nigeria.

In Nigeria, numerous challenges continue to impede the growth and development of the SME sector. Despite their significant contributions to the country's economy, SMEs face challenges arising from the external environment in which they operate. These challenges include funding gaps, regulatory burdens, and a highly uncertain business environment characterised by high inflation, interest rates, and exchange rate volatility, which hinder their growth and development. The effects of many of these challenges on SME survival and performance have been widely documented in the literature (Lumpkin & Dess, 1996; Bruton et al., 2008; Rauch et al., 2009; Adeleye, Eboigbe, & Amaeshi, 2021; Amankwah-Amoah, 2021). However, while previous studies have largely focused on structural and financial constraints, comparatively less attention has been given to how entrepreneurial orientation factors such as innovation, competitive aggressiveness, and proactiveness interact with external environmental conditions to influence SME performance in Nigeria (Effiom & Edet, 2022; Ibrahim & Abu, 2020). This indicates an important gap in understanding how environmental dynamics shape the effectiveness of entrepreneurial behaviour in Nigerian SMEs.

While EO is recognised globally as a driver of performance, its application in Nigeria's volatile, institutionally complex business environment remains poorly understood. There is a contextual gap in how the classic dimensions of EO function in this setting. More importantly, a theoretical gap exists regarding how specific external environment (EE) factors—munificence, dynamism, complexity, and hostility—actively moderate the relationship between EO and OP for Nigerian SMEs. This lack of a context-sensitive contingency framework leaves entrepreneurs without clear

guidance on which entrepreneurial behaviours are most effective under specific environmental pressures.

This study contributes to the existing literature on entrepreneurial orientation and SME performance by providing a context-sensitive analysis within a developing economy. While previous studies have largely examined the relationship between entrepreneurial orientation and organisational performance in developed markets, limited empirical evidence exists on how this relationship operates in volatile and institutionally complex environments such as Nigeria. By examining the moderating influence of external environmental factors, munificence, dynamism, complexity, and hostility, this research extends the EO-OP debate by demonstrating how environmental conditions shape the effectiveness of entrepreneurial behaviours. In doing so, the study advances contingency-based perspectives of entrepreneurial orientation and provides empirical evidence from the Nigerian SME context. The findings will also offer practical insights for policymakers and SME managers by identifying the environmental conditions under which entrepreneurial strategies are most likely to enhance firm performance.

By employing a nationwide survey and applying a Partial Least Squares Structural Equation Modelling (PLS-SEM) approach, this research moves beyond generic descriptions of challenges to empirically test a nuanced contingency model. The objective is to develop a contextually grounded understanding that explains when and how specific environmental conditions strengthen or weaken the contribution of each EO dimension to performance. Ultimately, this study seeks to provide actionable insights for SME managers on strategic prioritisation and to inform policymakers on creating environments where entrepreneurial orientation can truly succeed.

1.3 Entrepreneurial Orientation and Organisational Performance

The concept of EO originated over 30 years ago and has become one of the most popular research directions in strategic management and entrepreneurship (Covin & Wales, 2019). EO presumes an active strategic posture with a focus on a firm's abilities to develop constant innovations, adopt proactiveness in firm actions and undertake risky ventures despite a high probability of losses (Covin & Slevin, 1989; Al-Mamary & Alshallaqi, 2022).

Funding is a crucial resource for Nigerian firms, enabling investments in growth-oriented activities such as workforce expansion, operational enhancements, and market development. However, many Nigerian SMEs struggle to secure adequate funding due to high interest rates, conservative banking policies, and limited venture capital availability. As a result, companies with strong financial backing gain a competitive edge, as they can invest more effectively in innovation and scalability. In a rapidly growing market, these financially equipped firms are better positioned to capture opportunities and improve performance compared to those with limited capital (Effiom & Edet, 2022).

In addition to capital, other physical assets such as land, building, machinery, furniture and fittings among others are essential for Nigerian businesses to thrive. Firms in urban hubs like Lagos or Abuja benefit from proximity to larger markets and superior infrastructure, giving them an operational advantage over those in rural areas. Ownership of land and building provides greater security and potential collateral for financing, which is valuable given limited lending options (Ibrahim & Abu, 2020). Access to reliable infrastructure, including electricity and transportation, also significantly reduces operational disruptions and enhances productivity. In contrast, firms in regions with poor infrastructure face higher costs and inefficiencies, highlighting the importance

of tangible assets for sustained business performance. However, EO is often viewed from the resource-based perspective (Barney, 1991; Grant, 1991) or the dynamic capabilities view (Teece, 2023; Teece et al., 1997). Resources can also be tangible or intangible. In the context of Nigerian businesses, tangible resources are indispensable assets that provide a foundation for competitiveness and long-term sustainability. Tangible resources refer to physical and financial assets essential to day-to-day operations and strategic growth.

In Nigeria, strong leadership and a clear vision are crucial intangible resources required for business success, especially for entrepreneurs with entrepreneurial orientation. These leaders inspire teams, attract investors, and forge strategic partnerships to drive growth through diversification, regional expansion, or digital transformation initiatives. Additionally, reputation and brand loyalty play a significant role in building competitive advantage. Moreover, companies known for innovation, reliability, and customer-centric values can foster trust and brand loyalty, which help retain customers even in challenging market conditions, as word-of-mouth and social networks often influence consumer choices.

Conţu (2020) defines OP as the extent to which an organisation effectively positions itself in the marketplace by leveraging informational, financial, and human resources. Individual performance, in turn, can impact the organisation's overall success, influencing its outcomes in a positive or negative direction across medium and long-term horizons.

Organisational performance refers to the effectiveness with which an organisation achieves its objectives and fulfils its mission across various dimensions, including financial outcomes, operational efficiency, and customer satisfaction. High-performing organisations demonstrate the ability to generate consistent profits, manage costs effectively, and maintain financial health,

which are all vital indicators of success (Al Dakheel, Del Pero, Aste, & Leonforte, 2020). According to Ngcobo, Bhengu, Mudau, Thango and Lerato (2024), operational efficiency plays a crucial role, as it reflects the organisation's ability to optimise processes, enhance productivity, and maintain high quality standards.

In a rapidly evolving market, organisations must be not only financially sound but also agile and capable of adapting their processes to remain competitive and meet changing customer needs. Beyond financial and operational benchmarks, organisational performance increasingly encompasses employee engagement, innovation, and social responsibility (Lu, Ren, Zhang, Rong, Ahmed and Streimikis (2020); Tyagi (2021) describe engaged employees to be more productive, loyal, and aligned with the organisation's goals, contributing to a positive workplace culture and improved overall performance. Innovation and adaptability are essential for staying relevant in today's fast-paced business environment, allowing organisations to respond to new trends and technological advancements. Additionally, many organisations are now evaluated on their social and environmental impact, as stakeholders expect companies to contribute to sustainability and community well-being (Rela, Awang, Ramli, Md Sum, & Meisanti, 2020). Together, these elements create a holistic view of organisational performance, reflecting not only the organisation's economic achievements but also its broader impact on society and the environment.

Numerous studies have investigated the link between EO and OP and have tested variables that might influence that relationship as well as the different contexts in which it occurs (Lee et al., 2019; Aftab, Veneziani, Sarwar & Ishaq 2024). Some of the previous studies have revealed a positive relationship between EO and OP (Boso et al., 2013; Lee et al., 2019; Lumpkin & Dess, 2001; Shepherd & Wiklund, 2020; Isichei et al., 2020), few found a negative relationship (Cho &

Lee, 2018; Hernández-Linares et al., 2019; Jiang et al., 2018; Aftab, Veneziani, Sarwar & Ishaq, 2024) while others found a curvilinear EO-OP relationship (Dai & Si, 2018; Su et al., 2011; Mohamad & Chin, 2019; Covin & Wales, 2019; Yoon & Solomon, 2017). Such contradictions in result may be justified from the perspective of contingency theory and the strategic fit concept (Chavez et al., 2017; Covin & Miller, 2014; Omisakin, Arasanmi & Kularatne, 2022) which suggest that the environment of an organisation has influence on its performance.

Moreover, many studies have been carried out to determine the environmental factors, that moderate the relationship between EO and OP (e.g., Boso et al., 2012; Buli, 2017; Covin & Slevin, 1989, 1991; Engelen et al., 2015; Lumpkin & Dess, 2001; Martins, 2016; Montoya, Martins & Ceballos, 2017; Aftab, Veneziani, Sarwar & Ishaq 2024). However, several studies have concluded that the EO–OP relationship is influenced by external environmental factors, such as environmental dynamism, hostility, complexity, and munificence (Omisakin, Arasanmi & Kularatne, 2022; Segarra-Ona, Peiro-Signes, Albors-Garrigos Miguel-Molina, 2017.; Shehu & Mahmood, 2015). While, several studies have focused on the influence of internal environment in the relationship between EO and OP (Adam, Ramliy, Kohar, Kelana, Othman & Ho, 2020; Rezaei-Moghaddam & Izadi, 2019; Segarra-Oña et al., 2017).

EO has been described as a strategic framework that enables organisations to adapt, innovate, and maintain a competitive edge by focusing on five main factors: innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996). Innovativeness reflects a company's commitment to new ideas and creativity, allowing for unique products and differentiation. Risk-taking involves a willingness to pursue high-risk opportunities, often in uncertain markets, which can yield substantial rewards. Proactiveness enables companies

to anticipate market needs, giving them a first-mover advantage, while competitive aggressiveness drives organisations to challenge rivals and defend their market position assertively. Autonomy, the final EO dimension, refers to the independence granted to individuals or teams to initiate projects and make decisions, fostering innovation and responsiveness.

Collectively, these EO dimensions empower organisations to respond swiftly to market dynamics, seize emerging opportunities, and better align their internal practices with external changes. EO ultimately promotes a culture of agility, strategic risk-taking, and innovation, which can lead to greater growth, profitability, and sustainability, especially for companies operating in fast-changing or competitive sectors. Embracing EO thus positions organisations for long-term success in today's complex business environment.

Stam and Elfring (2008) identified external environmental factors as key moderators in the relationship between EO and firm performance. This view is supported by Milovanovic and Wittine (2014), who emphasised the importance of including external environmental factors as moderating variables in OP studies. Pulka et al. (2019) similarly recommended that external environment should be considered as a moderating variable in future entrepreneurship research, based on its significant role in shaping entrepreneurial opportunities and threats. Moreover, external environmental uncertainty, has been identified as a major source of unpredictability for new ventures (Aftab, Veneziani, Sarwar & Ishaq 2024). Scholars widely agree that these uncertainties in the external environment are critical determinants of OP (Jabeen et al., 2016; Milovanovic & Wittine, 2014; Wei & Ling, 2015).

1.4 Research Gap

Entrepreneurial Orientation encompasses the strategic patterns, approaches, and practices that define the decision-making process that relates to how a firm's competitiveness (Shepherd & Wiklund, 2020) is defined. Many empirical and theoretical studies have demonstrated that there is a positive relationship between EO and performance outcomes (Lee et al., 2019; Martins & Ceballos, 2017) for the firm. However, many researchers have argued that the relationship between EO and OP has more complexities than previously understood (Gupta et al., 2018; Lumpkin & Dess, 1996; Mohamad & Chin, 2019). As this scholarly debate continues, more research is needed to understand what conditions EO will affect OP.

Researchers have tried to understand this relationship from two perspectives. One perspective focuses on celebrating the internal contingencies, such as knowledge creation processes, market orientation, and learning orientation, as moderators of the EO-OP relationship (Hussain et al., 2018; Buli, 2017; Yang & Ju, 2017). In contrast, the other perspective has focused studies on various external environmental contingencies as moderators to the EO-OP relationship across various sectors in developing and emerging economies (Al-Dhaafri et al., 2016; Boohene, 2018; Covin & Wales, 2019), with many studies suggesting that environmental contingencies such as dynamism, hostility, and other external factors may matter for EO to influence performance.

Although these studies provide new insights, other studies have pointed to huge gaps. In fact, there is a relative lack of contribution to both research and evidence in Nigeria pertaining to the moderating role of the external environment on the EO-OP relationship (Adesanya et al., 2018; Adi & Adawiyah, 2018; Isichei et al., 2020; Olawoye, 2016) in terms of both quantity and scope, a rare empirical study on the EO-OP relationship is being published from developed economies and even more in the literature issued from emerging economies in Asia. The evidence is quite limited in Africa, because Africa is not homogenous in relation to its contexts. Also, most of the

environmental literature identified items of research on separate dimensions of the external environment, and many were not comprehensive studies on multiple dimensions at once using a wide range of frameworks.

This research aims to close that gap and specifically seeks to use the environmental factors of munificence, dynamism, complexity, and hostility as moderators of the EO-OP relationship for SMEs in Nigeria. In doing so, it responds to the concerns of Lumpkin & Dess (1996) and Gupta et al. (2018) about the need for research and studies to be context specific, and in the developing economies with recommendations to policymakers and practitioners in regard to the performance of SMEs in Nigeria and as a result of Nigeria's unique business environment. Ultimately, the research findings will make contributions to theoretical advancement and practical recommendations that can foster sustainable SME growth.

1.5 Research Questions

i. How does Entrepreneurial Orientation influence the Organisational Performance of Small and Medium-sized Enterprises in Nigeria?
ii. How does the External Environment moderate the relationship between EO and OP of SMEs in Nigeria?

1.6 Research Objectives

This research aims to examine the moderating role of the EE on the relationship between EO and OP. The specific objectives of the study are to:

i. Determine the influence of Entrepreneurial Orientation on Organisational Performance of SMEs in Nigeria;
ii. Ascertain the moderating effect of EE on the EO and OP relationship of SMEs in Nigeria.

1.7 Contributions of the Study

This study contributes to the existing literature in several ways.

Firstly, it adds to the EO-OP research stream by identifying situational factors that influence the effect of entrepreneurial orientation on Nigerian SMEs' operational performance. The findings refine Contingency Theory by establishing critical boundary conditions, revealing that environmental hostility, dynamism, munificence, and complexity do not significantly moderate the EO-OP relationship in Nigeria's extreme institutional context (Covin & Slevin, 1989; Su, Xie, & Li, 2011; Bruton, Ahlstrom, & Obloj, 2008).

Secondly, it expands the application of the Resource-Based View and Dynamic Capabilities Theory by demonstrating the differential value of EO dimensions as strategic resources in a resource-scarce setting. The significant direct effects of only Innovativeness and Competitive Aggressiveness reframe EO from a monolithic construct into a differentiated bundle of dynamic capabilities, providing a more precise theoretical lens for studying EO in emerging markets (Teece, 2018; Gupta & Batra, 2016).

Thirdly, the selected external environment variables, munificence, dynamism, complexity, and hostility, represent both favourable and unfavourable elements of the business environment context. Their configurations have not been comprehensively examined together in one model of the EO-OP relationship within the Nigerian context (Adesanya et al., 2018). This study addresses this gap by testing these four environmental dimensions simultaneously as moderators.

Fourthly, previous research on the EO-OP relationship has typically focused on specific cities or regions within Nigeria (Arokodare & Asikhia, 2020; Ogabo, Ogbo Anastasia, Joshua & Mani,

2022; Shehu & Mahmood, 2015; Pulka, Ramli, & Mohamad, 2019). This study builds on these efforts by gathering data from all six geopolitical zones across Nigeria, creating a nationally representative framework that accounts for the country's ethnic and geopolitical diversity and addressing a significant gap in the African EO literature (Ibeh & offong, 2012).

Methodologically, the study advances rigour in context-sensitive research by applying Henseler et al.'s (2015) Heterotrait-Monotrait (HTMT) ratio to assess discriminant validity, moving beyond the Fornell-Larcker criterion used in prior Nigerian studies and ensuring that the tested (non-)moderation effects are not artefacts of measurement overlap (Covin & Wales, 2019).

Practically, the findings deliver actionable guidance for SME owners to prioritise innovativeness and competitive aggressiveness, for policymakers to design targeted, capability-specific interventions and address institutional stabilisation, and for business development service providers to develop contextualised diagnostic tools and adapt risk assessment frameworks (Kiss, Danis, & Cavusgil, 2012; Luo, 2003; Webb, Khoury, & Hitt, 2020; Amankwah-Amoah, 2021).

1.8 Thesis Outline

This thesis is structured into six chapters. Chapter One covers the introduction, statement of the research problem, entrepreneurial orientation and organisational performance, research gap, research questions, study objectives, and contribution to knowledge.

Chapter Two, the literature review, is divided into four sections: conceptual review, theoretical review, the conceptual framework underlying the study, methodological review, and empirical review of the literature to have a critical discussion of studies that justify the objective of this study.

Chapter Three is the research methodology, including the research design, overall research model and hypotheses, research paradigm, population and sample, instruments and measurement, reliability and validity, data collection procedure, data analysis plan, application of PLS-SEM to sample size, evaluation of the structural model and summary of chapter.

Chapter Four focuses on data and analysis by outlining the sampling of the SMEs and research participants for the study, data gathering procedures, analysis and as well as comparison of the findings of previous studies.

Chapter Five is the presentation of results, discussion of results, and linking the theory to the EO-OP relationship of SMEs in Nigeria.

Chapter Six provides a summary and conclusion of the study, highlighting the key findings and implications. It also discusses the contributions to knowledge and practice, the limitations encountered during the research process and offers recommendations for future studies on areas of the study not adequately covered.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter presents a comprehensive review of the literature examining the relationship between Entrepreneurial Orientation (EO) and Organisational Performance (OP), with particular focus on how the External Environment (EE) moderates this relationship in Nigerian small and medium enterprises (SMEs). The review is structured into four key components to provide a complete theoretical and conceptual foundation.

First, the Theoretical Review establishes the study's foundation by integrating the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), and Contingency Theory to explain how firms leverage entrepreneurial strategies for competitive advantage while adapting to environmental demands.

Second, the Conceptual Review critically analyses the core constructs of EO (including its five dimensions), OP (encompassing both financial and non-financial metrics), and EE (considering dynamism, hostility, munificence and complexity), synthesising empirical findings from global and African contexts while highlighting Nigeria's unique institutional and informal sector dynamics.

Third, the Methodological Review evaluates measurement approaches and analytical techniques, justifying this study's use of Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine complex moderation effects, including necessary adaptations to standard EO scales for Nigeria's business context.

Finally, the chapter culminates in the Development of Hypotheses, which integrates the preceding reviews to present the study's specific research propositions and the visual model that guides the empirical investigation. This progression from theory to testable hypotheses systematically identifies the critical gaps in existing literature that this study aims to address, particularly regarding how Nigeria's distinctive environmental conditions influence the effectiveness of entrepreneurial strategies in SMEs.

2.1 Theoretical Review

A review of the literature on the EO-OP relationship reveals three dominant theoretical approaches adopted in investigating this relationship, along with the moderating variable. These theoretical perspectives are the Resource-Based View (Barney, 1991), the Dynamic Capabilities Theory (Teece, 1997), and the Contingency Theory (Dess & Lumpkin, 1996). The objective of this review is to highlight the fundamental premises of these theories, identify the suitable theory on which this thesis will be anchored and its implications for the findings of this investigation.

2.1.1 The Resource-Based View

The Resource-Based View started from the work of Penrose (1959), who argued that the firm's productive resources and processes would help the firm’s growth and increase its output. Wenerfelt (1984) coined the term "Resource-Based," which proposed that a firm can have a competitive advantage with its unique resources. This was supported in a study conducted by Oyedele et al. (2021), who held that businesses that desire to stand out among their peers in a turbulent business environment in any country, including Nigeria, where this study was conducted, must possess resources that are valuable, rare, inimitable, and non-substitutable (VRIN). According to Ahmad

and Ahmad (2018), enterprises that want to have a competitive advantage over others must pay attention to the importance of unique entrepreneurial resources in enhancing organisational performance. The authors also opined that the higher the level of such resources, the greater the tendency there is for enterprise success, growth, and sustainability. Such unique resources would affect the entrepreneurial behaviour of the enterprise (Martins & Rialp, 2015). However, the acquisition of these resources may be influenced by the competency of the managers of such businesses.

Organisational resources can be categorised into physical resources and human resources and each of these would affect firm performance differently (Barney, 1991). It can also be defined as tangible and intangible resources (O'Regan & Ghobadian, 2004). The resources in each firms are unique to the firm in itself and they may not be replicated by other firms (Bellia, Pilato & Seraphin, 2017; Kamasak, 2017; Rahman, Civelek & Kozubíková, 2016) as they solely belong to the company and such resources are drivers of firm's sustainable competitive advantage.

The intangible resources include: managerial characteristics and organisational process, knowledge and capabilities (Bellia, Pilato &Seraphin, 2017; Kamasak, 2017; Khan, Yang & Waheed, 2019). For example, the family asset in a family firm would be part of the physical assets/resources that the company have. The firm could take the risk of using such asset as collateral to obtain credit facility from banks to finance the company's operations to drive expansion (Mahmood &Young, 2017). Such borrowed funds will enhance the financial capability of the company for competitiveness in the industry (Moss, Neubaum, & Meyskens, 2015). A company that has intangible assets would be more proactive in pursuing a positive firm performance (Eshima & Anderson, 2017; Kimiagari, Jafari-Sadeghi & Daowd, 2019). A firm's

tangible and intangible resources would be utilised to have an advantage over its competitors in the industry.

Two of the fundamental bases of the Resource-Based View are competitive advantage and business strategy (Al-Dhaafri et al., 2016; Barney, 1991). Hence, when the organisational resources are valuable, rare and difficult to replicate, it will be a competitive strategy to generate a better economic position for the company since the resources that are valuable and rare would enable organisations to reinvent and pursue research and development to drive firms' positive performance (Gupta & Balasubramanian, 2015; Yang & Ju, 2017).

The Resource-Based View is closely associated with proactive environmental strategy, as a firm's internal resources determine its capacity for strategic action (Martins & Rialp, 2015; Rigtering et al., 2017; Shepherd & Wiklund, 2020). According to O'Dwyer and Gilmore (2018) and Ratten and Tajeddini (2017), a firm's unique resources, such as proprietary technology, brand equity, or supply chain capabilities, determine how proactive it can be in building strategic alliances for market expansion. For example, Walmart's sustained ability to implement a low-price strategy is underpinned by its valuable, rare, and difficult-to-imitate resources: an advanced global logistics network, real-time inventory management systems, and massive economies of scale in procurement (Rahman et al., 2016). These resources, consistent with RBV's VRIN framework, provide a competitive advantage that enables proactive market positioning and strategic expansion. Thus, firms with such distinctive resource endowments are better positioned to leverage entrepreneurial orientation proactively within their external environment.

Moreover, firms that adopt strategic alliances would pursue innovative strategies to help them achieve their corporate goals (Rigtering et al., 2017; Shepherd & Wiklund, 2020). A study done

on Chinese firms by Su et al. (2011) investigated the resource portfolio that firms require to enhance performance through entrepreneurial strategy making. It was revealed that there is a positive relationship between effective entrepreneurial strategy and organisational performance, which can be achieved where firms have flexible resources as part of their resource portfolio. However, flexibility in the use of resources, irrespective of the environment, may allow for innovative products and services that drive a competitive advantage for positive organisational performance (Rahman et al., 2016).

Against this backdrop, organisations that intend to have a competitive edge over its peers in the turbulent business environment using Nigeria as a case study must possess unique resources and capabilities that will drive firm's competitive advantage for business positive performance, success, growth and sustainability which is in line with the purpose of this study (Khumalo & Ayeni, 2024). However, such resources may be classified as physical resources (Crouzet and Ma,2023), human resources (Li et al., 2023) and organisational resources (Bryan & Smith, 2024). While it may also be categorised as tangible and intangible. The tangible resources are physical assets that can be seen or touched, such as the family building, which can be used as security for bank loans, equipment and machinery for business operations, furniture, and cash, among others. The intangible resources of firms are the nonphysical assets of a firm, such as organisational processes, managerial capability, and knowledge, among others.

Criticisms of the Resource-Based View.

The most salient weakness of the RBV is its focus on the firm's internal forces and resources. This approach is linked to the pioneering work of Penrose (1959), rather than any other. Moreover, there has been a renewed interest in the role of firm resources as a foundation for firm strategy (Grant, 1991; Collins, 2022). This interest reflects some dissatisfaction with the static, equilibrium framework of industrial organisation economics, where the focus was on the relationship between the strategy and the external environment.

Several advances have occurred on different strategic levels, and all of them contributed to what has been termed a resource-based view. RBV describes a firm in terms of the resources that the firm integrates. Frequently, the term resource is limited to those attributes that enhance the efficiency and effectiveness of the firm (Wernerfelt, 1984). Miller and Shamsie (1996) state that resources should be capable of generating profits or avoiding losses. Firms that intend to report high levels of performance and a sustained competitive advantage need to acquire heterogeneous resources that will be difficult to challenge, create, substitute, or imitate by other firms. Therefore, the main reason for a firm's growth and success can be found within the firm; that is, firms with resources and superior capabilities will build up a basis for gaining and sustaining competitive advantage (Peteraf, 1993). This position of RBV was faulted by some authors (Day, 1994; Barney, 1991; Grant, 1991; Chandler and Hanks, 1994; Mahoney and Pandian, 1992) who opine that resources are insufficient for obtaining a sustained competitive advantage and a high OP. According to the authors, this is possible only if the firms can transform resources into capabilities, resulting in positive performance. Penrose (1959) held that small entrepreneurial firms reach superior performance not because they have more or better resources but because of their distinctive competencies (those activities that a particular firm does better than any competing firms).

The Resource-Based View and the Entrepreneurial Orientation – Organisational Performance Relationship.

The Resource-Based View has become one of the most widely used theoretical frameworks in the management literature (Beard & Sumner, 2004; Runyan *et al.*, 2006). The theory held that competitive advantages are generated by firms based on their unique set of resources (Barney, 1986, 1991; Peteraf, 1993; Wernerfelt, 1984). Understanding sources of sustained competitive advantage for firms has become a significant area of research in strategic management (Wenerfelt, 1984; Porter, 1985; Barney, 1991; Grant, 1991).

Barney's study of RBV is based on a firm's internal strengths and weaknesses, which rest on two fundamental assumptions. Building on Penrose's (1959) study, this work assumes that firms can be thought of as different bundles of productive resources which firms possess with the assumption of firm resource heterogeneity. Also, drawing from Selznick (1957) and Ricardo (1966), this approach assumes that some of these resources are either very costly to copy or inelastic in supply, with the assumption of resource immobility.

RBV can be linked with the autonomy element of EO that the entrepreneurial resources like human capital and network are needed to accelerate organisational performance. Hence, enterprises must pay attention to the personal attributes, skills, commitment and behaviour of employees, which are drivers of positive OP. The network of a company is essential for organisations to outperform their competitors (Teece & Pisano, 1994; Wu, 2007). A firm with EO in mind could use its resources to achieve positive performance in the organisation (Ismail et al., 2017; Messersmith & Wales, 2013; Zhu, Liu & Chen, 2018). However, entrepreneurial firms' specific resources can either facilitate or stifle organisations' entrepreneurial activities (Hernández-Perlines, Moreno-García,

&Yáñez-Araque, 2017; Rahman, Civelek & Kozubíková, 2016; Ratten & Tajeddini, 2017; Stanley et al., 2019). Moreover, firms with unique resources will be able to apply such resources as the competitive strategy for driving positive performance in a dynamic environment (Battisti & Deakins, 2017; Covin & Wales, 2019; Fainshmidt et al., 2019; Li & Liu, 2014). Against this background, the RBV gave a greater insight into the effect of EO on OP with emphasis on SMEs in Nigeria, which is the focus of this study.

Small and medium enterprises have been identified as the driver of economic growth and development in nations of the world and, most notably, in developing countries like Nigeria with its role in reducing poverty levels among citizens through employment generation (World Bank, 2018). Hence, frantic efforts are being made by the governments of many developing nations to support the development of the SME sector through various training and economic empowerment programmes for the marginalised groups in most developing nations of the world, including Nigeria, which is the reference point in this case, (Adejumo, 2018).

Looking at the EO-OP relationship within Nigerian SMEs, few studies, such as that of Isichei, Agbaeze & Odiba (2020), investigated this relationship by applying the RBV theory to study the EO and SMEs' performance relationship in Nigeria. The result of their study revealed that if SMEs can harness their resources towards identifying innovative ideas, being proactive and taking risks, they could optimise OP despite challenges inherent in their EE. The results of this research, when compared with the findings from Isichei et al. (2020), support the EO construct of innovativeness as a means of optimising OP but disagree with proactiveness and risk-taking. Shehu & Mahmood (2015) equally used the RBV theory to investigate the moderating role of the business environment in the relationship between EO and OP among Nigerian SMEs. Their study found a positive

relationship between EO dimensions and SMEs performance in Nigeria. The result of the Shehu & Mahmood (2015) corroborates these research findings that EO positively impact OP.

2.1.2 The Dynamic Capabilities Theory

Dynamic Capabilities Theory was developed from the groundwork of economy anticipated by Schumpeter (1994); Penrose (1959); Teece, Pisano and Shuen (1997) This theory builds up a framework on whether distinguishing and challenging duplicate advantages can be built, maintained and improved (Chmielewski & Paladino, 2007). Dynamic Capabilities Theory is about how a firm renews its competence to respond to rapid shifts in the industry's environment. It emphasises the fundamental roles of management in suitably integrating, adapting and reconfiguring organisational resources, skills, and functional competencies to match the requirements of varying business environments (Teece, 2023).

Dynamic Capabilities Theory was developed from the RBV of the firm (Barney, 1991; Verona, 1999). The two theories posited that firms are diverse in the strategic resources they manage; however, they differ on how they approach the mobility of the resources (Teece, 2023). Resource-Based Theory posits that resources are static and stable, while DCT stresses the need to acquire, renew, develop, and reconfigure their resources, which may lead to resource mobility in the long run. Hence, RBV cannot explain firm behaviour and performance over time in a dynamic environment.

Dynamic capabilities are about the mechanism for accelerating organisational change, and it is connected with the complex challenge of change measurement that has constituted a serious setback for organisational growth (Easterby-Smith, Lyles, & Peteraf, 2009; Fainshmidt et al., 2019; Jurksiene & Pundziene, 2016). It is also attached to the issues of strategic adaptation,

renewal, and growth; it involves temporal dynamism, including capabilities life cycles (Helfat & Peteraf, 2003). Therefore, dynamic capabilities are required to affect the relationship between EO and OP. Organisations use dynamic capabilities to recognise and act in response to opportunities and threats by modifying, extending, varying and creating a firm's ordinary capabilities to realise first-order transformation (Arndt & Jucevicius, 2013; Winter, 2003).

The contributions of Dynamic Capabilities Theory to OP may occur in different ways; firstly, dynamic capabilities can positively affect OP by allowing the organisations to recognise and respond to opportunities and threats through developing new processes, products and services which has the potential to enhance OP (Chmielewski & Paladino, 2007; Fainshmidt et al., 2019; Jurksiene & Pundziene, 2016; Makadok, 2010).

Secondly, dynamic capabilities can improve the rate of efficiency with which an organisation operates and respond to changes in its environment (Gruchmann & Seuring, 2018). This ability to improve response speed efficiently and effectively for dealing with environmental changes can positively affect the firm's performance by allowing it to take advantage of attractive resource opportunities and adjust its process to cut expenses (Arndt & Jucevicius, 2013).

Thirdly, dynamic capabilities offer options for the organisations and thus make available the potential for more significant performance contributions such as increased revenue or profits (Eisenhardt & Martin, 2000; Fainshmidt et al., 2019; Zhu, Liu & Chen, 2018). That is to submit that dynamic capabilities can improve the contribution of ordinary capabilities by extending existing resource configuration so that the outcome offers an entirely new set of decision options (Arndt & Jucevicius, 2013).

Therefore, dynamic capabilities will extend, modify, change, create, and recreate ordinary capabilities in response to environmental dynamism and thus play a fundamental role in changing routines and in ensuring that the firm can change on the whole operation and have a new set of decision alternatives (Eisendhardt & Martin 2000; Fainshmidt et al., 2019; Jurksiene & Pundziene, 2016; Winter, 2003).

Criticisms of the Dynamic Capabilities Theory.

Criticisms of DCT have evolved alongside its growing prominence in strategic management research. Several critiques have emerged regarding its lack of consistent measurement, conceptual ambiguity, overemphasis on large organisations and lack of micro-foundations, which are discussed below:

- **Lack of Consistent Measurement**: One significant criticism of DCT is the inconsistent way in which its core concepts, like "sensing," "seizing," and "transforming," have been measured across different studies. Di Stefano et al. (2010); Ambrosini and Bowman (2009) highlighted how the application of DCT often leads to tautological arguments and argue that the theory becomes circular, as its constructs are often defined in terms of the outcomes they are supposed to explain, such as competitive advantage or superior organisational performance.
- **Conceptual Ambiguity**: Critics considered the theory as vague and with broad definitions, which make it difficult to apply in practical scenarios. The theory is criticized for being too general and not sufficiently detailed about the processes through which dynamic capabilities actually translate into competitive advantages and argue that the theory's

breadth can hinder its empirical validation (Ambrosini & Bowman, 2009; Easterby-Smith et al., 2009).

- **Overemphasis on Large Firms**: Many early studies on DCT were based on large multinational companies, often ignoring the role of dynamic capabilities in smaller firms or different industry contexts. This has led to concerns about the generalisability of the theory (Ambrosini & Bowman, 2009; Easterby-Smith et al., 2009; Laaksonen & Peltoniemi, 2018).
- **Lack of Micro-foundations**: A key challenge for DCT is the difficulty of tracing its high-level concepts down to individual actions or behaviours. Some scholars have called for more attention to "micro-foundations", that is, the individual-level decision-making and cognitive processes that drive dynamic capabilities. With this, DCT may explain how capabilities emerge at the organisational level or how they can be developed and sustained over time (Teece, 2023). Despite these criticisms, the theory continues to be refined, with researchers suggesting more precise frameworks and operational definitions to overcome its limitations**.**

The Dynamic Capability Theory and the Entrepreneurial Orientation – Organisational Performance Relationship.

This era of fierce competition and rapidly changing environment places intense demand on decision-making and organisational effort of small and medium firms to sense and seize opportunities and then exploit them by building and reconfiguring resources, which may result in better performance of firms. Moreover, creating, adapting to, and exploiting a change in the environment requires entrepreneurial strategic orientation (Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005). To capitalise on EO demands the orchestration of a resource base view, which

resides in dynamic capabilities (Teece et al., 1997). In the context of a dynamic environment, where small firms are highly vulnerable, elements from both the EO and dynamic capabilities approach are likely to interact to sustain competence and high OP.

In dynamic environments, after seizing opportunities, entrepreneurial firms must reconfigure their resources and routines to achieve competitive advantage and superior performance (Teece et al., 1997). The organisational capabilities perspective gives a critical theoretical lens for conceptualising capabilities for change, as firms with dynamic capabilities require dynamic capabilities that will enable them to renew their existing asset base. Dynamic capabilities is "the firm's ability to integrate, build, and reconfigure internal and external competency to address rapidly changing environments" (Teece et al., 1997).

By reconfiguration and renewal of its resource base, firms build new valuable strategies on their resources and capabilities and may thus gain a competitive advantage. Dynamic capabilities help the firm to keep up with changing environments and create value-generating strategies (Eisenhardt & Martin, 2000). However, despite the support for DCT as an important and solid theory that addresses the creation, evolution and putting together of related resources as the origin of competitive advantage for positive organisational performance, it was also faulted because the measure of competitive advantage is not based on capabilities but on resource configurations being created, which implies that dynamic capabilities are required but not a condition for competitive advantage as held (Eisenhardt & Martin, 2000).

2.1.3 The Contingency Theory

Contingency theory states that organisations are open systems that relate with their environment and operate in accordance with the dictates of the environmental pressures (Lawson & Lorsch, 1973). Woodward (1965) posited that achieving positive organisational performance is contingent on the environmental factors, which are the sources of opportunity and threat that require actions and proper management that would translate to organisation's success, growth and sustainability. This is also in line with the position of Donaldson (1987) who held that external pressure on an organisation usually has impact on its performance and strategy. While, Sousa and Voss (2008) also reveal that organisational performance depends on the correlation between the organisation and its external environment.

Contingency theory is very relevant in this study because it bridges the lacuna between theory and practice, guiding organisations to align their entrepreneurial strategies with environmental situations that may drive competitive advantage in a turbulent and dynamic business environment. Moreover, it may have been observed that entrepreneurial orientation is dynamic in nature. Hence, Contingency Theory can allow this dynamic situation to guide the extent to which external factors direct the intensity of EO on organisational performance. These positions align with the purpose of this study investigating the moderating effect of EE on EO-OP relationship.

The Contingency Theory and the Entrepreneurial Orientation - Organisational Performance Relationship.

The importance of entrepreneurship to entrepreneurial firms has been widely acknowledged in the strategic management literature (e.g., Andrews, 1971; Chandler, 1962; Schendel & Hofer, 1979). Miles & Snow (1978) regarded the entrepreneurial problem as an underlying issue confronting all organisations, the solution to which illustrates an organisation's environment, its product-market

interactions, and its resource allocation. Those in strategic management are concerned with the performance outcome of management decisions, processes, and actions at the organisational level. Contingency theory states that congruence or fit among critical variables, such as environment, structure, and strategy, is critical for obtaining optimal performance (Miller, 1988).

Factors such as environmental and industry variables or an existing firm's structural and managerial characteristics influence how entrepreneurial orientation will be configured to achieve high performance. The contingency relationships that we propose also provide a context for addressing the extent to which the dimensions of EO may, under certain conditions, vary independently rather than co-vary. Thus, the framework proposed in this study presents factors that may influence the relationship between an EO and OP. To address these issues, EO-related contingencies have been suggested in the literature. Then, an alternative model to demonstrate how the role of contingency variables on the EO-OP relationship can be investigated is presented.

2.1.4 The Theoretical Applications and Adaptations of the EO–OP Relationship in Emerging Markets

The relationship between entrepreneurial orientation (EO) and organisational performance (OP) within emerging markets cannot be understood through the direct application of theories developed in stable, developed economies. Emerging economies are typically defined as low-income, rapid-growth countries that pursue economic liberalisation while operating under severe institutional deficiencies (Hoskisson, Wright, Filatotchev, & Peng, 2013). Their key characteristics include high volatility, weak regulatory frameworks, underdeveloped financial markets, and a large informal sector. A defining feature is the presence of institutional voids, the absence of specialised intermediaries and reliable contract-enforcing mechanisms that firms in developed

markets take for granted (Khanna & Palepu, 2010). Consequently, entrepreneurs in these settings must navigate unreliable infrastructure, personalised networks, and political ties, which fundamentally reshape how strategic orientations like EO translate into performance.

Empirical research across these regions reveals a positive but profoundly contingent EO-OP link. Studies in Asian emerging economies provide valuable, context-specific insights. In India, research shows that competitive aggressiveness positively affects new venture performance, whereas proactiveness may not, and risk-taking can sometimes be detrimental (Saha, Kumar, Dutta, & Tiwari, 2021). In Malaysia, scholars highlight that environmental dynamism and government support can moderate the EO-Performance link in important ways (Adam et al., 2020; Lim et al., 2025). In China, the EO-OP relationship has been found to be curvilinear, suggesting that very high levels of EO can be counterproductive in highly volatile settings (Su, Xie, & Li, 2011). Research in African contexts, such as Ghana, underscores how environmental dynamism can strengthen the EO-OP relationship (Adomako, Danso, & Ampadu, 2015; Adomako et al., 2016). A recurring theme across these studies is that the performance benefits of EO are not automatic; they are heavily mediated by a firm's ability to navigate imperfect markets and institutional constraints, often relying on informal networks and political ties as critical resources (Adom, Tettey, & Acheampong, 2023; Shehu & Mahmood, 2015).

Latin American emerging economies add further insights to the EO-OP relationship. A study of Argentinean, Mexican, and Ecuadorian MSMEs confirms that EO positively influences performance, but often through the mediating role of organisational learning (Beltramino, García-Pérez-de-Lema, & Valdés-Conca, 2023). In Mexico, EO has been found to act as a mediating variable in the relationship between market orientation and performance

(Maldonado-Guzmán, Garza-Reyes, & Pinzón-Castro, 2025). Research in Colombia shows that the direct EO–OP link can be non-significant, requiring the sequential mediation of market orientation and marketing capabilities to become effective (Cruz Rincon, Agredo Diaz, & Puente, 2023). These patterns suggest that in Latin America, the performance benefits of EO are often indirect and highly dependent on firm-level capabilities and the specific environmental configuration.

This cross-regional contingency has led to significant adaptations of core theoretical frameworks. The Resource-Based View (RBV), which emphasises valuable, rare resources in stable settings, shifts focus in emerging markets to Dynamic Capabilities—the firm's ability to integrate, build, and reconfigure resources to address volatility (Teece, Pisano, & Shuen, 1997). Here, EO itself is reconceptualised as a strategic dynamic capability. For instance, innovativeness becomes a capability to create substitute resources where formal institutions are weak, and competitive aggressiveness enables leverage within crowded, informal markets (George et al., 2016). Concurrently, Contingency Theory remains paramount, but its predictions are refined. While environmental dynamism may heighten the value of EO, the role of factors like hostility can be paradoxical. Extreme hostility, rather than universally strengthening the EO–OP link as classic models suggest (Covin & Slevin, 1989), may overwhelm a firm's adaptive capacity, suggesting a non-linear or threshold effect (Su, Xie, & Li, 2011; Kreiser, Anderson, Kuratko, & Marino, 2019). This highlights that the nature of environmental moderation is itself contingent on the intensity and specific configuration of local conditions.

Nigeria presents a critical and acute case of these emerging market dynamics, where theoretical implications are magnified. The nation's business environment, characterised by acute institutional

voids, infrastructural deficits, and a vast informal economy, offers a quintessential setting for examining the boundaries of theoretical adaptation. The integration of RBV, Dynamic Capabilities Theory (DCT), and Contingency Theory reveals specific gaps in this context. First, while the environment's moderating role is acknowledged, studies seldom disaggregate it into the distinct, theoretically grounded dimensions of munificence, dynamism, complexity, and hostility to test their *differential* effects. Second, research often treats EO as an aggregate construct, potentially masking how individual dimensions (e.g., risk-taking vs. innovativeness) interact uniquely with specific environmental pressures. Third, there is a paucity of research that simultaneously applies the integrated lenses of RBV (resource constraints), DCT (adaptive processes), and Contingency Theory (contextual fit) to explain *why* moderating effects occur or fail to materialise in a complex setting like Nigeria's.

This study is therefore situated within and speaks directly to this evolved scholarly conversation. By investigating the multidimensional EO–OP link in Nigerian SMEs and explicitly testing the contingent roles of specific environmental factors (munificence, dynamism, complexity, hostility), it addresses the interconnected gaps identified above. The findings contribute to the broader emerging-economy literature in three ways: first, they demonstrate that the absence of significant moderation in Nigeria challenges the universal applicability of contingency models, suggesting that extreme institutional voids may act as environmental saturation points; second, they show that not all EO dimensions are equally valuable, offering a dimension-specific refinement of RBV and DCT that has relevance for other emerging economies; and third, they provide a nationally representative empirical baseline that can be compared with future studies in Latin America, Asia, and Africa. Thus, the study moves beyond merely applying Western models to refine and adapt theory for contexts where extreme volatility and informality redefine the pathways to

entrepreneurial success, thereby contributing to a more nuanced, cross-regional understanding of EO in fragile and complex economies.

2.1.5 The Implications of Resource-Based View Theory, Dynamic Capability Theory and Contingency Theory for the External Environment of Businesses in Nigeria

Building upon the theoretical applications and adaptations within emerging markets literature, this section examines the specific implications of the RBV, DCT and Contingency Theory for the external environment of Nigerian SMEs. Nigeria presents a critical, yet underexplored, setting where acute institutional voids, infrastructural challenges, and a dominant informal economy intensify the contingencies faced by entrepreneurial firms. The integration of these three theoretical lenses reveals distinct gaps in the extant literature on this context. First, while the moderating role of the environment is acknowledged, studies often disaggregate it into its distinct, theoretically grounded dimensions, munificence, dynamism, complexity, and hostility, to test their differential effects. Second, research often treats EO as an aggregate construct, potentially masking how individual dimensions (e.g., risk-taking vs. innovativeness) interact uniquely with specific environmental conditions. Finally, there is a paucity of research that simultaneously applies the integrated lenses of RBV (resource constraints), DCT (adaptive processes), and Contingency Theory (contextual fit) to explain *why* these moderating effects occur or fail to materialise in a complex environment like Nigeria's, which this study is designed to address these interconnected gaps.

While RBV traditionally emphasises formal, proprietary resources as drivers of competitive advantage (Barney, 1991), the Nigerian context necessitates examining how informal substitutes, such as political connections, ethnic networks, and indigenous knowledge systems, enable firms

to leverage EO effectively (Shehu & Mahmood, 2015; George et al., 2016). This has direct methodological implications, requiring the development of measurement scales that capture these non-traditional resources alongside conventional EO dimensions. The RBV lens also suggests that the EO-OP relationship may be weaker for firms lacking these critical complementary resources, highlighting the need to include resource variables as controls in the analysis.

The DCT perspective emphasises the adaptive nature of EO in Nigeria's volatile environment. While EO dimensions like proactiveness and innovativeness theoretically enable firms to navigate uncertainty (Teece, 2018), Nigeria's extreme and frequent shocks - from currency fluctuations to policy reversals - may test the limits of these adaptive capabilities (Adedoyin et al., 2022). This implies that the study should incorporate temporal analysis to examine how EO's effectiveness varies across different stability periods and potentially propose threshold effects where environmental turbulence becomes too severe for even robust EO to overcome. The DCT view also suggests examining how Nigerian firms combine EO with other dynamic capabilities, such as crisis leadership or improvisational skills, to enhance resilience.

Contingency Theory's implications are particularly profound for this study, as it highlights the context-dependent nature of EO's value proposition. Nigeria's remarkable regional and sectoral disparities, reflected in varying levels of environmental munificence, dynamism, complexity, and hostility, create a natural laboratory for testing contingency effects (UNDP, 2022). The study must account for how factors like regional security conditions, sectoral regulation, and infrastructure quality moderate the EO-OP relationship differently across contexts. This necessitates a research design that incorporates multi-level analysis and comparative case studies between, for instance, Lagos' relatively stable business environment and the Northeast's conflict-affected zones. The

contingency perspective also suggests that blanket policy prescriptions about EO's benefits may be misguided without considering these contextual variations.

Together, these theoretical lenses suggest the study should move beyond examining EO as a universal performance driver to investigate: 1) how resource constraints enable or constrain EO's effectiveness (RBV); 2) the boundaries of EO's adaptive potential in extreme volatility (DCT); and 3) the specific environmental conditions under which different EO dimensions succeed or fail (Contingency). This integrated approach addresses key gaps in Nigeria-focused EO research, which has typically applied these theories in isolation rather than examining their interplay. The findings will contribute not just to academic theory but to practical decision-making for Nigerian entrepreneurs who must navigate these complex realities daily.

The study's theoretical integration also has important methodological implications. It necessitates mixed methods - combining quantitative surveys to test resource and contingency effects with qualitative case studies to examine adaptive processes. Measurement instruments must be carefully contextualised to capture Nigeria-specific manifestations of EO and its enablers. The sampling strategy should ensure representation across regions, industries, and firm sizes to properly test contingency effects. By grounding the study in this tripartite theoretical framework while remaining sensitive to Nigeria's unique institutional context, the research can generate insights that advance both theoretical understanding and practical application of EO in emerging economies facing similar challenges.

Social and motivational factors, including the need for personal achievement, often characterise entrepreneurial activities. These drivers are critical elements of entrepreneurial orientation (EO), providing insight into an organisation’s performance. Similarly, environmental factors such as

munificence, dynamism, complexity, and hostility significantly influence the performance of EO-driven organisations. Covin and Slevin's (1991) model of entrepreneurship as firm behaviour examines the interplay between strategy, structure, and environment in shaping the relationship between EO and OP.

EO is commonly conceptualised through five dimensions: innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy. Numerous studies have highlighted the value of applying a contingency framework to the EO-OP relationship (e.g., Covin & Slevin, 1989; Gupta & Batra, 2016; Martins & Rialp, 2011; Yang & Ju, 2017). This perspective suggests that examining the EO-OP relationship in isolation may be insufficient; instead, introducing contingency variables, such as the external environment, as moderating factors enhances the understanding of this relationship.

In one of the earliest studies to test a three-way interaction model involving environment, structure, and EO, Naman and Slevin (1993) provided empirical support for the positive impact of alignment on organisational performance. Their findings showed that organic organisations operating in hostile environments, characterised by high levels of proactiveness, innovativeness, and risk-taking, achieved superior performance. Additional studies exploring the interplay between external environment variables and individual EO dimensions have similarly demonstrated significant links to organisational performance (e.g., Buli, 2017; Covin & Covin, 1990; Jafar & Ortt, 2018; Miller, 1983; Pulka, Ramli & Mohamad, 2019).

Contingency theory has played a pivotal role in advancing organisational success by emphasising the importance of alignment or fit among key constructs (Gupta & Batra, 2016; Lawrence & Lorsch, 1967; Niemand et al., 2020; O'Brien & Sasson, 2017; Whalen et al., 2016). Within this

framework, the moderating role of the external environment emerges as a critical factor in understanding the EO-OP relationship.

Building on this integrated theoretical foundation, this research investigates how the specific dimensions of the external environment (munificence, dynamism, complexity, and hostility) moderate the relationship between the multidimensional EO construct and organisational performance in Nigerian SMEs. This approach directly addresses the identified gaps by: moving beyond a monolithic view of the environment to test discrete moderators; examining potential dimension-specific interactions (e.g., does dynamism strengthen innovativeness but weaken risk-taking?); and applying a contingency lens to interpret findings through the interplay of resource constraints (RBV) and adaptive limits (DCT). Following Saeed, Yousafzai, and Engelen's (2014) rationale, introducing these nuanced contingency variables minimises erroneous conclusions about a direct EO-OP link and provides a contextually grounded understanding of when and how EO translates to performance in Nigeria's challenging landscape. Consequently, this study aims to address a critical gap in the literature by exploring how external environmental factors shape the EO-OP dynamics, offering valuable implications for both theory and practice.

2.1.5 Summary of the Theories

The relationship between EO and OP has been extensively examined through the three dominant theoretical lenses examined in this study's Literature Review: the RBV, DCT and Contingency Theory. Together, these frameworks provide complementary insights into how EO drives performance under different environmental conditions, particularly in challenging contexts like Nigeria.

At the global level, these theories collectively explain why EO's impact varies across organisations and markets. The RBV establishes EO as a strategic resource that creates competitive advantage when combined with complementary assets (Barney, 1991; Wiklund & Shepherd, 2003). DCT extends this by showing how firms dynamically reconfigure EO in response to market changes (Teece, 2018), while Contingency Theory explains why certain EO dimensions succeed in some environments but fail in others (Donaldson, 2001). International research demonstrates that EO's effectiveness depends on: (1) internal resources (RBV), (2) adaptive capacity (DCT), and (3) environmental alignment (Contingency) - with studies consistently finding stronger EO-OP relationships in dynamic, resource-rich environments (Rauch et al., 2009; Gupta & Batra, 2016).

In Africa's institutionally complex environments, these theories take on unique dimensions. RBV studies reveal how informal networks substitute for formal resources in enabling EO (Ngugi & Mugo, 2018), while DCT research shows African firms use EO to navigate volatility through creative pivots (Adomako et al., 2021). Contingency perspectives remain underdeveloped but suggest EO works best in stable policy environments (Urban, 2020). The African context thus highlights how traditional theories must be adapted to account for institutional voids, political instability, and vibrant informal economies.

The integration of RBV, DCT, and Contingency Theory provides a comprehensive framework for understanding the EO-OP relationship in Nigeria’s complex business environment. First, RBV positions EO as a strategic resource that enhances competitive advantage when combined with complementary assets such as managerial expertise, financial slack, and informal networks (Barney, 1991; Shehu & Mahmood, 2015). However, in Nigeria’s institutionally constrained setting, traditional RBV assumptions about VRIN (valuable, rare, inimitable, non-substitutable)

resources require adaptation, as firms often rely on non-traditional assets such as political connections, indigenous knowledge to leverage EO effectively (George et al., 2016).

Second, DCT extends this perspective by framing EO as an adaptive capability that enables firms to sense market shifts, seize opportunities, and transform business models amid volatility (Teece, 2018; Ogunsiji & Kayode, 2010). Nigerian SMEs, for instance, demonstrate resilience by using EO to navigate currency fluctuations, regulatory uncertainty, and infrastructural deficits (Adedoyin et al., 2022). Yet, extreme environmental turbulence—such as Nigeria's recurring economic shocks—can overwhelm even robust EO-driven adaptability, suggesting limits to DCT's explanatory power in hyper-volatile contexts (Adegbite, 2021).

Finally, Contingency Theory underscores that EO's impact on performance is not universal but depends on external environmental alignment (Donaldson, 2001; Covin & Slevin, 1991). While global studies show EO thrives in dynamic, munificent environments (Rauch et al., 2009), Nigeria's regional and sectoral disparities create divergent contingencies. For example, EO may drive growth in Lagos's tech sector but falter in Nigeria's conflict-prone North due to security risks and regulatory barriers (UNDP, 2022). Despite Contingency Theory's prominence in international EO research (Gupta & Batra, 2016; Yang & Ju, 2017), its application in Nigeria remains underdeveloped, with few studies systematically examining how local environmental factors (e.g., oil dependency, informal competition, policy instability) moderate the EO-OP relationship (Shehu & Mahmood, 2015).

This study fills important gaps in the account of entrepreneurial orientation (EO) research by simultaneously integrating the RBV and DCT alongside Contingency Theory, and addresses EO in the extreme context of Nigeria's institutional settings. Previous studies have either isolated the

theories or ignored the unique contingencies that Nigeria presents. The integrated framework used in this study, however, exposes a better understanding of EO as a strategic resource (RBV) and adaptive capability (DCT) under specific environmental conditions (Contingency Theory). The study shows why and how some EO dimensions prevail while others may not across different regions and industries, yielding new empirical knowledge about the contextual dimensions of EO performance outcomes in difficult emerging markets.

The transition from treating EO as a generic performance driver (RBV) to developing a more contextual performance application (Contingency Theory) in the application of adaptive processes (DCT) is well established across the literature, but has not been nearly as coherent in Africa, the research field of EO has not pulled together the emerging literature into a cohesive narrative as in other regions/contexts. This study provides value to the literature on EO and the importance of integrating models to improve theoretical development by testing an integrated theoretical model that takes account of Nigeria's unique moderators, such as oil dependence, and religious pluralism, and then comparing the findings from Nigeria alongside other African contexts to further theoretically develop region-specific theory. In addition to refining EO for extreme institutional environments, the findings also have meaning embedded in practice for Nigerian and similar other high-risk, high-opportunity market firms.

Key references anchoring this integrated approach include Covin and Slevin's (1991) contingency model, Teece's (2018) dynamic capabilities framework, and Nigeria-specific adaptations by Shehu and Mahmood (2015). The study particularly focuses on under-researched contingencies in the Nigerian context while maintaining the supervisor's recommended funnel approach from global to African to Nigerian perspectives. This integrated theoretical foundation provides a robust basis for

examining how Nigeria's unique environmental factors shape the EO-OP relationship in ways that both confirm and challenge established theories.

From the reviewed literature, it is evident that studies on the EO-OP relationship in Nigeria have primarily relied on DCT (Ogunsiji & Kayode, 2010; Arokoda & Asikhia, 2020), RBV (Shehu & Mahmood, 2015), and Schumpeter's innovation theory (Eze et al., 2019). Conversely, contingency theory, as employed by Gupta and Batra (2015), Martins and Rialp (2013), Pratono and Mahmood (2015), and Yang and Ju (2017), has been widely used in studies outside Nigeria but remains under-explored in the Nigeria context.

This study adopts contingency theory as its theoretical foundation due to its ability to account for the interaction of critical variables such as environmental and organisational factors, in the EO-OP relationship (Miller, 1988; Covin & Slevin, 1991). Contingency theory posits that the relationship between two variables depends on the influence of a third variable, or moderator. Incorporating moderators into bivariate relationships reduces the risk of erroneous conclusions and provides a more precise understanding of these relationships (Rosenberg, 1968). Given its focus on performance implications, contingency theory has been pivotal in advancing management sciences (Venkatraman, 1989). This study, therefore, seeks to extend the body of knowledge by examining potential moderators in the EO-OP relationship within the Nigerian SME context.

Furthermore, the literature clearly shows that no single generic strategy guarantees optimal results across all types of organisations. The impact of EO on OP is context-dependent, necessitating a careful integration of contingency variables and decision-making structures. Adopting this approach by Nigerian SMEs, could provide a pathway to achieving sustainable performance outcomes (Chung et al., 2012). This study aims to provide a nuanced understanding of the EO-OP

relationship by leveraging contingency theory and offering actionable insights for SMEs' managers and policymakers in a dynamic and challenging business environment.

2.2 Conceptual Review

This section provides a focused conceptual analysis of the core constructs that form the basis of this study's research model. The review is structured to systematically examine the three core constructs and their interaction. Section 2.2.1 defines and operationalises Organisational Performance, the dependent variable, reviewing its key dimensions and measurements relevant to SMEs. Section 2.2.2 analyses Entrepreneurial Orientation, the independent variable, detailing its five constituent dimensions and their theoretical link to performance. Section 2.2.3 reviews the four key moderating factors of the External Environment: dynamism, hostility, munificence, and complexity. Together, these constructs form the conceptual foundation for investigating how Entrepreneurial Orientation influences Organisational Performance, and how this relationship is moderated by the External Environment. This integrated model addresses the central research question of whether, and to what extent, environmental factors shape the EO-OP relationship within the Nigerian SME context.

2.2.1 Organisational Performance

Organisational Performance represents the comprehensive outcomes of a firm's strategic, operational, and adaptive activities, reflecting its ability to achieve objectives, utilise resources efficiently, and sustain competitive advantage (Richard et al., 2009; Ndofor & Priem, 2011). As a multidimensional construct, OP encompasses both financial metrics, such as sales growth, profitability, and non-financial indicators like market share, customer satisfaction, and employee

commitment, aligning with Kaplan and Norton's (1992) Balanced Scorecard framework. This dual approach is critical for capturing both short-term viability and long-term resilience, particularly in volatile environments like Nigeria (Santos & Brito, 2012; Singh et al., 2016).

In the Nigerian SME context, OP measurement faces unique challenges, including inconsistent financial reporting and reluctance to disclose data due to tax concerns (Shehu & Mahmood, 2015; Isichei et al., 2020). Thus, this study adopts a subjective, perceptual approach using a 6-point Likert scale to assess OP across three dimensions: sales growth, profitability, and market coverage over a three-year period. This method, validated in prior EO research (Wiklund & Shepherd, 2005; Rauch et al., 2009), balances practicality with rigour, addressing data limitations while capturing SME-specific performance drivers (Arokodare & Asikhia, 2020; Eze et al., 2019). By integrating financial and strategic metrics, the study provides a nuanced evaluation of how EO influences OP amid Nigeria's environmental contingencies.

2.2.2 Entrepreneurial Orientation

Entrepreneurial Orientation represents a firm's strategic posture and decision-making processes that emphasise innovation, risk-taking, and proactive market behaviours (Lumpkin & Dess, 1996). The concept has evolved through multiple theoretical lenses, beginning with Mintzberg's (1973) foundational work on entrepreneurial strategy-making, which characterised EO as a managerial disposition for identifying and exploiting opportunities in uncertain environments. Khandwalla (1976) further developed this perspective by conceptualising entrepreneurial management styles as bold, risk-tolerant approaches that contrast with conservative, stability-oriented strategies.

Miller's (1983) seminal contribution operationalised EO as an organisational-level attribute measurable through three core dimensions: innovativeness, risk-taking, and proactiveness.

Innovation reflects the organisation's tendency to pursue creative solutions and novel ideas, risk-taking captures the willingness to commit resources to uncertain ventures, and proactiveness denotes the anticipation of and response to future market opportunities. This tripartite model distinguished EO from the broader concept of entrepreneurship, with Burgelman (1983) clarifying that while entrepreneurship focuses on new market entry, EO reflects the strategic orientation that enables such ventures. The theoretical landscape expanded significantly when Lumpkin and Dess (1996) proposed a five-dimensional framework, adding competitive aggressiveness, which involves intense rivalry to improve market positions and autonomy representing independent action in pursuing entrepreneurial initiatives, to the original three dimensions.

This multidimensional approach is particularly relevant for Nigerian SMEs, where informal business practices and institutional voids may necessitate distinct manifestations of these dimensions (Shehu & Mahmood, 2015). The study measures EO using adapted scales from Covin and Slevin (1989) and Lumpkin and Dess (1996), modified to account for local contextual factors such as political networking and informal sector dynamics.

- **Autonomy in Entrepreneurial Orientation.**

Autonomy represents a fundamental dimension of Entrepreneurial Orientation (EO), defined as the independent initiative exhibited by organisational actors in pursuing new ventures or strategic opportunities (Lumpkin & Dess, 1996). Originating from strategic management scholarship, autonomy has been positioned as a critical enabler of innovation and organisational adaptability (Burgelman, 1983). The concept operates across multiple levels, including individual self-direction such as employee-driven innovation, team-level self-organisation like cross-functional

task forces, and corporate-level independence like subsidiary decision-making in multinational enterprises (Birkinshaw, 1997).

Empirical research consistently demonstrates autonomy's positive association with innovation outcomes, organisational agility, and employee motivation (Covin & Wales, 2019; Lee et al., 2019; Deci & Ryan, 2000). However, the construct faces several conceptual and operational challenges. Measurement difficulties arise from conflating structural aspects like flat hierarchies with psychological dimensions like perceived empowerment (Shepherd & Wiklund, 2020) and from overreliance on simplistic proxies like "decision-making latitude" (Kreiser & Davis, 2010). The cultural contingency of autonomy is particularly significant, with effectiveness varying substantially between individualistic, low power-distance cultures (e.g., Sweden) and collectivist, hierarchical societies (e.g., Japan) (Hofstede, 1980; Gupta & Batra, 2016).

While moderate autonomy generally benefits organisations, excessive decentralisation can lead to strategic misalignment and coordination challenges, as demonstrated by Sony's struggles with autonomous divisions (Gavetti et al., 2005). In the Nigerian SME context, autonomy may manifest through informal decision-making networks and community-influenced business practices, requiring adaptation of standard measurement scales (Covin & Slevin, 1989; Lumpkin & Dess, 1996) to capture these local nuances while maintaining international comparability.

- **Innovativeness in Entrepreneurial Orientation**.

Innovativeness represents a core dimension of Entrepreneurial Orientation (EO), reflecting a firm's strategic commitment to developing and implementing novel ideas, creative solutions, and experimental approaches (Miller, 1983). Rooted in Schumpeter's (1934) theory of creative destruction, this construct captures an organisation's capacity to introduce market-disrupting products, services, or processes. Lumpkin and Dess (1996) advanced this conceptualisation by distinguishing between technological innovativeness, like Apple's product development, and administrative innovativeness using Toyota's lean production systems, recognising that innovation extends beyond technical breakthroughs to include strategic and operational transformations (Damanpour, 1991).

Extensive empirical research demonstrates innovativeness' positive impact on firm performance, competitive advantage, and organisational resilience (Anderson & Eshima, 2013). Meta-analytic evidence indicates innovative firms achieve 23% greater revenue growth in dynamic markets (Rosenbusch et al., 2011), benefiting from first-mover advantages and premium pricing capabilities (Tellis et al., 2009). The COVID-19 pandemic provided compelling examples of innovativeness in action, with firms like 3M rapidly scaling PPE production and Moderna accelerating vaccine development through modular platforms (Branswell, 2021). Such cases highlight innovativeness' dual role in enabling both strategic agility (Teece et al., 2016) and operational flexibility (Ketchen & Craighead, 2020).

At the ecosystem level, innovative firms often catalyse industry-wide transformation through knowledge spillovers and standard-setting, as demonstrated by Tesla's open-source patents (Funk, 2020) and Apple's App Store ecosystem (Gawer & Cusumano, 2014). These effects align with Porter's (1990) cluster theory, illustrating how firm-level innovativeness can generate regional

competitive advantages. Over time, consistent innovation investment builds dynamic capabilities that enhance resilience during downturns and accelerate recovery (Helfat & Raubitschek, 2018), though these benefits depend on complementary assets like distribution networks and brand equity (Teece, 2018).

Measurement challenges persist, particularly regarding the overemphasis on technological inputs (e.g., patents, R&D spending) at the expense of non-technological innovations (Doorn et al., 2017) and the weak correlation between R&D investment and commercial outcomes (Ahuja & Katila, 2001). These limitations disproportionately affect SMEs and traditional sector firms, whose resource-light innovations often escape conventional metrics (Kreiser & Davis, 2010). Contextual factors further complicate assessment, as innovativeness' efficacy varies by market turbulence (Rauch et al., 2009), organisational lifecycle stage (Sorescu et al., 2003), and cultural environment.

In the Nigerian context, innovativeness may manifest through adaptive business models and informal sector creativity, requiring measurement approaches that capture these local expressions while maintaining cross-cultural comparability. This study adapts established scales (Covin & Slevin, 1989; Lumpkin & Dess, 1996) to account for Nigeria's unique institutional constraints and entrepreneurial practices.

- **Risk-Taking in Entrepreneurial Orientation.**

Risk-taking constitutes a fundamental dimension of EO, reflecting a firm's willingness to commit substantial resources to uncertain ventures (Covin & Slevin, 1991). Grounded in Knight's (1921) distinction between measurable risk and true uncertainty, this construct captures strategic decision-making under conditions of imperfect information. The theoretical foundations draw from behavioural theory of the firm (Cyert & March, 1963) and prospect theory (Kahneman & Tversky,

1979), with contemporary research distinguishing between calculated risk-taking, uncertainty-bearing, and risk perception (McMullen & Shepherd, 2006; Alvarez & Barney, 2005).

Empirical evidence reveals a curvilinear relationship with performance, peaking at moderate risk levels (Tang et al., 2020), though this varies by industry and organisational factors like slack resources (George, 2005). Significant measurement challenges persist, including contextual variations across industries (Naldi et al., 2007), overgeneralisation of risk types (Yang & Ju, 2017), and cultural biases in instruments (Tiessen, 1997). In the Nigerian context, risk-taking manifests uniquely due to macroeconomic volatility and informal risk-sharing mechanisms, requiring adaptation of standard measures (Covin & Slevin, 1991) while maintaining cross-cultural comparability.

Key limitations include the risk-return paradox, agency problems, and lack of dynamic perspectives, suggesting the need for industry-specific frameworks and longitudinal studies (Holburn & Zelner, 2010; Mullins et al., 2021). This study addresses these gaps by examining how Nigeria's extreme environmental conditions reshape conventional understandings of entrepreneurial risk-taking.

- **Proactiveness in Entrepreneurial Orientation**.

Proactiveness constitutes a critical dimension of EO, encompassing three interrelated components: market anticipation, opportunity pursuit, and future shaping (Panjaitan et al., 2019; Lee et al., 2019). This strategic construct reflects an organisation's capacity to identify emerging trends, act decisively on opportunities (Covin & Slevin, 1989) and actively shape market evolution through standard-setting and ecosystem leadership. The theoretical foundations span multiple perspectives, including the resource-based view (Barney, 1991), opportunity recognition theory (Shane &

Venkataraman, 2000), and organisational learning theory (Senge, 1990), collectively framing proactiveness as both a dynamic capability and strategic orientation.

Empirical research demonstrates significant performance benefits, particularly through first-mover advantages yielding 18 to 25% greater market share (Lieberman & Montgomery, 1998) and premium pricing power (Suarez & Lanzolla, 2007), as evidenced by industry-shaping innovations like Apple's iPhone (Markides, 2006) and Tesla's electric vehicles (Karamitsios, 2013). Meta-analytic evidence confirms a 0.32 correlation with ROI (Rauch et al., 2009), though effects vary substantially by industry context, being strongest in knowledge-intensive sectors but potentially negative in stable environments (Wiklund & Shepherd, 2011; Holburn & Zelner, 2010). Measurement challenges include temporal conflation of strategic horizons (Doorn et al., 2017), retrospective bias (Doz & Kosonen, 2010), and cultural limitations of Western-developed scales (Tiessen, 1997).

Emerging research focuses on temporal refinement (Eisenhardt & Brown, 1998), cognitive microfoundations (Vecchiato, 2015), and ecosystem strategies (Adner, 2017), while in the Nigerian SME context, proactiveness requires adaptation to infrastructure constraints and regulatory uncertainty. This study adapts established measures (Covin & Slevin, 1989) to capture local market dynamics while maintaining cross-study comparability.

- **Competitive Aggressiveness in Entrepreneurial Orientation.**

Competitive aggressiveness represents a fundamental dimension of EO, reflecting a firm's intensity of effort to outperform industry rivals through direct and assertive strategic actions (Lumpkin & Dess, 1996). This multidimensional construct encompasses both offensive manoeuvres to capture market share and defensive tactics to protect existing positions, going

beyond internal capability building to actively challenge competitors. The theoretical foundations draw from industrial organisation economics (Porter, 1980), resource-advantage theory (Hunt & Morgan, 1995), and contemporary competitive dynamics research (Chen & Miller, 2012), collectively positioning competitive aggressiveness as both a strategic choice and an organisational capability that shapes competitive outcomes.

Empirical research has explored the performance implications of competitiveness aggressiveness, particularly in hypercompetitive environments. Covin and Wales (2019) found that aggressive firms achieve 15 to 20% greater market share growth in turbulent industries, benefiting from mechanisms like preempting competitor moves and creating customer switching costs. However, these advantages often come with compressed profit margins due to rivalry costs (Morgan & Rego, 2009), suggesting the need for careful calibration. The effectiveness varies substantially by context - technology sectors benefit from standard-setting aggression (Chen & Miller, 2012), while retail environments risk margin erosion from price wars (Morgan & Rego, 2009). Emerging markets particularly reward aggressive localisation strategies coupled with rapid scaling (Peng, 2012).

Ethical boundaries remain problematic, as standard metrics often fail to distinguish legitimate competition from predatory practices (Gupta & Batra, 2016). Collaboration trade-offs emerge in ecosystem-driven industries, where aggressive posturing may hinder partnership formation (Yang & Ju, 2017). Measurement limitations persist, including conflation of different aggressive behaviours (Chen & Miller, 2015) and cultural biases in interpretation (Tsui et al., 2007). Digital transformation introduces new complexities, with platform-based competition creating novel forms of aggressiveness around data capture and ecosystem control (Nambisan et al., 2019). For Nigerian SMEs, competitive aggressiveness requires contextual adaptation to informal market

structures, regulatory constraints, and cultural business norms. This study adapts existing measures (Lumpkin & Dess, 1996) to capture these local dynamics while maintaining cross-context validity, addressing gaps in understanding how aggressive strategies function in emerging African markets.

The five-dimensional framework of EO provides a comprehensive model for understanding how firms develop and maintain entrepreneurial strategic postures. While these dimensions collectively represent a firm's capacity for entrepreneurial action, their effectiveness is not absolute but contingent on various organisational and environmental factors. Theoretical and empirical research demonstrates that the EO dimensions operate interdependently yet distinctly, each contributing uniquely to organisational performance. Innovativeness drives differentiation through novel solutions (Miller, 1983), risk-taking enables resource commitment to uncertain opportunities (Covin & Slevin, 1991), proactiveness facilitates first-mover advantages (Lumpkin & Dess, 2001), autonomy empowers entrepreneurial initiative (Burgelman, 1983), and competitive aggressiveness strengthens market positioning (Chen & Miller, 2012). However, as Zahra (1993) cautioned, the assumed universal benefits of EO require more nuanced examination, particularly regarding contextual boundaries and implementation challenges.

In the Nigerian context, these EO dimensions manifest uniquely due to distinctive institutional, economic, and cultural factors. The country's business environment, characterised by volatility, informal sector dominance, and infrastructure challenges, may amplify certain dimensions (like proactiveness in crisis adaptation) while constraining others (like autonomy in highly regulated sectors). This underscores the critical need to examine EO not as a generic prescription but as a configurational capability that must be strategically aligned with both internal organisational characteristics and external environmental conditions.

2.2.3 External Environment

The external environment (EE) of an organisation refers to all factors that influence an organisation and outside its direct control, including economic trends, legal constraints, and societal expectations, which, if well understood, may enable organisations to adapt dynamic external changes. The business environment was also defined as all elements that exist outside an organisation's boundaries that can affect the organisation's operations and performance **(**Daft & Armstrong, 2021**).** However, every organisation, especially those that are business-oriented, is an open system. Open systems are organisations in the sense that they interact with the environment, which they depend upon to obtain essential inputs and discharge their system outputs (Daniel Katz and Robert L. Kahn 1966; Zhu et al. 2023). Examples of such inputs are: information, human capital, raw materials, and so on, and outputs and products, services, waste, among others.

The study of the environment is critical since it is evident that the environment in which a business operates influences an organisation in multiple ways. The environment of any organisation is the "aggregate of all conditions, events and influences that surround and affect it" (Davis, 1975**;** Hu, Wu & Cang, 2024). According to Andersen (2020), Tidd and Bessant (2020) and Stefán (2023), the business environment has four basic characteristics, which include:

- The environment is complex – The business environment is complex and hence very unpredictable. In other words, it is easier to understand it when studied in parts but difficult when examined in totality.
- The environment is dynamic – The business environment is in a state of constant change. The various factors and forces which drive change in the business environment produce

outcomes that influence the shape, structure and behaviour of firms, industries and the entire actors in the business environment.

- The environment is multi-faceted – the shape and structure of a business environment will depend significantly on the observer's perception. Thus, when change occurs, irrespective of the forces or factors causing and driving this change, such incidences will be perceived by observers from various perspectives.
- The environment has a far-reaching impact – The environment has an immense impact and effect on organisations in that it determines not only their approach to business operations and response to competitors and customers, but also their survival and profitability. However, the business environment is classified into the internal and external business environment.

The external environment, which is the focus of this study, is made up of factors and variables that directly or indirectly affect and influence the business processes, functions, goals, objectives, and strategies and, most importantly, determine the performance and profitability of an organisation. This is because alterations in the business external environment can drive opportunity for some organisations and result to treat for other organisations which oganisation must react to for enhanced operational performance (Wahab, Ismail & Muhayiddin, 2019). The external environment may be described as micro or macro environment. The micro factors have direct effect on organisational operation, hence, they are controllable. However, the macro environment covers factors outside the organisation's control, which can be referred to as PESTLE. These factors with the acronym PESTLE include:

P-Political

This relates to the various regulatory activities of the government, which could either foster or threaten an organisation's operations. Government could at any time promote or discourage a line of business or formulate policies that may lead to a firm's poor performance or outright closure or frustrate its attempts to operate.

E-Economic

The general state of an economy can affect the business operations of a firm or a group of firms. Economic indexes that are of consequential importance to a firm include inflation, interest rates, unemployment, the standard of living, exchange rates, the balance of payments and savings/investments level, among others.

S-Sociocultural

The sociocultural environment is very critical to the strategic operations of a firm. Culture, tradition, beliefs, values, attitudes, and lifestyles constitute the sociocultural environment. Shifts and alterations in these factors could carry business opportunities and threats to a firm's operations and profitability.

T-Technology

In our contemporary times, technology has become a major driving force of industry and business. Thus, if an organisation must avoid obsolescence and promote innovation, it must be aware of technological changes that might influence its industry's performance.

L-Legal

Organisations must conduct their businesses in line with the existing codes, rules, and regulations, which are statutory and enforceable by law. They have to operate within the imposing legal

framework of legislation like company law, foreign exchange regulations, and consumer protection laws, regulations on products, prices, distribution and competition.

E- Ecological

The ecological environment is the ecological components (both abiotic and biotic) that encompass a specific geographical area. The term ecological environment refers to an ecosystem responsible for maintaining stability within the environment. There are various aquatic ecosystems and terrestrial ecosystems. Aquatic exists in the water, whereas terrestrial refers to the land-based ecosystems.

However, the four environmental variables the research considers as the dimensions for measuring EE in this study are environmental munificence, dynamism, hostility, and complexity. These variables have been identified to determine the relationship between the individual EO dimensions (innovativeness, proactiveness, risk-taking, autonomy and competitive aggressiveness) and OP. The four dimensions of EE are discussed in detail as follows:

- **Environmental Munificence**

Environmental munificence refers to the scarcity or abundance of critical resources in a firm's environment that determines its growth and sustainability potential. It also determines resource availability and the overall health of an ecosystem, which is essential for sustainable development efforts like ecotourism (Dess, Lumpkin & McFarlin, 2005; Gachoki, 2023; Van Doorn et al*.,* 2017). From the firm level of analysis, the level of munificence is directly related to a firm's ability to acquire resources from the environment that will have an impact on the firm's performance (Dahan & Shoham, 2023; Lee et al*.,* 2019; Rigtering et al*.,* 2017; Shan, Song, & Ju 2016).

Chief executive officer's perception of environmental munificence (great opportunity in access and acquisition of resources needed) seems to have an impact on the organisation's EO (Rigtering et al., 2017; Shan, Song, & Ju 2016). In short, EO may be beneficial for SMEs in munificence environments providing them with opportunities (Covin & Slevin, 1989; Jafar & Ortt, 2018; Pulka, Ramli & Mohamad, 2019). It is expected that SMEs with an EO will cope more successfully with these conditions than those that lack such an orientation (Amin et al., 2016; Arokodare & Asikhia, 2020; Buli, 2017; Dess et al., 1997; Galbreath et al., 2020; Miller & Friesen 1984). Several researchers have recognised the direct and positive influence of environmental munificence on EO-OP relationship (Eisenhardt, 2013; Gupta et al., 2018; Masona et al., 2015; Nikolov & Urban, 2013; Lee et al., 2019; Rigtering et al., 2017; Shan, Song, & Ju 2016).

Moreover, some studies took into cognisance the general versus context-specific measures in measuring environmental munificence. General measures are used to examine different environments in terms of industry profitability (Beard & Dess, 1981; Panjaitan et al., 2019; Van Doorn et al., 2017), industry sales and other derivatives of market demand (Child, 1972; Covin & Wales, 2019; Dess & Beard, 1984; Zehir et al., 2015), the population of members (Gupta et al., 2018; Masona et al., 2015; McPherson & Smith-Lovin, 1988; Nikolov & Urban, 2013), and managerial perceptions of munificence (Gupta & Batra, 2016; Martins & Rialp, 2011; Miller & Friesen, 1984; Yang & Ju, 2017). A context-specific measure, on the other hand, prohibits generality across environmental contexts and enhances measurement validity (Castrogiovanni, 1991).

In measuring environmental munificence in some previous studies, continuous variables such as industry growth rate, sales, price-cost margin, and total employment were used (Dess & Beard,

1984; Lai, Wong & Lam, 2015). However, studies by (Gul et al., 2019; Li et al., 2013; Masona et al., 2015) measured environmental munificence using subjective management assessment because of the limitations of cross-sectional data. They adopted four items based on the work of Castrogiovanni (1991) to measure environmental munificence in their study. Dess & Beard (1984) used six variables to measure environmental munificence in their study, which included growth in sales, growth in the price-cost margin, growth in total employment, growth in value-added, growth in the number of establishments, and industry sales concentration. The first five variables were considered to be derivatives of overall market demand which measured the relative rate of industry growth (Dess & Beard 1984).

Following Dess & Beard (1984) and Rasheed & Prescott (1992), Gul et al (2019); Ruba et al. (2023) measured environmental munificence by growth rate and operationalised it by the regression slope coefficient of the value of shipments. In the Nigerian context, Shehu & Mahmood (2015); Okafor (2020) measured environmental munificence by Sutcliffe's (1994) scale, which is a subjective measure. Studies have found a strong correlation between subjective assessments and objective assessments of the environment (Dess & Robinson, 1984; Pearce et al., 1987; Kansra et al, 2024; Wang et al., 2022). From the above literature, this study measured environmental munificence by Sutcliffe's (1994) scale.

- **Environmental Dynamism**

Environmental dynamism comprises numerous variables – for example, the speed in which the environment is changing (stability-instability), turnover rates, and predictability-unpredictability; each aspect contributes to uncertainty. Miller and Friesen (1983); Lettl et al. (2023); Schoemaker et al. (2023) defined dynamism as the degree of innovation and change in an industry as well as

the unpredictability and uncertainty of the actions of customers and competitors. Organisations operating in market environments where high levels of dynamism are present must have the flexibility to adapt to an evolving environment to ensure organisational survival (Lee et al., 2019; Rigtering et al., 2017; Ferreira et al., 2020; Shan, Song, & Ju 2016; Song et al., 2019). An environment that is changing quickly tends to raise the level of unpredictability and risk, which are a common feature of many industries (Jensen et al., 2023; Kreiser et al., 2019; Rezaei & Ortt, 2018). A lower level of dynamism in an environment implies a possible decline in the economy or, under most conditions, a well-established and non-turbulent industry. Organisations doing business in a more stable environment have the luxury of added predictability and stability of environmental change and more exceptional ability to react and change with the environment.

Most of the literature in organisation theory and business-policy theory which dealt with environmental dynamism, suggests that inventory turnover, capital intensity, slack, and plant newness are the best measures of environmental dynamism (Dess & Beard, 1984; Wang et al., 2022; Yi Liang et al., 2024). Rigtering et al., (2017); Song et al. (2019); Xiaochi Wang et al. (2022), however, contended on the importance of distinguishing between the degree of environmental change and the unpredictability of environmental change when measuring dynamism. They opined that dynamism should be restricted to change that is hard to predict and that heightens uncertainty for the key organisational members.

Dess and Beard (1984); Gul et al. (2019) in their study measured environmental dynamism as the variability in the value of shipments. They operationalised it by the standard error of the regression slope coefficient of the value of shipments divided by the industry mean for the period 1995-2015. Their operationalisation corresponds with Gupta & Batra (2016) notion of state uncertainty. Dess

and Beard (1984) study used five variables of sales, price-cost margin, employment, technological change and value-added to operationalise environmental dynamism. Rigtering et al. (2017) measured environmental stability-instability by the dispersion about the regression line obtained when each dependent variable was regressed on time over the period 1996 to 2015. This measurement approach was consistent with those of other researchers' (Child, 1974; Bourgeois, 1978; Snyder & Glueck, 1982) who all considered instability to be unsystematic and unpredictable change (Dess & Beard, 1984).

This study measured environmental dynamism based on the scale used in Miller and Friesen (1983). Three items were adapted to measure environmental dynamism. To measure environmental dynamism, the research asked the executives about the predictability of their competitors' activities, the changes in customers' tastes, and the speed of their firms' innovation in terms of new products/processes. All items were anchored on 6-point Likert type scale.

- **Environmental Hostility**

Environmental hostility refers to the extent to which the business environment poses threats to a firm's survival (Miller & Friesen, 1982). Hostility includes such challenges as intensive price, product, technological and distributional competition within the industry, constraints on access to necessary inputs, scarcity of labour and material resources, governmental intervention, severe regulatory restrictions, and unfavourable demographic trends (Alexandrova, 2004; Caruana et al., 2002; McGee et al., 2012; Miller &Friesen, 1983). In general, environmental hostility is an encompassing construct that includes the elements of threat and lack of control over the agents and events in a firm's external environment (Alexandrova, 2004).

Several research corroborate the idea of a positive link between EO-OP to be stronger among firms operating in hostile environments (Casillas et al., 2010; Covin & Slevin, 1989 Martins & Rialp, 2013; McGee et al., 2012; Miller, 1983; Miller & Friesen, 1982, 1983) since hostile conditions create a greater need for innovative, proactive and risk-taking behaviour (Miller & Friesen, 1982). Innovative behaviour enables firms to modify their products and services in order to better respond to customers' needs and preferences (Kreiser & Davis, 2010; Vij & Bedi, 2012). More risky and proactive actions allow firms to respond to competitors' actions (De Clercq et al., 2010; Miller, 1983). Additionally, in hostile environments, expansion strategies through new products and markets were associated with higher growth rates (Moreno and Casillas, 2008). In order to compete aggressively, managers are "inclined to take business-related risks, to favour change and innovation" (Covin & Slevin, 1989, p. 218), rather than remaining passive and reactive.

In hostile environments, risk-averse firms are more likely to lose their market shares by being attacked by competitors (Casillas et al., 2010; Richey et al., 2025). Several studies have also adopted the scales and instruments proposed by Miller & Friesen (1982), Dess & Beard (1984) and Naman & Slevin (1993) in measuring environmental hostility (Dess, Lumpkin & McFarlin, 2005; Lee et al*.,* 2019; Van Doorn et al*.,* 2017). In this investigation, environmental hostility will be measured by a six-item scale developed by Miller & Friesen (1982), which reflects the overall level of hostility in the external environment and the severity of different challenges for Nigerian SMEs, including tough competition in price and product quality, scarcity of labour and material resources, and government intervention. Therefore, environmental hostility would be assessed with the overall hostility level, measured by the items on a six-point Likert scale, where "1" refers to "The environment causes a great deal of threat to the survival of my SME," and "6" corresponds to "There is very little threat to survival."

- **Environmental Complexity**

According to Snihur and Wiklund (2019), environmental complexity is the "diversity and interrelatedness of factors and actors in the environment that organisations must navigate. This includes the dynamic and uncertain factors influencing decision-making processes in businesses. They emphasise that this complexity often drives organisations toward business model innovation as a response to the diverse and rapidly changing market forces. Martinez (2022) described environmental complexity in terms of uncertainty and the interaction of various forces, noting that firms need to adapt their business models in response to the changing sustainability and resource availability demands.

A turbulent business environment and the complexity it imposes create unpredictability and instability patterns, which influence the complexity of SMEs operating underneath them. Changing customer needs, lack of control, disintegration, confusion, competitors' emergence, and complex decisions, and above all, invoice turbulence of the chaotic business setting imposes a considerable constraint on organisations' performance and their sustainable value delivery (Psychogios & Garev, 2012). This affects the decision-making process, implying that conventional management approaches lack the capacity to provide the appropriate organisational flexibility, cohesiveness, and adaptability (Psychogios & Garev, 2012). A thorough analysis of environmental issues' extent and complexity is the basis of any decision-making process (Vannevel, 2014).

Environmental complexity is often experienced in practice as a field of tensions and friction in and between organisational structures that, when not properly managed, could create an unbalanced flow of data and information required for decision-making to enhance organisational performance (Vannevel, 2014). The environmental disturbances businesses face may cause institutional

changes at the top management level, as well as the administrative structure. For this reason, environmental policy and management require an approach that exceeds boundaries (Vannevel, 2014). Much research on the complexity of the business environment is required to draw solid conclusions upon which complexity theory could be further developed with practical implications for managers dealing with day-to-day complexity.

Much literature on environmental complexity has operationalised this construct in different ways. Scholars such as Duncan (1972) were the first to specifically operationalise the complexity construct by first distinguishing between complexity in the internal and external environments of an organisation. The external environment comprises customers, suppliers, competitors, technology, and sociocultural components (Cannon & St. John, 2007). Duncan (1972) and Tung (1979) measured environmental complexity via perceptual measures, which involved the use of surveys distributed to organisational members to capture the level of uncertainty and how this affects managerial decision-making (Boyd, Dess & Rasheed, 1993; Boyd & Fulk, 1996).

Scholars such as Lawless and Finch (1989) on the other hand, measured environmental complexity through the objective means which involved calculating industry-level data and comparing the environmental characteristics of one industry to another (Cannon & St. John, 2007). Keats and Hitt (1988), in their study, measured environmental complexity using a dynamic measure of competitive concentration, which was developed by Grossack (1965). This measurement approach captures the monopoly dominance power of large organisations either increasingly or decreasingly within a five-year timeframe (Cannon & St. John, 2007).

Theoretical Rationale for Moderator Selection

The selection of environmental dynamism, hostility, complexity, and munificence as moderators rest, not only on their degree of coverage in the existing literature, but upon a purposeful theoretical contribution that their effects as moderators remain poorly understood, particularly in highly unstable institutional environments, like Nigeria. This study argues that, Nigeria is not only a new field location for testing established associations but an environment that entirely changes how these environmental constructs matter to the entrepreneurial process.

- Environmental Hostility: Although often reported to have weak, or non-significant moderating effects in stable economies (Wiklund & Shepherd, 2005), it is theorised to be most important in Nigeria, where environmental pressures are transformed into existential threats through institutional voids, which completely transition strategic behaviour (Bruton et al., 2021). Hostility as an environmental factor is not just a temporary condition of the market, it is a permanent way of life (Adeleye et al., 2021). This state of permanent environmental pressure may transform EO, from a strategic enhancement, into a survival necessity toolkit (Adom, 2022), but potentially amplifying its moderating effect regarding the EO-OP relationship, which is contrary to findings in more advanced economies.

- Environmental Dynamism. Within advanced economies, the concept of dynamism focuses on variables such as technological change and competition (Miller, 1983; Covin & Slevin, 1989). In Nigeria, dynamism encompasses the potential for sudden regulatory changes and macroeconomic uncertainty (NBS, 2023). The dynamism in Nigeria is associated with a more chaotic and unpredictable frame of reference. It is therefore hypothesised that Nigerian SMEs that are fundamentally agile and adaptable will be more reliant on EO to

deal with variability and uncertainty, and therefore, dynamism will be an even more influential moderator.

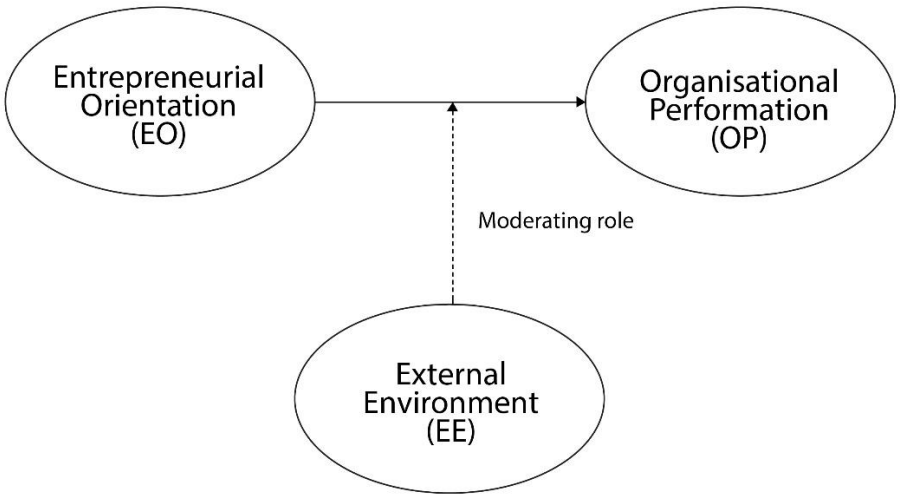
- Environmental Munificence. Research on munificence tends to be ignored in emerging markets as researchers concentrate on scarcity. However, Nigeria's resource endowments introduce some degree of munificence in a scarcity-based environment. By investigating munificence this research will build on the work of Castrogiovanni (1991), who defined munificence as the capacity of an environment to support sustained growth, to study whether the payoff for EO is significantly higher for firms that can access these abundant opportunities. This allows us to examine if EO acts not just as a driver of performance but also as a key indicator for identifying and exploiting 'oases of opportunity', which is a critical mechanism for understanding stratified growth and inequality within developing economies (Urban, 2020).

- Environmental Complexity. Environmental complexity, as it pertains to Nigeria, is not simply an operational challenge (Adeleye et al., 2021; Bruton et al., 2021). The complexity of the business environment has introduced a complexity that acts as information-filtering mechanism (Adom, 2022; George et al., 2016). This research contends that complexity will moderate the EO-OP relationship, rewarding those firms who are able connect their entrepreneurial orientation with market intelligence and stakeholder navigation.

Thus, the conceptual model in Figure 2.1 shows the relationship between EO and OP in Nigerian SMEs with the EE as a moderation relationship. This framework operationalises EO's five attributes as key firm capabilities and indicates that the impact of the capabilities on performance is conditioned and refinanced by the external environmental conditions, including the conditions

of hostility, munificence, dynamism and complexity. This acts as a summary of the literature review, in that it gives a visual representation of the theoretical arguments and also sets out this study's contribution: that is, investigates how institutional voids and volatility in a developing economy, influences the EO and OP relationships, providing a deeper level of understanding and more contextually specific and continental accountability than previous studies conducted in stable economies.

Figure 2.1: CONCEPTUAL MODEL



Note: Theoretical relationships synthesised from the literature review.

Source: Researcher's Conceptualisation (2025)

2.3 Methodological Review

Using contingency and configurational approaches, Shirokova, Bogatyreva, Beliaeva, and Puffer (2016) studied entrepreneurial orientation and firm performance in different environmental settings. The contingency approach of two-way interactions of EO with each environmental variable is contrasted with the configurational approach of three-way interactions of EO at the

same time with different levels of both environmental variables using Hierarchical regression analysis to obtain data from 163 Finnish and Russian small- and medium-sized enterprises. Findings revealed that EO is directly and positively associated with firm performance based on the configurations of the external environment variables with the record of better performance by firms that applied EO in environments with high hostility and market growth. While an environment with a minimum level of hostility and enhanced market growth achieves a low level of business performance.

Similarly, Milovanovic & Wittine (2014) conducted a study titled "Analysis of external environment's moderating role on EO-OP of Italian SMEs. EO was operationalised through innovativeness, proactiveness, and risk-taking. Their study was anchored with contingency theory, which holds that the effectiveness of entrepreneurial orientation (EO), depends on contextual factors. Findings revealed that the external environment of dynamism, hostility, and munificence is a moderating variable in the relationship between EO and organisational performance. The study also integrates entrepreneurship and strategic management theories, emphasizing how firms must adapt their strategies to align with environmental conditions to achieve optimum results.

Also, Gupta and Govindarajan (1984) studied how businesses employ financial and non-financial indicators to measure performance. The study adopted a survey design to gather data from respondents on two main aspects: to rate the extent to which various financial and non-financial indicators influence their business success and after that assessed their level of satisfaction with their businesses' performance against these indicators both financial measures such as profitability, cost control and non-financial measures including innovation, customer satisfaction, market share. The sample size for the study is 58 strategic business units (SBUs) across diverse industries who,

through the questionnaire administration process, gave insights into organisational performance and entrepreneurial practices.

Findings revealed that non-financial SBUs with a strong entrepreneurial orientation (e.g., focusing on innovation, proactive market behaviour, and risk-taking) tended to prioritise non-financial indicators more highly, with the need for longer-term focus and more dynamic strategies. While organisations with a high entrepreneurial orientation have improved adaptability and competitiveness, even when immediate financial satisfaction lagged. The study highlighted the need for organisations, especially those with an entrepreneurial focus, to balance short-term financial goals with long-term investments in innovation and customer-centric strategies. This dual emphasis helps drive sustained organisational performance and fosters competitive advantage in dynamic markets.

In a study conducted by Naman & Slevin (1993) on the relationship between entrepreneurial orientation and organisational performance, the study adopted quantitative survey to examine how different dimensions of the external environment (e.g, turbulence, hostility, and dynamism) influenced organisational behaviour and performance. The sample size for the study conducted in the United States are 200 small and medium-sized enterprises (SMEs) senior managers and executives, as they were best positioned to evaluate the environmental variables and their influence on organisational strategy and performance. Multiple linear regression analysis was used to test the relationships between the EE and OP, while hierarchical linear regression analysis was used to test whether the interaction effect of external environment on the EO-OP relationship exists. The results revealed that EO, as a first-order variable, has a significantly positive effect on the OP. At the same time, the EE has a positive influence on the EO-OP relationship.

Moreover, Hwan-Jin and Byung-Keun (2016) assessed the moderating effect of the external environment on the EO-OP paradox by distributing 252 questionnaires to South Korean-based SMEs, asking entrepreneurs and executives to evaluate their perceptions of their firms through EO dimensions such as innovativeness, risk-taking, and proactiveness. Market dynamism and hostility were the moderating variables in this study. The study used hierarchical regression analysis to test its hypotheses. The results show that EO increases OP at the bounded level that is (an inverted U-shape). The result also revealed that environmental dynamism has no significant effect on EO-OP relationship.

Similarly, Miller's (1983) conducted a study in Canada to test a model for measuring entrepreneurial orientation through three dimensions of EO, such as innovativeness, proactiveness, and risk-taking, and how they correlated with entrepreneurial strategies and performance in organisations. The quantitative study employed survey data and structured interviews. Miller's study evaluated EO through a series of firm-level assessments, emphasising the role of managerial behaviour in driving entrepreneurial activities. The cross-sectional study design involves three types of firms: Simple Firms - small firms with limited structures; planning firms - organisations with moderate complexity and planning mechanisms; organic firms - firms with flexible and dynamic structures. The study assessed how EO dimensions varied across these firm types and their relationship with organisational performance. The study used 80 firms as participants, with one senior-level executive from each firm providing data on entrepreneurial behaviour and organisational performance. Findings revealed that higher levels of EO dimensions including innovativeness, proactiveness and risk-taking, lead to better performance in dynamic and competitive environments.

2.4 Development of Hypotheses

2.4.1 Entrepreneurial Orientation - Organisational Performance Relationship

The relationship between EO and OP has received considerable attention in the organisational and entrepreneurial literature over the last three decades. Scholars have theorised that the incidence of organisation-level entrepreneurial behaviours, which is the propensity to engage in relatively high levels of risk-taking, innovative, proactive, competitive aggressive and autonomy behaviours is positively associated with OP (Amin *et al.,* 2016; Arokodare & Asikhia, 2020; Covin & Slevin, 1991; Buli, 2017; Galbreath *et al.,* 2020; Covin & Slevin, 1991; Lumpkin and Dess, 1996). However, significant contextual variability exists across different industries and economies.

Research in Nigeria's oil and gas sector (Arokodare & Asikhia, 2020) revealed autonomy and competitive aggressiveness as the strongest predictors of profitability, while innovativeness and proactiveness showed positive but more modest effects, with risk-taking surprisingly displaying a negative relationship. Similar Nigerian SME studies (Isichei et al., 2023) confirmed proactiveness and innovativeness as performance drivers but found risk-taking insignificant, highlighting how structural infrastructure mediates these relationships. Cross-national comparisons reveal further insights, which are: Dutch high-tech SMEs show innovativeness boosting R&D performance but risk-taking harming production efficiency (Rezaei & Ortt, 2017), while Ghanaian SMEs benefit from proactiveness but not risk-taking (Adomako & Narteh, 2015). Tanzanian welding firms leverage EO for competitive advantage (Kiyabo & Isaga, 2019), whereas Ethiopian manufacturers derive limited performance gains from most EO dimensions (Buli, 2023).

These findings collectively demonstrate that while proactiveness and innovativeness consistently enhance performance, risk-taking requires careful calibration, and all EO effects are mediated by

institutional contexts and organisational capabilities. The evidence underscores that optimal EO configurations must be tailored to specific industry conditions and national business environments, particularly in emerging economies where infrastructure constraints may reshape conventional performance relationships.

Based on the preceding discussions, EO was operationalised by adapting Covin and Slevin's (1989) EO five dimensions (innovativeness, risk-taking, proactiveness, autonomy and competitive aggressiveness), and OP was operationalised using a subjective approach in this study; the following hypotheses were tested:

H1: There is a positive and statistically significant relationship between innovativeness and Organisational Performance.

H2: There is a positive and statistically significant relationship between Risk-taking and Organisational Performance.

H3: There is a positive and statistically significant relationship between Proactiveness and Organisational Performance.

H4: There is a positive and statistically significant relationship between Competitive Aggressiveness and Organisational Performance

H5: There is a positive and statistically significant relationship between Autonomy and Organisational Performance.

2.4.2 The Moderating Effect of the External Environment on the Entrepreneurial Orientation - Organisational Performance Relationship

A substantial amount of literature has addressed the issue of an adjustment between the level of the EO-OP relationship and external environmental conditions. In their seminal work, Dess &

Beard (1984) identified three dimensions of organisational task environments: munificence, dynamism and hostilities. However, complexity has also been identified as a dimension of organisational environment (Nkechi, 2013). From empirical literature, munificence (e.g. Kreiser & Davis, 2010; Lee *et al.,* 2019; McKenny et al., 2018; Rosenbusch *et al.,* 2013); dynamism (Liu & Atuahene-Gima, 2018; McCarthy, Puffer & Lamin, 2018; Martins & Rialp, 2015); hostilities (Covin & Slevin, 1989; Martins & Rialp, 2015; Miller & Friesen, 1983; Shepherd & Patzelt, 2018; Vij & Bedi, 2016; Yan & Yan, 2017) and complexity (Adebisi, Alaneme, & Ofuani, 2015; Agabi, 2016; Egbesola, 2015; Folabi, 2015; Nkechi, 2013; Rogo et al., 2017; SMEDAN, 2012; SMEDAN, 2013; NBS, 2013) have been identified as critical moderating factors in the EO-OP relationship. In this study, the hypotheses from each of these dimensions are developed below.

The Moderating Effect of Environmental Hostility on Entrepreneurial Orientation - Organisational Performance Relationship

Environmental hostility is characterised by intense competition, regulatory constraints, and resource scarcity (Miller & Friesen, 1983), which heightens uncertainty and threatens organisational survival (Zahra & Garvis, 2000). Research suggests that hostile environments amplify the need for Entrepreneurial Orientation (EO), as firms must adopt innovative, proactive, and risk-taking behaviours to compete effectively (Covin & Slevin, 1989; Lumpkin & Dess, 2001). Empirical studies, primarily in developed economies, show that hostility strengthens the EO-OP relationship (Zahra & Covin, 1995; Martins & Rialp, 2015), as EO enables firms to navigate threats and exploit scarce opportunities (Shepherd & Patzelt, 2018). However, findings remain context-dependent, with inconsistencies underscoring the need for further research in diverse settings (Covin et al., 2019).

This study extends this discourse to Nigeria, where extreme hostility, such as regulatory instability, security risks. etc. may redefine EO's efficacy. By testing whether hostility enhances or diminishes EO's impact on performance, the research addresses a critical gap in contingency-based EO literature. Based on this, the following hypotheses are proposed:

H6: Hostilities will positively moderate the Entrepreneurial Orientation - Organisational Performance relationship

H6a: Hostilities will positively moderate the relationship between Innovativeness and Organisational Performance

H6b: Hostilities will positively moderate the relationship between Risk-taking and Organisational Performance

H6c: Hostilities will positively moderate the relationship between Proactiveness and Organisational Performance.

H6d: Hostilities will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H6e: Hostilities will positively moderate the relationship between Autonomy and Organisational Performance.

The Moderating Effect of Environmental Munificence on Entrepreneurial Orientation - Organisational Performance Relationship

Munificence refers to environmental support for an organisation's sustained performance. A large body of studies has examined these dimensions in terms of the level of EO each of them requires (e.g. Boso et al., 2012; Covin and Slevin, 1989, 1991; Engelen et al., 2015; Lee et al., 2019;

Lumpkin & Dess, 2001; Martins and Rialp, 2013; Ruiz-Ortega et al., 2013; Omisakin et al., 2022; Tang & Marino, 2010). In their insightful work, Kreiser & Davis (2010) stated that munificence environments are expected to be conducive to developing high EO and its positive impact on OP. It was posited that developing a high level of EO would be the most substantial benefit for organisations operating in munificence business environment provided it develops an organic organisational structure.

It is widely believed that organisations operating in munificence conditions benefit from high EO which enhances OP (Jin & Cho, 2018; Lumpkin & Dess, 2001; Panjaitan et al., 2019; Omisakin et al., 2022; Song et al*.,* 2019; Van Doorn et al*.,* 2017). However, the role of environmental munificence in the EO-OP relationship remains questionable. Some studies provide arguments for the positive moderating role of environmental munificence in the EO-OP relationship (e.g. Kreiser & Davis, 2010; Lee et al., 2019; McKenny et al., 2018; Rosenbusch et al., 2013), while others contended that the evidence of EO being an essential driver of OP might not be attributed to environmental munificence (Gul, 2019; Lee et al., 2019; Martins & Rialp, 2015; Magaji, Baba, & Entebang, 2017; Zehir et al., 2015).

Based on the above argument, the following hypotheses are proposed.

H7: Munificence will positively moderate the Entrepreneurial Orientation - Organisational Performance relationship

H7a: Munificence will positively moderate the relationship between Innovativeness and Organisational Performance.

H7b: Munificence will positively moderate the relationship between Risk-taking and Organisational Performance.

H7c: Munificence will positively moderate the relationship between Proactiveness and Organisational Performance.

H7d: Munificence will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H7e: Munificence will positively moderate the relationship between Autonomy and Organisational Performance.

The Moderating Effect of Environmental Dynamism on Entrepreneurial Orientation - Organisational Performance Relationship

Conversely, dynamic environments or environmental dynamism provide safe settings for business operations in the industry and create a wide range of business opportunities for firms (Covin & Slevin, 1989). One element of favourable business environments is market growth for a firm's products or services. High-growth markets are primarily characterised by high growth in customer demand, driven by increasing demands of existing customers and product adoption by new customers (Liu & Atuahene-Gima, 2018; McCarthy, Puffer & Lamin, 2018). In an environment where the market for a firm is expanding, consumers are willing and able to purchase more goods and services. In such a favourable external environment, there is little need for firms to become highly entrepreneurial. Previous studies have shown that firms do not need to develop a high level of EO in dynamic environments, and sticking to a conservative strategic posture is less of a misfit with that environment (Martins & Rialp, 2015).

In such environments, firms with conservative strategic postures achieve better performance indicators, and the relationship between EO and OP may be much weaker or even negative (Covin & Slevin, 1989). Firms with low levels of EO, or conservative firms, have been found to perform

better in favourable dynamic environments than non-favourable ones (Covin & Slevin, 1989). Therefore, in benign business environments with favourable conditions for a firm's operations and market growth for its products/services, entrepreneurial behaviour is not needed to achieve better performance from a strategic fit perspective. Entrepreneurial firms are less often found in dynamic environments compared to hostile contexts, which create high risks and high rewards for managers who prefer rapid growth and new opportunities (Miller & Friesen, 1982).

Based on the above argument, the following hypotheses are proposed.

H8: Dynamism will positively moderate the Entrepreneurial Orientation - Organisational Performance relationship

H8a: Dynamism will positively moderate the relationship between Innovativeness and Organisational Performance.

H8b: Dynamism will positively moderate the relationship between Risk-taking and Organisational Performance.

H8c: Dynamism will positively moderate the relationship between Proactiveness and Organisational Performance.

H8d: Dynamism will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H8e: Dynamism will positively moderate the relationship between Autonomy and Organisational Performance.

The Moderating Effect of Environmental Complexity on Entrepreneurial Orientation - Organisational Performance Relationship

Keats and Hitt (1988) described environmental complexity as the heterogeneity and concentration of the elements in SMEs' external environment. Complexity, as a moderating environment factor, explains the level of knowledge, skill, and expertise SMEs need to exhibit to understand the services they offer, their products, and their customers (Chi et al., 2009). Due to the turbulence and complexity in the business environment, which creates unpredictability and instability for SMEs operating within them, a thorough analysis of the extent of the environmental complexity is the basis of any decision-making process of SMEs (Vannevel, 2014). Environmental complexity, as it affects SMEs, when not sufficiently managed, often creates tensions between organisational structures and the needed information SMEs require for decision-making to improve their organisational performance (Vannevel, 2014).

Environmental Complexity, from previous studies (Adebisi, Alaneme, & Ofuani, 2015; Agabi, 2016; Femi Egbesola, 2015; Folabi, 2015; Nkechi, 2013; Rogo et al., 2017; SMEDAN, 2012; SMEDAN & NBS, 2013) was found to moderate the relationship between EO and SMEs performance negatively. The characteristic challenges of the external environment, such as inconsistent government policies, poor infrastructure, lack of government support, and unhealthy competition, impede the performance of SMEs (Pulka et al., 2019).

A more significant part of SMEs in Nigeria are operating in an unfriendly external and non-supportive business environment (Aminu, 2015); hence, research on the moderating influence of the complexity of the business environment will help further the complexity theory for practical knowledge on how SMEs will deal with day-to-day complexity.

From the above empirical argument, the following hypotheses are proposed.

H9: Complexity will positively moderate the Entrepreneurial Orientation - Organisational Performance relationship

H9a: Complexity will positively moderate the relationship between Innovativeness and Organisational Performance.

H9b: Complexity will positively moderate the relationship between Risk-taking and Organisational Performance.

H9c: Complexity will positively moderate the relationship between Proactiveness and Organisational Performance.

H9d: Complexity will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H9e: Complexity will positively moderate the relationship between Autonomy and Organisational Performance.

This concludes the review of the core constructs with a concise summary of the constructs, their key dimensions, and foundational references is shown in Table 2.1.

Table 2.1: Research Constructs

Constructs	Instruments	References
Entrepreneurial Orientation (EO)	Innovativeness, Risk Taking, Proactiveness, Competitive Aggressiveness and Autonomy	Miller (1983), Morris and Paul (1987), Covin and Slevin (1989).
Organisational Performance (OP)	Financial (sales growth, profitability)/Non-Financial Metrics (market share, customer	Wiklund and Shepherd (2005), Rauch *et al.* (2009), Fatihudi and Mochklas (2018), Gupta et al. (2013)

	satisfaction, and employee commitment)	
External Environment (EE)	Munificence, Dynamism, Hostility and Complexity	Miller and Friesen (1982) Dess and Beard, (1984), Yasai-Ardenkani (1989)

CHAPTER THREE: METHODOLOGY

3.1 Introduction

Building on the previous chapter of the literature review, where we examined the impact of the external environment (EE) on small and medium scale enterprises (SMEs), Entrepreneurial Orientation (EO) and Organisational Performance (OP) relationship, this chapter explains how the research was approached and operationalised. This research is guided by Sanders et al's (2019) methodological framework to analyse Nigerian SMEs through online surveys and Partial Least Squares-Structural Equation Modelling (PLS-SEM) and will employ a descriptive and an explanatory type of study to determine the external environment's moderating effect on the entrepreneurial orientation and organisational performance relationship in Nigeria. Firstly, the research paradigm or philosophy, approach, and strategy were presented. Secondly, the research hypotheses, research model, research population and sample, instruments and measurement, and demographic information were discussed. The third section of this chapter concisely presents the sample collection procedure, data collection approach, and data analytical technique. The chapter concluded with a summary of all the sections in the chapter.

3.2 Research Paradigm (Philosophy)

A research paradigm constitutes a fundamental worldview that organises the complexity of inquiry by providing normative assumptions about the universe, the individual, and society (Khaldi, 2017). This belief system fundamentally shapes the research process, influencing what is deemed essential or feasible, and guides the integration of theory, method, and standards (Khorasani & Almasifard, 2017). Following Lauder and Marynissen (2018) and Orman (2016), a research paradigm is defined by its answers to three foundational questions:

i. What are the forms and nature of reality? - The ontological question.
ii. What is the relationship between the researcher and what can be known? - The epistemological question and
iii. How does the researcher find out whatever they believe can be known? - The methodological question.

For this study, the positivist paradigm provides the definitive philosophical framework. Ontologically, positivism asserts that reality is objective, singular, and exists independently of the researcher. It assumes the social world can be understood through properties that are measurable and verifiable, separate from the researcher's values or instruments. Epistemologically, it holds that valid knowledge is discovered and verified through direct observation, reason, and measurement (Wahyuni, 2012). This research is based on an objective analysis of this external reality, with the goal of producing value-free, generalisable knowledge, often by imitating the rigorous methods of the natural sciences (Bell & Bryman, 2007). Methodologically, this leads to a deductive, highly structured approach focused on quantifying social phenomena, testing hypotheses, and identifying cause-and-effect relationships to derive law-like generalisations, or nomothetic knowledge (Saunders et al., 2009; Neuman, 2014).

The choice of positivism is also justified by the nature of this inquiry, as identified in the literature, that research on EO and OP has followed both qualitative and quantitative streams. However, for a study that is descriptive, explanatory, and theory-testing in nature, aiming to examine predefined relationships and moderation effects, the quantitative, positivist route is most appropriate (Isichei et al., 2020; Rezaei & Ortt, 2018; Omisakin et al., 2022). This paradigm allows for the efficient collection of empirical data from a large sample of Nigerian SMEs, facilitating the statistical

analysis needed to test the proposed hypotheses and enhance the generalisability of findings (Creswell, 2009; Easterby-Smith et al., 2002). The applicability of this approach is well-established in the Nigerian EO research context, as evidenced by precedent studies (Adesanya et al., 2018; Isichei et al., 2020; Olawoye, 2016).

Therefore, by adopting the positivist paradigm, this study commits to investigating an objective reality where the relationships between EO, the External Environment (EE), and OP can be measured, modelled, and understood through empirical observation and statistical analysis. This philosophical foundation logically supports the subsequent deductive research design, quantitative survey strategy, and analytic techniques employed to answer the research questions.

3.3 Research Approach

The research approach refers to the broad logical and philosophical rationale of research, whether it is inductive, deductive, or abductive (Saunders et al., 2019). This research takes a deductive approach. Deductive approaches start from the literature to create theoretical theories and hypotheses, which are then tested using data collection and analysis (Sekaran & Bougie, 2016). The deductive approach is relevant to this research because it builds upon existing bodies of knowledge around EO and Contingency Theory, which help formulate specific and testable hypotheses which can examine the impact of the external environment on the relationship between EO and performance in Nigerian SMEs. Deductive logic leads to identifying and choosing a quantitative research design that will enable hypothesis testing.

3.4 Research Strategy

The research strategy involves a specific plan of action for collecting and analysing data in order to answer the research questions through the mode of the adopted deductive approach (Saunders et al., 2019). This study follows a descriptive-explanatory survey strategy. A descriptive design enables the assessment of a situation, and description of the characteristics, frequencies and relationships between the independent and dependent variables being studied: the EO dimensions, the factors in the environment, and the organisational performance (Zikmund et al., 2003; Sekaran & Bougie, 2016). This is appropriate since it would enable measurement of the constructs with precision in a large sample.

Building on this, an explanatory design is used to provide specific knowledge about the nature of the relationships between these variables and to explain the moderating effects hypothesised in the study (Zikmund, 2003; Sekaran & Bougie, 2016). While an experimental strategy is often used for establishing causality in explanatory research, it was deemed infeasible for this study due to the inability to manipulate variables like "environmental hostility" in a real-world setting. The survey strategy, utilising a questionnaire with closed-ended questions, was selected as it enables the collection of numerical data from a large, geographically dispersed sample of Nigerian SMEs. This method enhances reliability by minimising subjective judgment and overcoming the challenges of data volatility and informal record-keeping common in this context (Balsley, 1970; Sekaran & Bougie, 2016). The data collected is analysed statistically to test for predicted correlations and moderating effects, fulfilling the objectives of both description and explanation.

3.5 Research Design

The research design details the study's architectural framework. It describes the research hypotheses to be tested and outlines the research model that delineates the hypothesised relationship between the variables. It identifies the population of interest along with the sampling strategy to be employed; thereby defining the boundaries and generalisability of the study's findings. The section also describes the instruments to be used, as well as the measurement scales to operationalise the theoretical constructs to assure that the data collected will provide reliable and valid information. The research design creates a systematic means to engage the research questions.

3.5.1 Research Hypotheses

The hypotheses stated below are based on the literature review in the previous chapter. The relationship between EO and OP has received considerable attention in the organisational and entrepreneurial literature over the last three decades. Scholars have theorised that the incidence of organisation-level entrepreneurial behaviours, which is the propensity to engage in relatively high levels of risk-taking, innovative, proactive, competitive aggressive and autonomy behaviours is positively associated with OP (Amin *et al.,* 2016; Arokodare & Asikhia, 2020; Covin & Slevin, 1991; Buli, 2017; Galbreath *et al.,* 2020; Covin & Slevin, 1991; Lumpkin and Dess, 1996).

H1: There is a positive and statistically significant relationship between innovativeness and Organisational Performance.

H2: There is a positive and statistically significant relationship between Risk-taking and Organisational Performance.

H3: There is a positive and statistically significant relationship between Proactiveness and Organisational Performance.

H4: There is a positive and statistically significant relationship between Competitive Aggressiveness and Organisational Performance

H5: There is a positive and statistically significant relationship between Autonomy and Organisational Performance.

A substantial amount of literature has addressed the issue of an adjustment between the level of EO-OP relationship and external environmental conditions. In their seminal work, Dess & Beard (1984) identified three dimensions of organisational task environments: munificence, dynamism and hostilities. From empirical literature, munificence (e.g. Kreiser & Davis, 2010; Lee *et al.,* 2019; McKenny et al., 2018; Rosenbusch *et al.,* 2013); dynamism (Liu & Atuahene-Gima, 2018; McCarthy, Puffer & Lamin, 2018; Martins & Rialp, 2015); hostilities (Covin & Slevin, 1989; Martins & Rialp, 2015; Miller & Friesen, 1983; Shepherd & Patzelt, 2018; Vij & Bedi, 2016; Yan & Yan, 2017) and complexity (Adebisi, Alaneme, & Ofuani, 2015; Agabi, 2016; Femi Egbesola, 2015; Folabi, 2015; Nkechi, 2013; Rogo et al., 2017; SMEDAN, 2012; SMEDAN, 2013; NBS, 2013) have been identified as critical moderating factors in the EO-OP relationship. Thus, the hypothesis is stated:

H6: Hostilities will positively moderate the relationship between Entrepreneurial Orientation and Organisational Performance.

H6a: Hostilities will positively moderate the relationship between Innovativeness and Organisational Performance.

H6b: Hostilities will positively moderate the relationship between Risk-taking and Organisational Performance.

H6c: Hostilities will positively moderate the relationship between Proactiveness and Organisational Performance.

H6d: Hostilities will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H6e: Hostilities will positively moderate the relationship between Autonomy and Organisational Performance.

H7: Munificence will positively moderate the relationship between Entrepreneurial Orientation and Organisational Performance.

H7a: Munificence will positively moderate the relationship between Innovativeness and Organisational Performance.

H7b: Munificence will positively moderate the relationship between Risk-taking and Organisational Performance.

H7c: Munificence will positively moderate the relationship between Proactiveness and Organisational Performance.

H7d: Munificence will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H7e: Munificence will positively moderate the relationship between Autonomy and Organisational Performance.

H8: Dynamism will positively moderate the relationship between Entrepreneurial Orientation and Organisational Performance.

H8a: Dynamism will positively moderate the relationship between Innovativeness and Organisational Performance.

H8b: Dynamism will positively moderate the relationship between Risk-taking and Organisational Performance.

H8c: Dynamism will positively moderate the relationship between Proactiveness and Organisational Performance.

H8d: Dynamism will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H8e: Dynamism will positively moderate the relationship between Autonomy and Organisational Performance.

H9: Complexity will positively moderate the relationship between Entrepreneurial Orientation and Organisational Performance.

H9a: Complexity will positively moderate the relationship between Innovativeness and Organisational Performance.

H9b: Complexity will positively moderate the relationship between Risk-taking and Organisational Performance.

H9c: Complexity will positively moderate the relationship between Proactiveness and Organisational Performance.

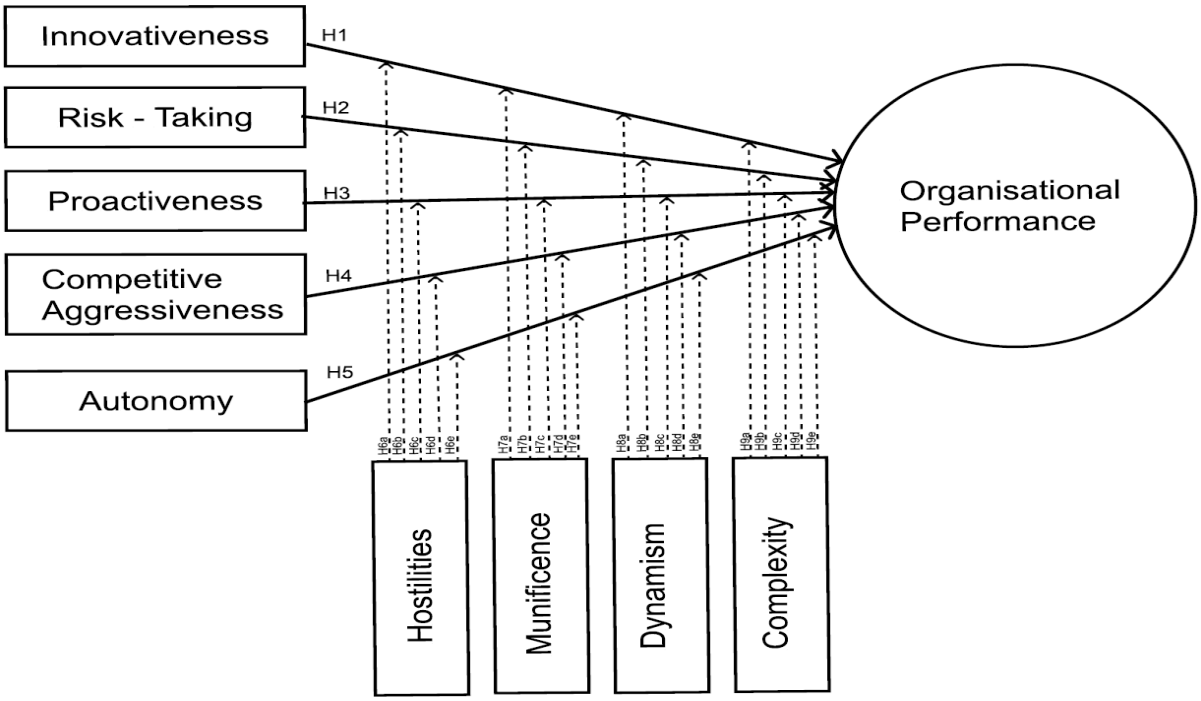
H9d: Complexity will positively moderate the relationship between Competitive Aggressiveness and Organisational Performance.

H9e: Complexity will positively moderate the relationship between Autonomy and Organisational Performance

3.5.2 Research Model

A research model is typically a theoretical image representation of the constructs being studied, and it is regarded as an important way of describing the interrelationships of the constructs. The research model gives an overarching view of the object/s of the study. Figure (3.1) below illustrates the relationship between Entrepreneurial Orientation and Organisational Performance by indicating the direct linkages between various dimensions of Entrepreneurial Orientation (innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy) and Organisational Performance. It also depicts the interaction between various external environment components (hostilities, munificence, dynamism and complexity) on the EO-OP relationship. In the next chapter, all hypotheses stated below were tested to ascertain whether there is any significant relationship between the dependent and independent variables and the moderator's moderating effects.

Figure 3.1: Research Model



Source: Adapted from Yang & Ju (2017)

This study adapts the model offered by Yang & Ju (2017), which examined the mediating role of product quality in the entrepreneurial orientation-firm performance link. Their study focused on internal actions of the firm, and we added to that by introducing the External Environment as a moderating variable. This difference is vital to be able to test the contingency theory and fit the unique context of Nigerian SMEs, as they are challenged by different environmental challenges than those presented in the paper.

3.5.3 Population and Sample

- **Research Setting**

The research setting in this context refers to the location or place where the research will be conducted. In this study, the data were collected from the SMEs across the six geo-political zones of Nigeria.

- **Population**

Population refers to an extensive collection of individuals or objects that are of interest to the researcher; these individuals or objects conform to a set of specifications; thus, the researcher can generalise the research result (Walker, 2007). In this study, the research population comprises SMEs in Nigeria; however, due to the inability of the researcher to cover the entire country, one state in each of the six geopolitical zones was selected as a representative sample, thus ensuring that all six zones participate in the study. The state in each geopolitical zone with the most significant number of registered SMEs was chosen.

Table 3.1: Population Size

S/N	State/City	Geo-political Zone	Number of SMEs
1	Lagos	South-West	11,663
2	Kano	North-West	8,286
3	Rivers	South-South	3,022
4	Abuja	North Central	2,690
5	Bauchi	North-East	2,066
6	Abia	South-East	1,809
	Total		29,536

Source: Small &Medium Enterprises Development Agency of Nigeria (SMEDAN, 2019)

- **Sample**

Gregoire and Affleck (2018) described a sample as a subset or portion of the research population chosen to take part in a study, representing the research population. By studying the sample, the research can conclude the character of the whole population. According to Sekaran and Bougies (2016), it is not practicable to collect data from the whole population hence, the need to adopt the use of samples. For a population of the size of Nigeria SMEs across six geo-political zones, it will be time-consuming and not practical to produce a reliable result using such a huge population, hence, sample was used instead of the entire population. However, the sample size must be sufficient and broad enough to estimate the population's features to ensure the outcome is reliable and realistic (Ngozwana, 2018).

- **Sample Size**

In ascertaining the States with the most significant number of SMEs, the study relied on the SMEs regulatory body in the country, the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) report of 2019. The six states selected with population size are: Lagos (11,663), Kano (8,286), Rivers (3,022), Abuja (2,690), Bauchi (2,066), and Abia (1,809). The entire study population, therefore, comprised 29,536 SMEs. Yamane's (1967) sample size derivative formula was used, which resulted in a sample size of 395 as calculated below. The choice of the Taro Yamane sample size derivative formula is informed by the fact that it is the most popular sample size determination formula in academic research, to easily and quickly ascertain the sample size of the population. Taro Yamane's sample size derivative formula is as stated below:

$$n = \frac{N}{1+Ne^2}$$

Where n depicts the sample size, N represents the population size, and e is the margin of error at a 5% significance level.

Therefore, $\mathrm{n} = \frac{29{,}536}{1+29{,}536(0.05)^2}$ n = 395

This size was then adjusted using the formula $n_1 = \frac{n_0}{r}$, as recommended by Israel (1992) in his guide 'Determining Sample Size'. Based on prior survey studies in the Nigerian SME context, which often report response rates between 50-60% (Owolabi & Ajala, 2022), a response rate (r) of 53% was conservatively estimated. The calculation was therefore:

$$n_1 = \frac{395}{0.53} \approx 745$$

The sample size was rounded up to 750 to ensure adequacy after accounting for potential non-response and unusable responses across the six selected states, as detailed in Table 3.2.

This approach ensured the final responding sample would still meet the statistical power requirements for the PLS-SEM analysis.

Table 3.2: Sample Size Distribution

S/N	State/City	Geo-political Zone	Number of SMEs	Percentage of Distribution	Proportionate Distribution
1	Lagos	South-West	11,663	39.49	296
2	Kano	North-West	8,286	28.05	210
3	Rivers	South-South	3,022	10.23	77
4	Abuja	North Central	2,690	9.11	68
5	Bauchi	North-East	2,066	6.99	53

6	Abia	South-East	1,809	6.13	46
	Total		29,536	100	750

- **Unit of Analysis**

The unit of analysis for this study is at the organisational level that covers the owners and the managers of the SMEs. Carland, Hoy, Boulton, and Carland (1984) defined a small business owner as an individual who establishes and manages a business for the principal purpose of furthering personal goals. Middle and senior managers, on the other hand, are the top managers inclined to take business-related risks, favour change and innovation to obtain a competitive advantage for their organisation and compete aggressively with other organisations (Covin & Slevin, 1991). These respondents, comprising the owners and top-level managers, received separate questionnaires on WhatsApp and email, on which the researcher did a follow-up to ensure that the owners and top managers answered on behalf of their organisations. These categories of respondents are chosen based on their experience in running SMEs in Nigeria, their years of operation and their understanding of entrepreneurial orientation factors that can contribute to their SMEs' performance.

- **Sampling Technique**

The sampling process employed a multi-stage technique to ensure both national representativeness and fairness in selection. The first stage involved proportionate stratified sampling. The population was divided into six strata corresponding to Nigeria's geopolitical zones. Within each zone, the state with the highest concentration of registered SMEs (according to SMEDAN, 2019) was selected as the primary sampling frame. The total target sample of 750 was then allocated to these six states in proportion to their share of the total SME population (see Table 3.2).

The second stage involved simple random sampling within each stratum. The list of potential respondents, which included owners and senior managers of SMEs, was sourced from the National Association of Small and Medium Enterprises in Nigeria. Established in 1996, this association aids in coordinating and promoting SME activities nationwide. As a member of this association with established relationships with its officials and members, the researcher was able to access a credible sampling frame. From the lists within each of the six selected states, potential respondents were randomly selected to ensure every eligible SME had an equal chance of being included in the sample.

The survey was hosted on SurveyMonkey.com for its ease of use, reliability, and cost-effectiveness. It was delivered electronically via WhatsApp and email. Potential respondents were contacted with an explanation of the study's purpose and a unique link to the survey. This digital approach helped ensure that only targeted participants could access the survey and provided a degree of anonymity, as the platform recorded only IP addresses alongside responses.

- **Demographic Variables**

The survey instrument included some demographic questions used for descriptive and control purposes. These questions address the firm's age, number of employees, industry classification, net sales (by range), and use the non-financial measures to ascertain the firm’s performance. There are also respondent-only questions requesting that the respondent supply personal information, such as gender, formal education level, tenure with the firm and whether they are the owner or top manager. The firm's age was determined by the number of years that it has been registered with Corporate Affairs Commission (CAC).

3.6 Instruments and Measurement

The researcher-designed questionnaire was employed to obtain data from participants for the quantitative research method. The questionnaire was divided into 4 parts and rated on Six (6) - six-point Likert scale, ranging from [1- Strongly Disagree, 2- Disagree, 3- Somewhat Disagree, 4-Somewhat Agree, 5-Agree and 6-Strongly agree]. This scale was employed to widen the extent to which data were extracted from the participants. Parts 1 - 3 consisted of questions on each of the study variables adapted from the literature. The questionnaire covering the Independent variable - Entrepreneurial Orientation (EO) information was measured with 32 items, adapting the measures developed by Buli (2016).

The following items were considered for each of the EO dimensions. Risk taking- 5 items, innovativeness- 9 items, proactiveness- 6 items, competitive aggressiveness- 6 items and autonomy- 6 items. The dependent variable, organisational performance, was measured with 10 items adapting measures developed by Wiklund & Shepherd (2005; Rauch et al.,2009; Fatihudi & Mochklas, 2018). While the researcher obtained information from the respondents by adapting the opinion of Sutcliffe's (1994); Miller and Friesen (1983); Miller and Friesen (1982); Duncan (1972) and Tung (1979) to measure the moderating variable- 'external environment' with 18 items as follow: environmental munificence- 4 items; environmental dynamism- 4 items; environmental hostility- 4 items and environmental complexity- 6 items. While the demographic data covered 6 questions. The questionnaire for the measurement items of OP was on a two (2) items scale, and is depicted in the table (3.3) below.

Table 3.3: Measurement Items of Organisational Performance (OP)

S/N	Measurement Items
1	Our sales figures have improved in the last three years:
2	Employees' willingness to commit to the organisation has increased in the last three years

Source: Wiklund & Shepherd, 2005; Rauch *et al.*, 2009; Fatihudi & Mochklas, 2018

In summary, this study adapted widely accepted and validated instruments and measurements from EO literature to measure entrepreneurial orientation, organisational performance and external environment. A uniform seven-point scale developed by Covin & Slevin (1989) has been adjusted to a six-point scale [1- Strongly Disagree, 2- Disagree, 3- Somewhat Disagree, 4- Somewhat agree, 5-Agree and 6-Strongly agree] to suite this current study and was adapted across all questions to create uniformity for respondents in order to achieve a sufficiently high level of reliability and measurement precision since a six-point Likert scale has no neutral or middle category. Neutral categories cause statistical problems and, in the analyses of rating scales, often show that neutral categories disturb measurement and are designed to be more challenging to endorse than disagree (Beglar, 2014). The operational definitions, item counts, and foundational reliabilities for all adapted measurement variables are summarised in Table 3.4.

Table 3.4: Operationalisation of Measurement Variables

Variable	Operational Definition	Number of Items	Reliability from adapted source	Source
Entrepreneurial Orientation (EO)	A set of personal psychological values, traits, characteristics and attitudes that are strongly related to a motivation to engage in entrepreneurial activities.	1- items	Cronbach‘s Alpha Result from the adapted source = 0.87	Covin & Slevin (1989); Covin& Wales (2019)
Organisational Performance (OP)	The perception of the owner about organisation’s growth	1-2 items	Cronbach’s Alpha Result from the adapted	Wiklund & Shepherd, 2005; Rauch *et*

	and efficiency		source = 0.85	*al.*,2009; Fatihudi & Mochklas, 2018
Environmental Munificence	Scarcity or abundance of resources available in an environment and demanded by one or more firms	1-2 items	Cronbach‘s Alpha Result from the adapted source = 0.78	Sutcliffe (1994)
Environmental Dynamism	The speed at which the environment is changing (stability-instability), turnover rates, and predictability-unpredictability; each aspect is contributing to uncertainty	1-3 items	Cronbach‘s Alpha Result from the adapted source = 0.74	Miller and Friesen (1983)
Environmental Hostilities	The extent to which the external business environment poses threats to a firm's survival	1-3 items	Cronbach‘s Alpha Result from the adapted source = 0.78	Khandwalla (1977); Covin & Slevin (1989)

Source: Author’s Compilation based on the cited sources (2025)

To evaluate the ongoing reliability of the measurement instruments, recent applications of each scale were reviewed. For the Entrepreneurial Orientation (EO) scale, contemporary studies have reported Cronbach’s alpha values of 0.7 and higher. For instance, Górska-Warsewicz (2024) in a study of the relationship between entrepreneurial orientation, innovative co-branding partnership, and business performance, reported an alpha value of at least 0.74 for the EO dimensions. Similarly, the EO dimensions recorded an alpha value of 0.861 in a 2023 study of Finnish SMEs (Puumalainen et al., 2023), while the scale yielded an alpha value of 0.7 and higher in a study of the impact of entrepreneurial orientation on performance (Suder, 2023). These findings suggest that the instruments maintain robust internal consistency in recent empirical studies. However, Cronbach’s alpha data for environmental munificence, dynamism, and hostility are less commonly reported in recent literature. Nonetheless, given foundational report of reliabilities of at least 0.7 and their sustained theoretical relevance, these constructs remain appropriate for inclusion in this study.

3.7 Reliability and Validity

The measurement instruments used in this study were subjected to tests for reliability and validity, concepts that are prioritized in the measurement and evaluation process to ensure the robustness of research findings (Mohamad et al., 2015). Reliability refers to the internal consistency of a measure—the degree to which it yields stable and reproducible results, free from error, across multiple measurements of the same construct (Cook & Beckman, 2006; Hair et al., 2010; Sekaran & Bougie, 2016). In this study, the reliability of the multi-item scales is assessed using Cronbach's coefficient alpha, which measures the inter-item consistency within a measurement scale (Moharil et al., 2019). The foundational Cronbach's alpha values for the adapted scales, as reported in their original sources, are provided in Table 3.4, and their contemporary application is discussed in the preceding section.

Validity, conversely, concerns the extent to which an instrument accurately measures the specific construct it is intended to measure (Lakshmi & Mohideen, 2013; Mohajan, 2017). Two primary forms of validity were ensured. First, content validity was established through expert assessment and a pilot test. Following guidance from Sekaran & Bougie (2016) and Hair et al. (2014), the opinions of 20 SME owners and top managers were sought during the pilot stage. They evaluated the questionnaire for clarity, appropriateness, and ease of understanding, allowing for the refinement of wording and question order (Terwee et al., 2018). Second, construct validity will be ascertained through an exploratory factor analysis, utilizing Varimax rotation and principal components analysis, to verify that the items load onto their hypothesized theoretical constructs.

All constructs and questionnaire items in this study were derived from established scales in extant literature, which have been previously validated by academic research, thereby providing a strong foundation for both reliability and validity.

3.7.1 Reliability of the Model's Constructs

As already explained earlier, the reliability of a model's constructs relates to the consistency of a measure, and it is assessed using different measures; however, the Cronbach alpha is the most commonly used test to determine the internal consistency of an instrument (Heale & Twycross, 2015). The Cronbach alpha measurement provides an estimate of the reliability based on the intercorrelation of the observed indicator variables (Hair et al., 2022). The Cronbach alpha result is a number between 0 and 1, and the acceptable reliability score based on the rule of thumb is 0.7 and higher. The basis for adopting this rule of thumb to measure reliability is the context of the square of a standardised indicator's outer loading, known as the communality of an item (Hair et al., 2022). The formula for measuring Cronbach's alphas is as follows:

$$\text{Cronbach's } \alpha = \left(\frac{M}{M-1}\right) * \left(1 - \frac{\sum_{i=1}^{M} s_i^2}{s_t^2}\right)$$

Explaining this formula means the variance of the indicator variable *I* of a specific construct, and it is measured with *M* indicators ($i = 1, \ldots, M$), and is the variance of the sum of all *M* indicators of the construct.

Despite the Cronbach alpha being a traditional means of reliability measurement, it has its weaknesses. Its propensity to assume that all indicators are equally reliable and its sensitivity to the number of items in the scale, which underestimates the internal consistency and reliability, are

viewed as some of the Cronbach alpha limitations (Hair et al., 2022). To address these weaknesses for better internal consistency results, the composite reliability, which considers the different outer loadings, is suggested by Hair et al. (2022). The formula that measured composite reliability is:

$$\rho_c = \frac{\left(\sum_{i=1}^{M} l_i\right)^2}{\left(\sum_{i=1}^{M} l_i\right)2 + \sum_{i=1}^{M} l_i \, var\,(e_i)}$$

where l_i means the standardised outer loading of the indicator variable *i* of a specific construct measured with *M* indicators, $var\ (e_i)$ symbolises the measurement error of indicator variable *i*, and *var(ei)* depicts the variance of the measurement error defined as 1 – l_i^2. A number of rules of thumb exists in order to determine the appropriate level for reliability using composite reliability and the Cronbach alpha which score ranges within a score of 0 and 1. Higher values between 0.7 and 0.9 are regarded as an indication of better reliability, however, values beyond 0.9 are considered undesirable because they are viewed assemantically redundant items (Hair et al., 2022).

Having discussed the merit and demerit of the use of Cronbach alpha in the measurement of constructs reliability, as well as the advantage composite reliability (rho_c) confer over this traditional means; the composite reliability (rho_a) is actually viewed as the reliability measurement means that depicts the best test of reliability because it proposes the exact or consistent reliability coefficient ρ_A (Hair et al., 2022). The composite reliability (rho_a) is viewed as a good compromise between the Cronbach alpha and the composite reliability (rho_c) when measuring constructs reliability. The formula for composite reliability (rho_a) is:

$$\rho_A = (\hat{w}\ \hat{w})^2 - \frac{\hat{w}\left(S - diag(S)\right)\hat{w}}{\hat{w}\left(\hat{w}\ \hat{w} - diag\left(\hat{w}\ \hat{w}\right)\right)\hat{w}}$$

where ŵ represents the estimate of the outer weights, diag represents the diagonal of the corresponding matrix, while S indicates the sample covariance matrix. This study follows conventional standards for the reliability measures. Specifically, reliability measures of 0.7 to 0.95 are considered acceptable while items with values outside of this range are excluded from the study.

3.7.2 Validity of the Model's Constructs

Two ways to determine and evaluate a model's construct validity are by assessing convergent validity and discriminant validity. While convergent validity refers to the extent to which a measure correlates positively with alternative measures of the same construct, discriminant validity, on the other hand, assesses the extent to which a construct is distinct from other constructs within the model (Hair et al., 2022). To determine how the indicators of reflective constructs converge, the average variance extracted (AVE) is commonly used. The AVE means the grand mean value of the squared loadings of the indicators of the construct (Hair et al., 2022), and the formula is as stated below:

$$AVE = \frac{\left(\sum_{i=1}^{M} l_i^2\right)}{M}$$

where l_i means the standardised outer loading of the indicator variable i of a specific construct measured with M indicators. As a rule of thumb, an AVE value of 0.5 and above is acceptable as it indicates, on average, that the construct explains more than half of the variance of its indicators, while values below 0.5 indicate a poor level of convergent validity. More recent criterion is used by researchers due to the limitations observed with the traditional method when assessing discriminant validity. The Fornell-Larcker criterion, which provides a comparison between the

square root of a construct's AVE values and the latent variable correlation, is regarded as the traditionally used method. The logic of this traditional method rests on the view that a construct ought to share more variance with its associated indicators than with any other construct (Hair et al., 2022).

The cross-loading, which is another means to determine discriminant validity, often also holds the same limitations as those associated with the traditional Fornell-Larcker criterion. This criterion posits that an indicator's outer loading on a construct ought to be greater than its correlation with other constructs (Hair et al., 2022). However, according to Henseler, Ringle & Sarstedt (2015), this criterion is useless for applied research as it is unable to detect even severe violations of discriminant validity (Hair et al., 2022). To the more recent criterion for measuring discriminant validity, which offers a better evaluation measure, Henseler et al. (2015) proposed the heteroterit-monotrait ratio (HTMT) to address the shortcomings of the Fornell-Larcker and cross loading criterion. The HTMT is explained as the ratio of the between-trait correlation to the within-trait correlation. It is the mean of all correlations of indicators across constructs measuring different constructs relative to the mean of the average correlation of indicators measuring the same construct (Hair et al., 2022). The formula to measure HTMT is:

$$HTMT(Y_1Y_2) = \frac{mean\left(R_{Y_1Y_2}\right)}{\sqrt{mean\left(R_{Y_1Y_1}\right).mean\left(R_{Y_2Y_2}\right)}}$$

Where R_{YY} symbolises the matrix of correlation between all indicators of Y_1 and Y_2, and R_{YY} (R_{YY}) means the matrix of correlation between each indicator of *Y1 (Y2)*.

The rule of thumb to measure discriminant validity using HTMT sets a threshold value of 0.9. If the HTMT value exceeds the 0.9 threshold, it is suggested to a lack of discriminant validity. Table 4.11 shows the outcome of the HTMT assessment to evaluate the discriminant validity of the data.

3.8 Data Collection Procedure

This section provides a chronological account of how data were collected from the target population of Nigerian SME owners and senior managers.

The target population was defined as owners and senior managers of registered SMEs across Nigeria's six geopolitical zones. To ensure national representativeness, a stratified sampling frame was constructed by selecting the state with the highest concentration of registered SMEs in each zone: Lagos (South-West), Kano (North-West), Rivers (South-South), Abuja (North-Central), Bauchi (North-East), and Abia (South-East). This yielded a total population of 29,536 registered SMEs (SMEDAN, 2019).

The minimum sample size was calculated as 395 using Taro Yamane's (1967) formula. Based on an estimated 53% response rate from prior Nigerian SME studies, this minimum was adjusted upward, resulting in a target distribution sample of 750 respondents. This total was allocated across the six selected states using proportionate stratified sampling to maintain representativeness. Within each state, potential respondents were selected via simple random sampling from business directories and association lists.

The final questionnaire, hosted on Google Forms, was deployed using a unique survey link accompanied by a cover letter explaining the study's purpose and guaranteeing anonymity. The primary distribution channels were email and WhatsApp, chosen for their reliability and

widespread use in Nigeria. Each questionnaire was coded with a unique identifier known only to the researcher to track returns confidentially.

The process commenced with Phase 1, the initial distribution wave. Over a 50-day period, the survey link was distributed via email and WhatsApp to the randomly selected respondents within each state. This phase yielded 304 complete and valid responses, representing a response rate of approximately 40.5% for the initial wave.

Following an interim assessment, Phase 2 was initiated as a supplemental wave to improve the overall response rate and approach the target sample size of 750. The same proportionate stratified sampling strategy was strictly maintained, targeting new potential respondents within the same six states while preserving the proportional allocation established in the sampling frame. The survey link was redistributed via WhatsApp to newly identified respondents over a 30-day period, yielding an additional 66 complete responses.

Responses from both phases were pooled, totaling 370, and subjected to a rigorous cleaning protocol. This involved removing incomplete responses, screening for straight-lined or inattentive response patterns, and validating that all respondents met the inclusion criteria as owners or senior managers of registered SMEs. After cleaning, the final dataset comprised 304 valid and complete responses, forming the definitive analytical sample for this study. This sample size meets and exceeds the statistical power requirements for the subsequent PLS-SEM analysis.

3.9 Data Analysis Technique

In terms of data analysis, this study employs structural equation modelling to develop and test theories (Hair et al., 2012; Richter et al., 2015; Ringle et al., 2020). There are two parts to structural

equation model estimation, which are covariance-based SEM (CB-SEM) (Hair et al., 2017; Mohamad et al., 2019) and variance-based Partial Least Squares path modelling (PLS-SEM) (Hair et al., 2012; Rigdon, 2017; Olya, 2017). PLS-SEM is becoming more popular in academic research (Hair et al., 2012; Ringle et al., 2020; Sarsted et al., 2014). Wong (2013) has also supported the partial least squares structural equation modelling approach. This approach has gained popularity in accounting (Sarsted et al., 2014), operations management (Peng & Lai, 2012), marketing literature (Hair et al., 2014), strategic management (Hair et al., 2014), management information systems (Ringle et al., 2020) and organisational research (Yáñez-Araque et al., 2017).

PLS is suitable for research in order to predict the relationship between the two constructs. It is also helpful in a complex model, research with a new theoretical model that is not well-formed, a model with latent variables or structural paths (Richter et al., 2015). In the present study, Smart PLS version 4.0.9.9 path modeling was used. This is because, in this study, the researcher estimates the relationship between two constructs (structural model) and the relationship between indicators and their corresponding latent constructs (the measurement model) simultaneously (Hair et al., 2012; Rigdon, 2017; Olya, 2017; Yáñez-Araque et al., 2017). Besides, the researcher investigates the moderating role of perceived environmental uncertainties on the relationship between entrepreneurial orientation and organisational performance; hence, Smart PLS is helpful in identifying the moderating effect. Smart PLS software is user-friendly with its graphical user interface; it helps create a moderating effect of path models with interaction effects (Rouf & Akhtaruddin, 2018). Hence, it is more preferred than other path modelling software like AMOS.

3.9.1 Assessment of the Research Model

In choosing an appropriate statistical technique for this study, it was important to choose a data analysis technique that avoids the limitations associated with first-generation technique, which includes postulation of a simple model structure, the assumption that all variables are considered observable and that all variables are measured without error (Haenlein & Kaplan, 2004). These limitations associated with first-generation techniques, such as multiple regression, logistic regression and analysis of variance were widely applied to social science research and to a large extent shaped the way the world is being viewed today (Hair et al., 2022). However, this study applied the second-generation data analysis technique to overcome the first-generation techniques' limitations. The structural equation model, which researchers have increasingly been turning to as a second-generation technique, allows researchers to simultaneously model and estimate complex associations between multiple dependent and independent variables (Hair et al., 2022). Given these stated benefits of the second-generation technique over the first-generation technique, the structural equation model, particularly the partial least square (PLS) was selected as the most suitable statistical technique for the data analysis and this was conducted on the Smart-PLS 4 platform.

3.9.2 Specifications of the Model

In line with the methodological needs of this study, which involves both reflective and formative constructs such as Entrepreneurial Orientation, Organisational Performance, and Environmental Hostility, Partial Least Squares Structural Equation Modeling (PLS-SEM) was adopted as the primary analytical technique. Although traditional statistical methods have evolved substantially, PLS-SEM has emerged as a particularly suitable approach for assessing complex models with

multiple latent constructs and limited sample sizes (Hair et al., 2022). PLS-SEM, also known as PLS path modeling, is a variance-based method that estimates the relationships among constructs by maximising the explained variance in the dependent variables (Chin et al., 2020). Unlike covariance-based SEM, it assumes that theoretical constructs can be operationalised as composites (Jöreskog & Wold, 1982), making it particularly relevant for models containing formative indicators, as is the case in this study. Furthermore, PLS-SEM provides tools for evaluating both the measurement quality of constructs and the model's predictive accuracy, which aligns with this study's focus on establishing relationships and drawing inferences of practical relevance.

The adoption of PLS-SEM in this study is informed by four methodological considerations outlined by Hair et al. (2022), namely: data characteristics, model characteristics, model estimation, and model evaluation. These considerations align closely with the specific needs of this research, which involves a moderate sample size, non-normally distributed indicators, and a complex structural model comprising both reflective and formative constructs, such as entrepreneurial orientation and environmental factors. As demonstrated in previous studies (Cassel, Hackl, & Westlund, 1999), PLS-SEM is particularly effective under such conditions due to its statistical power, its capacity to handle non-parametric data, and its flexibility in estimating composite-based models. By addressing these four key aspects, the PLS-SEM approach enhances the robustness of parameter estimation and supports the model's theoretical and predictive relevance within the framework of this study.

In the structural path model for this study, the relationships among the independent, dependent, and moderating constructs are clearly specified in accordance with PLS-SEM conventions. Entrepreneurial Orientation (EO) is conceptualised as the primary independent (exogenous)

variable, exerting direct and indirect influence on the dependent (endogenous) construct, Organisational Performance (OP). In addition, elements of the External Environment (EE)—including environmental munificence, dynamism, complexity and hostility—are modelled as moderators, capturing contextual dynamics that may enhance, attenuate, or transmit the effect of EO on OP. Following PLS-SEM logic, directional relationships between constructs are represented with single-headed arrows, and both direct and interaction (moderation) paths are estimated. This specification is grounded in the conceptual framework and aligns with the study's theoretical assumptions regarding the contingent and moderating roles of the external environment (See Table 4.10).

3.9.3 Evaluation of the Measurement Model

In this study, the measurement model assesses the relationships between latent constructs and their observed indicators, consistent with the measurement specifications outlined in the conceptual framework (Sarstedt, Ringle, & Hair, 2017). Constructs such as Entrepreneurial Orientation and Organisational Performance were modelled reflectively; hence, indicator reliability was assessed using outer loadings. Formally, a reflective measurement model is specified as:

$$x_i = \lambda_i \, \xi + \varepsilon_i$$

where x_i is the i-th indicator, λ_i is its loading on the latent construct ξ, and ε_i is the measurement error.

Following Hair et al. (2022), indicators with loadings above 0.70 were retained, while those between 0.40 and 0.70 were considered based on their theoretical relevance and contribution to composite reliability. For formative constructs such as environmental hostility, complexity,

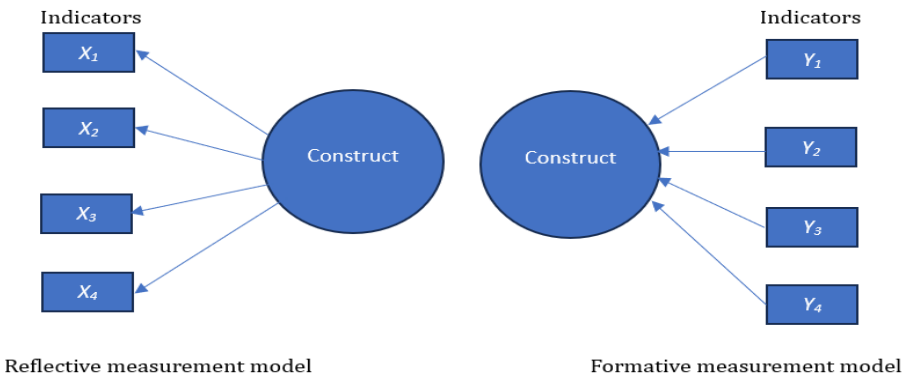
munificence and dynamism, the evaluation focused on indicator weights, statistical significance, and multicollinearity (VIF). Conversely, a formative measurement model is specified as:

$$\xi = \Sigma_i (\gamma_i x_i) + \zeta$$

where ξ is the latent construct formed by its indicators x_i, γ_i are the indicator weights, and ζ is a disturbance term.

This distinction between reflective and formative measurement, formalised by these equations, ensures that the constructs accurately represent the theoretical domains they are intended to measure (See Figure 3.2 below)

Figure 3.2: Measurement Model Illustration



3.10 Application of PLS-SEM to the Sample Size

Over the years, researchers have argued about an appropriate sample size for applying PLS-SEM. Some of these arguments are consistent with PLS-SEM capabilities, while others are not (Hair et al., 2022). Rigdon (2016) states that while PLS-SEM can be applied in analysing smaller sample sizes, the population's nature must be considered if the small sample sizes are acceptable and avoid producing questionable results. These debates have made data characteristics such as minimum

sample size, nonnormal data and scale of measurement, among the most often cited reasons for applying PLS-SEM in data analysis (Hair et al., 2022). To ensure that this study has adequate statistical power since it is applying the multivariate analysis technique, the technical dimension of the sample size becomes imperative for consideration. Deliberate efforts were made to adhere to the minimum sample size guideline to avoid a type II error where the effect in the underlying population is not revealed due to an insufficient sample size. By adhering to sample size guidelines, this study ensures that the estimated model parameters are reliable and generalisable to similar populations.

3.10.1 Assessment of Normality

One of the key justifications for the use of PLS-SEM is mainly its ease of use in addition to the distribution of the data, although PLS-SEM can handle both normal and non-normal data. Thus, it is important to consider the data distribution across the available response categories when using PLS-SEM for data analysis. Various distributions exist in statistics such as normal, binomial and Poisson, but when working with SEM, researchers generally distinguish between normal and non-normal distributions (Hair et al., 2022). The statistical test of the Kolmogorov-Smirnov test, alongside the Z-skewness and Z-kurtosis, are common statistical tests researchers apply to test the extent to which the data deviates from normality (Hair et al., 2022).

3.10.2 Common Method Bias

Researchers have, over the years, come to understand that common method bias, which is a term used to describe variance attributable to the measurement method rather than to the constructs the measures represent, poses a potential challenge to measurement accuracy (Podsakoff, MacKenzie,

Lee & Podsakoff, 2003). Measurement error distorts the validity of the results on the relationship between measures which is hugely recognized with having random and systematic components (Bagozzi & Yi, 1991; Nunnally, 1978; Spector, 1987). Between random and systematic error, the latter has a more serious implication, resulting in misleading outcomes (Campbell & Fiske, 1959) because they exert a systematic effect on the observed correlation between the measures (Podsakoff et al., 2003).

Since this research takes the quantitative research approach and data collected through questionnaires electronically administered to business owners and senior managers of SMEs across the six geo-political zones of Nigeria, there is the likelihood of common method bias, arising from using the same instrument to collect data from several sources and resulting in certain factors being excessively represented. To address this, the study adopted procedural controls. The study first structured the questionnaire such that the predictor variables (i.e., constructs of entrepreneurial orientation), the outcome variables (constructs of organization performance), and the moderator variables (constructs of external environment) were all separated into different sections. Second, anonymity and confidentiality assurances were provided to minimise social desirability bias and encourage candid responses. These procedural steps helped strengthen the internal validity of the study by reducing the potential influence of systematic measurement bias.

3.10.3 Outliers

Outliers, according to Hair et al. (2022), are extreme responses to a particular question or extreme responses to all the questions. They have the potential to distort statistics and pose problems to the result; hence, there is a need to critically examine every one of them and evaluate them case by case, whether to delete or retain them in the data set. Making the decision on the retention or

deletion of outliers is the premise on the viewpoint of Hair et al. (2006) that outliers have a substantial impact on the result of data analysis because they are possibly not a representative of the sample and they cannot be characterised as being beneficial or problematic. However, a problematic outlier is counterproductive to the aim of the analysis and can cause a significant distortion to statistical results, hence the need for deletion from the data set. Hair et al. (2006) explain the need to properly examine outliers to determine their impact, either negatively or positively, on the analysis and decide on their retention or deletion.

The three univariate, bivariate and multivariate approaches suggested by Hair et al. (2006) were used to identify outliers in the study using SPSS. The univariate method for identifying outliers involves the observation of the pattern of distribution scores of the cases. The bivariate method uses the scatter-plot to examine the relationship of independent and dependent variables. The multivariate method, on the other hand, assesses outliers using the Mahalanobis distance. Neither of the three measures of identifying outliers are without challenges. According to Hair et al. (2022), the univariate method cannot adequately identify distinctive observations while, the bivariate method is associated with difficulty in examining large number of scatter-plots. The multivariate method, however, is most suitable for the study because the research involves ten variables, which makes the univariate or bivariate method of identification of outliers inadequate. The multivariate method objectively measures the multidimensional location of each variable to arrive at a common point using the Mahalanobis D2 measure at the acceptable threshold level of .005 or .001, which is the rule of thumb (Hair et al., 2022).

3.11 Evaluation of the Structural Model

The structural model evaluation aims to assess the results of the structural model by evaluating the relationships between the constructs and the model's predictive capabilities. To achieve this, four steps are taken to assess the structural model.

1. Estimation of the structural model path coefficients and their significance
2. Evaluation of the coefficient of determination
3. Evaluation of the effect size
4. Measurement of the predictive relevance and relative measure of predictive relevance

3.11.1 Estimation of the Structural Model Path Coefficients and their Significance

Estimating the path coefficients, which represent the hypothesised relationship between the constructs, is an important initial step in evaluating the structural model. The standardised value for the estimation of the path coefficient is exactly bounded between the values of -1 and +1 by definition. A strong positive relationship is depicted by values closer to +1, while a negative relationship is identified by values closer to -1. The general rule of thumb for the estimation of constructs' relationship level of statistical significance states that the closer the estimated coefficients are to 0, the weaker the relationship and the ability to explain another construct in the structural model (Hair et al., 2022).

To determine a coefficient level of significance, the process of bootstrapping is done on SmartPLS. The application of the bootstrapping procedure results in obtaining the standard error which ultimately determines if a coefficient is significant or not. Bootstrapping in PLS-SEM happens when a large number of samples are drawn from the original sample with replacement. This

replacement means that anytime an observation is randomly drawn from a sampling population, it is returned to that same sampling population before the next observation is drawn (Hair et al., 2022). The bootstrapping exercise to the determine the coefficient level of significance for this study was done following the guidelines specified by Hair et al. (2022) using 5,000 bootstraps and percentile bootstrap confidence interval method.

3.11.2 Evaluation of the Coefficient of Determination (R^2)

This second step in the evaluation of the section 1 structural model involves an assessment of the explanatory power of the model which is the ability to fit the data to the PLS path model in order to determine the strength of their association (Shmueli, 2010). The coefficient of determination (R^2) is the measure majorly used to evaluate the structural model's explanatory power. This R^2 measure simply implies the combined effect of the independent variables on the dependent variable. Regarding this study, the coefficient of determination (R^2) represents the amount of variance in OP explained by all of the EO constructs (innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy). The R^2 value ranges from 0 to 1, with higher values representing a greater level of explanatory power (Hair et al., 2022). Henseler et al. (2009) suggested that a strong model would have a high level of R^2 in key constructs. However, interpreting an appropriate coefficient of determination (R^2) value differs based on the context. In certain disciplines, the R^2 value as low as 0.10 is deemed satisfactory, while in other contexts, the R^2 value will only be considered satisfactory if its value is above 0.65 (Hair et al., 2022).

3.11.3 Evaluation of the Effect Size (f^2)

This third step in the evaluation of the structural model involves an assessment of the change in R^2 value when a particular immediate previous construct is left out or pretermitted from the model. This effect size is different and somewhat redundant from the path coefficient in steps one and two because while the path coefficient is derived from regressing a dependent variable on its immediate previous constructs, the f^2 effect size addresses the R^2 value for a pretermitted immediate previous construct (Hair et al., 2022). The formula for effect size calculation is:

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

The rule of thumb for evaluating the f^2 effect size is that 0.02 is regarded as small effect, 0.15 is viewed as medium effect, while 0.35 is seen as large effect (Cohan, 1988).

3.11.4 Evaluation of the Predictive Relevance (Q^2) and its Relative Measure (q^2)

The ability of a PLS path model to produce generalisable results when applied to data sets other than the data being used in estimating the model is an important useful step when measuring the predictive strength of the model (Hair & Sarstedt, 2021b). The Shmueli, Ray, Velasquez & Chatia (2016) $PLS_{predict}$ procedure is the primary method used for estimating the predictive strength of a PLS path model. The $PLS_{predict}$ is the new feature in Smart PLS 4, similar to the blindfolding procedure found in Smart PLS 3 used to calculate the predictive relevance of the path model. According to Shmueli, Sarstedt, Hair, Cheah, Ting, Ringle, (2019), the execution of $PLS_{predict}$ involves estimating the model on a training sample and evaluating its predictive strength on a holdout sample.

In order to predict a model's predictive strength, researchers most often use either the mean absolute error (MAE) or the root mean square error (RMSE). The formulas are as follows:

$$\text{MAE} = \frac{1}{n}\sum_{i=1}^{n}\left|y_1 - \tilde{y}_1\right|$$

$$\text{RMSE} = \sqrt{\frac{\sum_{i=1}^{n}(y_1 - \tilde{y}_1)^2}{n}}$$

Defining the statistic is as follows: where y_i represents the value of y for the observation *i* (*i* = 1, …, *n*) and $\tilde{y}_1$ is the predicted value for that observation.

CHAPTER FOUR: DATA ANALYSIS

4.1 Introduction

The primary purpose of this chapter is to elucidate the steps used to collect and analyse the data gathered from respondents to the questionnaires distributed to business owners and senior managers of small and medium scale enterprises (SMEs). The data collected and analysed were necessary to test the nine hypotheses derived in Chapter Two of this study, which were developed to answer this study's core research questions:

i. How does Entrepreneurial Orientation (EO) influence the Organisational Performance (OP) of SMEs in Nigeria?
ii. How does the External Environment (EE) moderate the relationship between EO and OP of SMEs in Nigeria?

To this end, the chapter is split into four key sections. The first section looked at how data was collected from across the six geopolitical zones of Nigeria, the South-East, South-South, South-West, North-Central, North-East and North-West, with the aim to investigate the moderating influence of the external environment on the EO – OP relationship of SMEs. The second section discusses the steps deployed to determine its robustness and readiness for analysis. The third section explains the moderation analysis and hypotheses testing process, using the stated hypotheses and the outcomes derived from that exercise. The fourth section discusses the findings and provides a concluding summary of the chapter.

4.2 Data Collection Process

Data was collected through an online survey distributed among 750 entrepreneurs and senior managers of SMEs in the six geopolitical zones of Nigeria, South-East, South-South, South-West, North-Central, North-East and North-West. This 750 sample size was selected from states with the most registered SMEs in each geopolitical zone. The six states selected are Lagos (South-West), Kano (North-West), Rivers (South-South), Abuja (North-Central), Bauchi (North-East), and Abia (South-East). The data was collected in two stages. The first set of data was collected over 50 days through online questionnaires administered to respondents by sharing the Google Doc link through email and WhatsApp, the dominant, fastest, and most reliable means of communication in Nigeria. The report by internetworldstats.com indicated that 92,699,924 Nigerians, making up 51 per cent of Nigerians, use the internet via their mobile phones (Timothy, 2018).

The questionnaire was sent by email to members of the Manufacturers Association of Nigeria (MAN) after receiving approval from the association's Director General. This email contained an online link that stores members' responses directly to the Google Doc, which has been the primary storage for all the data collected. Aside from the emails, there was also data collected through WhatsApp from MAN, which formed part of the 304 respondents collected through WhatsApp. An additional 66 survey responses were subsequently collected by distributing the Google Forms link through WhatsApp to entrepreneurs and senior managers of SMEs across the six geopolitical zones over an additional period of 30 days. These additional responses were collected to improve the robustness of the dataset after the initial analysis indicated a violation of the Heterotrait–Monotrait Ratio (HTMT) measure of discriminant validity (Appendix 2). The inclusion of the

additional responses increased the overall sample size and helped improve the reliability and discriminant validity of the measurement model prior to the final analysis.

4.3 Data Entry, Cleaning and Examination

To prepare the data set for the application of appropriate multivariate techniques, critical steps are followed sequentially when it involves empirical data collected using questionnaires, as is the case with this research. Critically adhering to these key steps helps address the issues that typically affect data collected using questionnaires (Hair et al., 2022). These steps include data entry and inspection; next is identifying missing data, then checking for possible outliers; then, examining the data; and finally, assessing the data distribution.

4.3.1 Data Entry and Inspection

The first step was to examine the data collected from states with the greatest number of registered SMEs in each geopolitical zone of Nigeria. This is to ensure geographic representativeness (covering 68% of registered SMEs), capture regional institutional variations, and leverage stronger digital/business infrastructure for optimal response rates (SMEDAN, 2022). A visual appreciation of the collected data set was done to ascertain that all numbers aligned with the scales with no mistakes.

An initial total of 630 responses, representing a 84% response rate, were received from the Google doc file, and these were coded in an Excel file and downloaded into the software program Statistical Package for the Social Sciences (SPSS) version 23. A visual inspection of the data was done on the 630 responses, which identified 388 straight-liners, and these were subsequently removed because they were suspicious response patterns. Straight-liners occur when a respondent

marks the same response for a high proportion of the questions (Hair et al., 2022), indicating a serious threat to data quality. The pilot revealed inattentiveness risks (11% exclusion rate), leading to embedded attention checks and post-hoc Mahalanobis screening that purged 2.9% of main study responses, which confirms Johnson's (2005) concerns while accommodating Nigeria's SME constraints. These 388 straight-liners were eliminated from the data set because their inclusion into a set of otherwise accurate data can have various unexpected and undesired effects on the examined relationships (Huang et al., 2015).

4.3.2 Missing Data

According to Hair et al. (1998), missing data may negatively impact the sample size available for analysis because of its potential for hidden bias. Missing data occurs when entire surveys are missing, known as survey nonresponse, or when respondents do not provide answers to certain questions, known as item nonresponse (Hair et al., 2022). By implication, these missing data may result in insufficient data to perform the analysis, which may lead to biased results and lack of power during the data analysis. The data set was examined to identify and eliminate missing data because, as with statistical analysis, missing data should be removed when using PLS-SEM. Analysis was conducted to identify missing data and to determine the reasons why survey and item nonresponses were amongst the data set. The missing value procedure was used to locate the missing values and determine the extent to which they occurred if they were systemic or random. Four responses were identified with missing data and removed from the data set. The data cleaning resulted in a total sample of 238 responses from the first set of data collected.

4.3.3 Check for Outliers

Table 4.1 shows the result of the check for outlier using the Mahalanobis Distance measure. From the result on Table 4.1 below, we notice that cases 1 to 15 are all below .001 which is the acceptable threshold, indicating that they are outliers. However, as elucidated by Hair et al. (2006) in Chapter Three of this research, looking at a practical and substantive viewpoint, these outliers cannot be characterised as beneficial or problematic; hence, they were all retained in the data set.

Table 4.1: Mahalanobis Distance

No:	Prob_MD	No:	Prob_MD	No:	Prob_MD	No:	Prob_MD	No:	Prob_MD	No:	Prob_MD
1	0	52	0.05254	103	0.25515	154	0.4843	205	0.82871	256	0.97873
2	0	53	0.05542	104	0.25931	155	0.49054	206	0.83253	257	0.97908
3	0	54	0.06171	105	0.26114	156	0.50262	207	0.84371	258	0.98017
4	0	55	0.06754	106	0.26185	157	0.5041	208	0.85064	259	0.98017
5	0	56	0.0678	107	0.26269	158	0.50723	209	0.85565	260	0.98119
6	0	57	0.06785	108	0.28051	159	0.50868	210	0.85637	261	0.98192
7	0	58	0.07083	109	0.28459	160	0.51018	211	0.8597	262	0.98795
8	0	59	0.07192	110	0.28645	161	0.52903	212	0.86396	263	0.98855
9	0	60	0.07721	111	0.28847	162	0.54277	213	0.86459	264	0.99092
10	0	61	0.07824	112	0.29328	163	0.55265	214	0.86646	265	0.99157
11	0.00002	62	0.0809	113	0.29421	164	0.55538	215	0.86654	266	0.99623
12	0.00003	63	0.0819	114	0.29774	165	0.56459	216	0.86718	267	0.99675
13	0.00003	64	0.08546	115	0.30015	166	0.57286	217	0.86922	268	0.99728
14	0.00022	65	0.08751	116	0.30118	167	0.57622	218	0.87247	269	0.99734
15	0.00044	66	0.09105	117	0.3026	168	0.57699	219	0.87532	270	0.9974
16	0.00129	67	0.09391	118	0.31198	169	0.58789	220	0.8816	271	0.99864
17	0.00147	68	0.09627	119	0.31822	170	0.58851	221	0.88839	272	0.9988
18	0.00207	69	0.09833	120	0.31843	171	0.58898	222	0.88936	273	0.99883
19	0.00229	70	0.10288	121	0.32191	172	0.59323	223	0.89035	274	0.99901
20	0.00247	71	0.10813	122	0.32373	173	0.60099	224	0.89154	275	0.99909
21	0.00262	72	0.12985	123	0.32722	174	0.6097	225	0.89497	276	0.99925
22	0.00446	73	0.1325	124	0.33963	175	0.60998	226	0.8969	277	0.99926
23	0.00552	74	0.13441	125	0.34127	176	0.61747	227	0.89782	278	0.99956
24	0.00587	75	0.13809	126	0.34444	177	0.62585	228	0.89931	279	0.99978
25	0.00652	76	0.14077	127	0.34466	178	0.64035	229	0.9017	280	0.99981
26	0.00764	77	0.14888	128	0.3463	179	0.67673	230	0.90173	281	0.99985
27	0.00826	78	0.15614	129	0.34642	180	0.67804	231	0.90783	282	0.9999
28	0.00954	79	0.15888	130	0.35624	181	0.68922	232	0.91365	283	0.99991

29	0.01122	80	0.16847	131	0.3647	182	0.69961	233	0.92054	284	0.99991
30	0.01196	81	0.17474	132	0.36944	183	0.72711	234	0.92074	285	0.99994
31	0.01587	82	0.17597	133	0.38694	184	0.73386	235	0.92092	286	0.99997
32	0.01907	83	0.18301	134	0.39535	185	0.74061	236	0.92137	287	0.99997
33	0.02096	84	0.18864	135	0.39903	186	0.74139	237	0.92631	288	0.99998
34	0.02107	85	0.19727	136	0.40315	187	0.74224	238	0.94103	289	0.99999
35	0.02173	86	0.20083	137	0.40479	188	0.74372	239	0.94155	290	0.99999
36	0.02349	87	0.20191	138	0.40598	189	0.74536	240	0.94172	291	1
37	0.02565	88	0.2044	139	0.40713	190	0.74673	241	0.95079	292	1
38	0.02932	89	0.20636	140	0.41067	191	0.74777	242	0.95366	293	1
39	0.03073	90	0.20737	141	0.41462	192	0.75846	243	0.95589	294	1
40	0.03228	91	0.20938	142	0.41801	193	0.76189	244	0.96218	295	1
41	0.03251	92	0.21519	143	0.41858	194	0.76568	245	0.96253	296	1
42	0.03269	93	0.2157	144	0.43272	195	0.7767	246	0.9652	297	1
43	0.03292	94	0.21846	145	0.43566	196	0.78055	247	0.96606	298	1
44	0.03551	95	0.22575	146	0.44667	197	0.78941	248	0.96758	299	1
45	0.0376	96	0.23106	147	0.45234	198	0.79656	249	0.96958	300	1
46	0.03825	97	0.23165	148	0.46846	199	0.80562	250	0.97013	301	1
47	0.03936	98	0.2324	149	0.47026	200	0.80636	251	0.97303	302	1
48	0.04711	99	0.23555	150	0.4711	201	0.81445	252	0.97326	303	1
49	0.04989	100	0.23736	151	0.47169	202	0.81574	253	0.97606	304	1
50	0.05098	101	0.23963	152	0.47183	203	0.81798	254	0.97815		
51	0.05143	102	0.24881	153	0.47691	204	0.82278	255	0.97835		

4.4 Data Analysis

Having carried out the initial critical steps of data entry and inspection, the identification of missing data, and the check for possible outliers, Section 4.4 then examines the data by carrying out the data analysis. The data analysis followed Hair et al. (1998) and Hair et al.'s (2022) guidance on how to analyse data to report the results as accurately and completely as possible. The study's data analysis used the structural equation modelling – partial least squares (SEM-PLS). Two hundred thirty-eight responses were used to run the first data analysis in Smart PLS version 4.0.9.9, and this set of data failed the HTMT measure of discriminant validity, hence forcing the researcher to explore several possible solutions identified by Hair et al., (2022) to address the violation.

Measures such as increasing the average monotrait correlations or decreasing the average heterotrait-Monotrait ratio correlations were used. Items with low correlation with other items measuring the same constructs were removed, but these approaches still did not resolve the issue of discriminant validity using the HTMT criterion.

More data was collected as another option when the problem persisted, which was gathered through the distribution of further questionnaires to owners and senior managers of SMEs across Nigeria's six geopolitical zones to gather more quality data. A second set of responses were hence collected and analysed. In summary, the visual inspection exercise and the use of the standard deviation test, which cleaned and rid the data of unusual patterns of responses known as straight-liners, reduced the total quality of usable data for the study data analysis from the two sets of data collected to only 304 respondents.

4.4.1 Assessment of Normality

The test for normality is an integral exercise because it helps to examine the shape of the data distribution for each variable in the data set (Hair, Black, Babin, & Anderson, 2014a). The statistical test of the Kolmogorov-Smirnov test, alongside the Z-skewness and Z-kurtosis, are common statistical tests researchers apply to test the extent to which the data deviates from normality (Hair et al., 2022). The statistical test of the Kolmogorov-Smirnov and the Z-skewness and Z-kurtosis were carried out to test for normality in this study and the results are shown in Table 4.2 and Table 4.3, respectively.

Table 4.2: Skewness and Kurtosis

Constructs	N	Skewness	Kurtosis	Z-Skewness	Z- Kurtosis
Our business regularly introduces new services	304	-0.902	1.384	-6.420	4.926
Our business places a strong emphasis on new and innovative services	304	-1.446	5.603	-10.293	19.941
Our business has increased the number of services offered during the past two years	304	-1.211	2.979	-8.620	10.602
Our business is continually pursuing new opportunities	304	-1.753	6.752	-12.478	24.031
Over the past few years, there are changes in the services offered	304	-1.193	2.484	-8.492	8.841
In our business, there is a strong relationship between the number of new ideas successfully implemented	304	-1.07	2.568	-7.616	9.140
Our business places a strong emphasis on continuous improvement in service delivery	304	-1.568	6.408	-11.161	22.806
Our business has a widely held belief that innovation is necessary for the business's future	304	-1.905	7.223	-13.560	25.707
We seek to maximise value from opportunities	304	-1.453	4.251	-10.343	15.129
When confronted with uncertain decisions, our business will be brave to exploit opportunities	304	-1.395	3.612	-9.930	12.855
Our business has a strong inclination towards high-risk projects	304	-0.76	-0.081	-5.410	-0.288
Owing to our environment, our business believe that bold, wide-ranging acts are necessary to achieve the business objectives	304	-0.988	2.751	-7.033	9.791
Employees are often encouraged to take calculated risk concerning new ideas	304	-1.317	3.113	-9.374	11.079
The term risk-taker is considered a positive attribute for employees in our business	304	-0.825	0.864	-5.872	3.075
Our business typically initiates actions that competitors respond to	304	-1.01	1.898	-7.189	6.755
Our business continuously seeks out new services	304	-1.816	6.434	-12.926	22.899
Our business continuously monitors market trends and identifies future needs of customers	304	-1.363	3.904	-9.702	13.894
Our business is aggressive in facing trends that may threaten our survival or competitive positions	304	-1.155	1.35	-8.221	4.805
Our business is very aggressive and intensely competitive	304	-0.91	0.895	-6.477	3.185
Our business knows when it is in danger of acting overly aggressive	304	-0.854	1.754	-6.079	6.243
Our organisation is very aggressive and intensely competitive	304	-0.962	0.866	-6.848	3.082
We set ambitious market-share goals and taking steps to achieve them	304	-1.286	3.254	-9.154	11.581
Our organisation spends aggressively compared to competitors	304	-0.137	-0.964	-0.975	-3.431
Our organisation typically adopts a very competitive "undo-the competitors" posture	304	-0.717	0.031	-5.104	0.110

Our organisation has high allocation of resources for improving market positions faster than competitors	304	-0.738	-0.399	-5.253	-1.420
Our organisation has high investments to improve market share and competitive position	304	-0.747	0.066	-5.317	0.235
Our organisation has high number of corporate venture conducted by R&D department that is not part of the company strategy	304	-0.306	-1.135	-2.178	-4.039
Our organisation has high effort that employees initiate to the top management to help the organisation's strategic direction	304	-1.199	2.307	-8.535	8.211
Our organisation involves workers in implementing innovation even by ignoring procedures	304	-0.143	-1.234	-1.018	-4.392
Our organisation promotes risk taking based on new ideas and promising breakthrough	304	-0.778	0.409	-5.538	1.456
Our organisation provides freedom in using own judgment	304	-0.653	0.705	-4.648	2.509
Our organisation gives the responsibility to the workers on how the job is done	304	-1.035	1.146	-7.367	4.079
Our business has experienced growth in turnover over the past few years	304	-1.198	2.201	-8.527	7.833
The competitive position of our business has improved over the past few years	304	-1.093	2.294	-7.780	8.164
Our business has experienced growth in market shares over the past few years	304	-1.003	1.556	-7.139	5.538
Our business has experienced growth in profit over the past few years	304	-1.092	2.161	-7.773	7.691
The efficiency in (doing things right) of our business has improved over the past few years	304	-1.094	2.812	-7.787	10.008
The effectiveness (doing the right things) of our business has improved over the past few years	304	-1.022	2.634	-7.275	9.374
Our employees are highly committed to our business	304	-0.938	2.161	-6.677	7.691
In our business, employees are viewed as the most valuable asset of the business	304	-1.227	3.091	-8.734	11.001
The moral (job satisfaction) of our employees has improved over the past few years	304	-1.383	4.01	-9.844	14.272
The image (stature) of our business, relative to our competitors, has grown over the past few years.	304	-0.909	2.48	-6.470	8.826
The external environment our firm operates in has a high level of risk and uncertainty	304	-0.855	-0.003	-6.086	-0.011
The external environment poses serious threats to our firm's survival and well-being	304	-0.776	0.032	-5.524	0.114
Our firm must deal with range of external environment influences (e.g competitive, political, social/cultural, or technological forces)	304	-1.187	2.221	-8.449	7.905
Declining market for products are a major challenge in our industry	304	-0.67	-0.35	-4.769	-1.246

Tough price competition is a major challenge in our industry	304	-1.179	1.327	-8.392	4.723
Government interference is a major challenge in our industry	304	-0.687	-0.212	-4.890	-0.755
Our business environment causes a great deal of threat to the survival of our firm	304	-0.591	-0.575	-4.207	-2.046
The rate of product and service obsolesce in our industry is high	304	-0.578	-0.53	-4.114	-1.886
In our firm, the modes of production and service change often and many ways	304	-0.672	-0.028	-4.783	-0.100
Our firm must change its marketing practices often	304	-0.759	0.507	-5.403	1.804
In our industry, actions of competitors are unpredictable	304	-0.627	0.089	-4.463	0.317
In our industry, demand and customer tastes are unpredictable	304	-0.407	-0.897	-2.897	-3.192
In our industry everything is related to everything	304	-0.754	0.351	-5.367	1.249
A decision in our industry influences a large number of factors	304	-0.894	1.169	-6.364	4.161
Nothing of what happens in our industry will stay a secret for us	304	-0.759	0.123	-5.403	0.438
The information we need about our industry we will always get	304	-0.779	0.586	-5.545	2.086
It is hard in this industry to base decisions on reliable information	304	-0.224	-0.977	-1.594	-3.477
We have sufficient insight and information about who our customers are	304	-0.828	0.857	-5.894	3.050

In describing the Z-skewness and Z-kurtosis on Table 4.2 above, it is important to understand the rule of thumb guiding check for skewness and kurtosis when measuring data distribution. Skewness, which determines the level to which a variable distribution is symmetrical, shows to what extent a variable stretches toward the right or left tail of the distribution (Hair et al., 2006. According to Hair et al. (1998), the values between ±2.58, which represents a 0.01 level of significance, and ±1.96, signifying a 0.05 error level, are the most important values used to determine the desired significance level. The threshold of ±1.96 was used in this study to determine the skewness value that falls within the acceptable threshold. From Table 4.2 above, we observe that aside from very few cases that fell within the ±1.96 threshold, the majority of the cases had skewness value falling outside the threshold, thereby signifying that the data is not normally distributed, making the non-parametric statistical approach the route to take.

On the other hand, Kurtosis shows how peaked the data distribution is, either positive or negative. A positive value for kurtosis represents a distribution more peaked than it should usually be, while a negative value for kurtosis represents a flatter shape than normal (Hair et al., 2022). From the values seen in Table 4.2, we observe that aside from a few cases with negative values, the majority of the cases had a positive kurtosis value, thereby signifying that the distribution is more peaked than it normally should be.

The Kolmogorov-Smirnov statistic, which is another test researchers apply to test the extent to which data deviates from normality, belongs to the supremum class of empirical distribution function statistics, and it is based on the largest vertical difference between the hypothesised and empirical distribution (Conover, 1999). The asymptotic significance is the p-value for the test. The rule of thumb when applying the Kolmogorov-Smirnov statistic to check for normality states that when a p-value is less than 0.05, it indicates that the variable is not normally distributed, and if the p-value is greater than or equal to 0.05, this means a researcher should assume that the variable is normally distributed.

Table 4.3: Tests of Normality

Question Item	Kolmogorov - Smirnov			Shapiro-Wilk		
	Statistic	df	Sig	Statistic	df	Sig
Our business regularly introduces new services	0.273	304	<.001	0.836	304	<.001
Our business places a strong emphasis on new and innovative services	0.262	304	<.001	0.753	304	<.001
Our business has increased the number of services offered during the past two years	0.291	304	<.001	0.797	304	<.001
Our business is continually pursuing new opportunities	0.254	304	<.001	0.724	304	<.001
Over the past few years, there are changes in the services offered	0.299	304	<.001	0.807	304	<.001
In our business, there is a strong relationship between the number of new ideas successfully implemented	0.284	304	<.001	0.823	304	<.001
Our business places a strong emphasis on continuous improvement in service delivery	0.275	304	<.001	0.712	304	<.001
Our business has a widely held belief that innovation is necessary for the business's future	0.307	304	<.001	0.700	304	<.001

We seek to maximise value from opportunities	0.283	304	<.001	0.753	304	<.001
When confronted with uncertain decisions, our business will be brave to exploit opportunities	0.302	304	<.001	0.787	304	<.001
Our business has a strong inclination towards high-risk projects	0.259	304	<.001	0.880	304	<.001
Owing to our environment, our business believes that bold, wide-ranging acts are necessary to achieve the business objectives	0.299	304	<.001	0.802	304	<.001
Employees are often encouraged to take calculated risks concerning new ideas	0.331	304	<.001	0.793	304	<.001
The term risk-taker is considered a positive attribute for employees in our business	0.282	304	<.001	0.859	304	<.001
Our business typically initiates actions that competitors respond to	0.282	304	<.001	0.841	304	<.001
Our business continuously seeks out new services	0.288	304	<.001	0.733	304	<.001
Our business continuously monitors market trends and identifies the future needs of customers	0.274	304	<.001	0.753	304	<.001
Our business is aggressive in facing trends that may threaten our survival or competitive positions	0.285	304	<.001	0.832	304	<.001
Our business is very aggressive and intensely competitive	0.268	304	<.001	0.861	304	<.001
Our business knows when it is in danger of acting overly aggressively	0.274	304	<.001	0.847	304	<.001
Our organisation is very aggressive and intensely competitive	0.273	304	<.001	0.860	304	<.001
We set ambitious market-share goals and are taking steps to achieve them	0.282	304	<.001	0.780	304	<.001
Our organisation spends aggressively compared to its competitors	0.183	304	<.001	0.917	304	<.001
Our organisation typically adopts a very competitive "undo the competitors" posture	0.248	304	<.001	0.887	304	<.001
Our organisation has a high allocation of resources for improving market positions faster than competitors	0.266	304	<.001	0.873	304	<.001
Our organisation has high investments to improve market share and competitive position	0.229	304	<.001	0.887	304	<.001
Our organisation has a high number of corporate ventures conducted by the R&D department that are not part of the company strategy	0.216	304	<.001	0.893	304	<.001
Our organisation has high effort that employees initiate to the top management to help the organisation’s strategic direction	0.304	304	<.001	0.819	304	<.001
Our organisation involves workers in implementing innovation, even by ignoring procedures	0.204	304	<.001	0.902	304	<.001
Our organisation promotes risk-taking based on new ideas and promising breakthrough	0.273	304	<.001	0.863	304	<.001
Our organisation provides freedom in using own judgment	0.241	304	<.001	0.882	304	<.001
Our organisation gives the responsibility to the workers for how the job is done	0.303	304	<.001	0.841	304	<.001
Our business has experienced growth in turnover over the past few years	0.291	304	<.001	0.811	304	<.001
The competitive position of our business has improved over the past few years	0.282	304	<.001	0.818	304	<.001
Our business has experienced growth in market share over the past few years	0.291	304	<.001	0.836	304	<.001

Our business has experienced growth in profit over the past few years	0.292	304	<.001	0.820	304	<.001
The efficiency in (doing things right) of our business has improved over the past few years	0.305	304	<.001	0.794	304	<.001
The effectiveness (doing the right things) of our business has improved over the past few years	0.285	304	<.001	0.802	304	<.001
Our employees are highly committed to our business	0.282	304	<.001	0.808	304	<.001
In our business, employees are viewed as the most valuable asset of the business	0.268	304	<.001	0.801	304	<.001
The morale (job satisfaction) of our employees has improved over the past few years	0.308	304	<.001	0.782	304	<.001
The image (stature) of our business, relative to our competitors, has grown over the past few years.	0.290	304	<.001	0.814	304	<.001
The external environment our firm operates in has a high level of risk and uncertainty	0.264	304	<.001	0.865	304	<.001
The external environment poses serious threats to our firm's survival and well-being	0.246	304	<.001	0.886	304	<.001
Our firm must deal with a range of external environment influences (e.g competitive, political, social/cultural, or technological forces)	0.291	304	<.001	0.820	304	<.001
Declining market for products are a major challenge in our industry	0.244	304	<.001	0.890	304	<.001
Tough price competition is a major challenge in our industry	0.296	304	<.001	0.827	304	<.001
Government interference is a major challenge in our industry	0.229	304	<.001	0.890	304	<.001
Our business environment causes a great deal of threat to the survival of our firm	0.233	304	<.001	0.892	304	<.001
The rate of product and service obsolesce in our industry is high	0.239	304	<.001	0.892	304	<.001
In our firm, the modes of production and service change often and many ways	0.260	304	<.001	0.886	304	<.001
Our firm must change its marketing practices often	0.257	304	<.001	0.874	304	<.001
In our industry, actions of competitors are unpredictable	0.267	304	<.001	0.881	304	<.001
In our industry, demand and customer tastes are unpredictable	0.234	304	<.001	0.897	304	<.001
In our industry everything is related to everything	0.255	304	<.001	0.883	304	<.001
A decision in our industry influences a large number of factors	0.279	304	<.001	0.859	304	<.001
Nothing of what happens in our industry will stay a secret for us	0.239	304	<.001	0.888	304	<.001
The information we need about our industry we will always get	0.270	304	<.001	0.874	304	<.001
It is hard in this industry to base decisions on reliable information	0.196	304	<.001	0.917	304	<.001
We have sufficient insight and information about who our customers are	0.273	304	<.001	0.855	304	<.001

The results of the Kolmogorov-Smirnov test on Table 4.3 above confirmed that *p-values* are all less than 0.05, thus the variables are not normally distributed. This further justifies the use of the nonparametric statistical approach for the study.

4.4.2 Common Method Bias

As explained in the previous chapter, researchers have come to understand that common method bias poses a potential challenge to measurement accuracy (Podsakoff, MacKenzie, Lee & Podsakoff, 2003), which distorts the validity of the results on the relationship between measures. Since this research takes the quantitative approach and data collected through questionnaires, Table 4.4 explains the likelihood of common method bias. The study used the same instrument to collect data from several business owners and senior managers of SMEs across the six geopolitical zones of Nigeria. Hence, this approach is bound to have certain factors being excessively represented. Therefore, Harman's Single Factor test was used to check for common method bias (Aguirre-Urreta & Hu, 2019).

Table 4.4: Harman's Test for Common Method Bias

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.524	30.873	30.873	17.865	29.775	29.775
2	5.642	9.403	40.276			
3	2.759	4.598	44.874			
4	2.320	3.867	48.741			
5	1.743	2.906	51.646			
6	1.552	2.587	54.234			
7	1.496	2.494	56.728			
8	1.250	2.083	58.811			
9	1.175	1.958	60.769			
10	1.114	1.856	62.625			
11	1.102	1.837	64.462			
12	1.041	1.735	66.196			
13	.941	1.569	67.765			
14	.883	1.472	69.236			
15	.841	1.402	70.639			
16	.797	1.328	71.966			

17	.754	1.256	73.222
18	.730	1.216	74.439
19	.714	1.190	75.628
20	.681	1.134	76.763
21	.640	1.067	77.830
22	.633	1.055	78.885
23	.615	1.025	79.910
24	.601	1.002	80.912
25	.540	.901	81.812
26	.533	.888	82.700
27	.520	.867	83.567
28	.502	.836	84.403
29	.485	.809	85.212
30	.473	.789	86.000
31	.463	.771	86.772
32	.442	.737	87.509
33	.429	.715	88.224
34	.426	.709	88.933
35	.408	.680	89.613
36	.389	.648	90.261
37	.381	.635	90.896
38	.367	.611	91.507
39	.359	.599	92.106
40	.338	.563	92.669
41	.333	.555	93.224
42	.326	.544	93.767
43	.295	.492	94.259
44	.282	.470	94.729
45	.278	.464	95.193
46	.268	.446	95.639
47	.249	.415	96.054
48	.233	.389	96.443
49	.225	.374	96.817
50	.220	.366	97.183
51	.210	.349	97.533
52	.200	.333	97.865
53	.190	.317	98.183
54	.188	.313	98.496
55	.179	.299	98.795
56	.176	.294	99.088
57	.162	.270	99.358
58	.150	.250	99.608

59	.123	.205	99.814
60	.112	.186	100.000

Extraction Method: Principal Axis Factoring.

From Table 4.4 above, the Harman's test for common method bias showed that the data does not suffer from common method bias. The rule of thumb states that common method bias is present if the total variance is extracted by one factor exceeds 50%. Therefore, looking at the total variance extracted by one factor at 29.775% in Table 4.4, there are no concerns with common method bias in the data since it is less than the 50% recommended threshold. In addition, Kock (2015) proposes that a variance inflated factor (VIF) greater than 3.3 indicates that a model is contaminated by common method bias. Thus, if all VIFs in the inner model resulting from a full collinearity test are equal to or lower than 3.3, then the model is considered free of common method bias. From this inference, it is seen from the result sheet in Table 4.5 that the inner model is exempted from common method bias.

Table 4.5: Inner model - List

	VIF
AUTONOMY → ORGANISATIONAL PERFORMANCE	2.413
COMPETITIVE AGGRESSIVENESS → ORGANISATIONAL PERFORMANCE	2.274
INNOVATIVENESS → ORGANISATIONAL PERFORMANCE	2.387
PRO-ACTIVENESS → ORGANISATIONAL PERFORMANCE	2.359
RISK TAKING → ORGANISATIONAL PERFORMANCE	2.468

4.5 Sample Demographics

Having successfully cleaned the data using the appropriate multivariate tool in the study analysis, this section of Chapter 4 describes the data demographics. The demographics of the data

respondents depict a wide range of study participants, including employment status with SMEs, location of SMEs, industry type, number of employees, age of the organisation, gender, and level of education. The total number of 304 usable responses cut across SMEs within the six geo-political zones of Nigeria, the South-East, South-South, South-West, North-Central, North-East and North-West, in investigating the moderating influence of the external environment on the EO – OP relationship.

Table 4.6 shows the results of the demographics of the numerous respondents ranging from employment status with SME, location of SME, industry type, number of employees, age of the organisation, gender and level of education. The results showed the business owners have a wide range of respondents compared to the senior managers of these SMEs. The South-West, which houses commercial states such as Lagos, popularly referred to as Nigeria's commercial capital, proved its commercial status as evident in its high percentage of respondents. At the same time, other regions trailed with a lesser percentage of respondents.

Observing the responses from the different industry types surveyed, the service industry had the most respondents; next was the agricultural sector, while the other sectors trailed behind with fewer respondents. Regarding the number of employees, the majority of the respondents, 287, came from SMEs with between 5 and 50 employees, representing a significant number of responses. On the age of the organisation, the response statistics showed that organisations between the age of 5 and 7 years had 217 respondents, making it 71.4% of the total responses compared to much older firms. All other demographic results, such as gender statistics of the SMEs and their education level, are all seen in Table 4.6.

Table 4.6: Demography of Respondents

Demography of Respondents		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Owner of SME	266	87.5	87.5	87.5
	Senior Level Manager	38	12.5	12.5	100
	Total	304	100	100	
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	South West	122	40.1	40.1	40.1
	South East	33	10.9	10.9	51
	South-South	28	9.2	9.2	60.2
	North Central	40	13.2	13.2	73.4
	North East	10	3.3	3.3	76.6
	North West	71	23.4	23.4	100
	Total	304	100	100	
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Agriculture	94	30.9	30.9	30.9
	Manufacturing	40	13.2	13.2	44.1
	Services	109	35.9	35.9	79.9
	Trading	59	19.4	19.4	99.3
	Transport	2	0.7	0.7	100
	Total	304	100	100	
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	5 - 50 Staff	287	94.4	94.4	94.4
	51 - 100 Staff	10	3.3	3.3	97.7
	101 - 150 Staff	3	1	1	98.7
	151 - 200 Staff	4	1.3	1.3	100
	Total	304	100	100	
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	5 - 7 years	217	71.4	71.4	71.4
	8 - 10 years	26	8.6	8.6	79.9
	11 - 13 years	14	4.6	4.6	84.5
	Greater than 14 years	47	15.5	15.5	100
	Total	304	100	100	
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Female	96	31.6	31.6	31.6
	Male	208	68.4	68.4	100
	Total	304	100	100	

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary/Secondary	18	5.9	5.9	5.9
	OND/HND	67	22	22	28
	Bachelor's Degree	146	48	48	76
	Postgraduate	62	20.4	20.4	96.4
	Others	11	3.6	3.6	100
	Total	304	100	100	

4.6 Inner Models

The inner model, also known as the structural model, describes the relationship between the latent variables. This study has ten constructs illustrated in its path model (see Figure 4.1). Five independent constructs of entrepreneurial orientation (innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy), four moderating constructs (dynamism, hostility, munificence and complexity) and a dependent construct (organisational performance). The relationships amongst these ten constructs, connected by indicator arrows, form the inner model. This inner model captures the study's first research question: *"What is the relationship between EO and OP of SMEs in Nigeria?"*

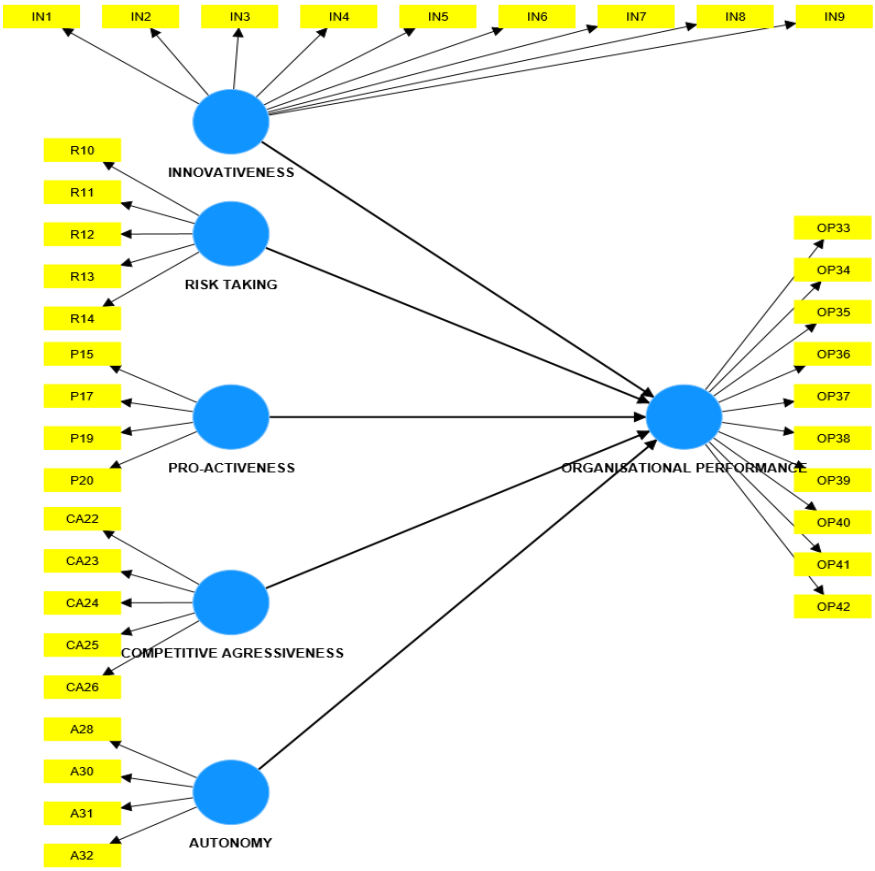
In order to establish the robustness of the base model and avoid disruption in understanding whether the model is robust enough, this part of the data analysis chapter was divided into two sections. Section one will look at the relationships between (inner and outer models), the independent variables (innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy), and the dependent variable (organisational performance), alongside their measurement indicators only. Section two will include the moderating variables (dynamism, hostility, munificence and complexity) into the structural model.

4.6.1 The Base Model

The base model is defined as the starting point of a path model without the moderating variables. Base model estimation helps measure the relationships between the latent variables and their constructs and the relationships between the constructs (Hair et al., 2022). This estimation enables the researcher to focus on the relationship between the research's five EO predictors and the OP outcome variable. It equally helps evaluate the quality of the measures and determine if the base model provides satisfactory results in explaining the target constructs before adding the moderators to the structural model.

The base model evaluation goes through all the steps of reliability and validity of the five predictors of innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy; and the outcome variable of organisational performance. After confirming the constructs' reliability and validity, the next step was to analyse the influence of the moderating variables of the external environment in the structural model one at a time.

Figure 4.1: Measurement Model



4.7 Evaluation of the Measurement Model

The measurement model chiefly explains how constructs are measured to obtain reliable and valid results when testing the 25 hypothesized structural relationships among constructs (Hair et al., 2022). The rule of thumb regarding the use of outer loading opines that an indicator value above 0.50 is considered absolutely important and should be retained. Conversely, if an indicator value is below 0.50, the researcher should decide to either retain or remove the indicator after careful consideration if its theoretical importance (Hair et al., 2022). From Table 4.7, all indicators are well above 0.708, signifying all indicators' relevance to the constructs.

Table 4.7: Outer Loading

	AUTONOMY	COMPETITIVE AGGRESSIVENESS	INNOVATIVENESS	ORGANISATIONAL PERFORMANCE	PRO-ACTIVENESS	RISK TAKING
A28	0.732					
A30	0.747					
A31	0.749					
A32	0.773					
CA22		0.703				
CA23		0.730				
CA24		0.777				
CA25		0.757				
CA26		0.799				
IN1			0.726			
IN2			0.823			
IN3			0.754			
IN4			0.799			
IN5			0.695			
IN6			0.780			
IN7			0.778			
IN8			0.756			
IN9			0.712			
OP33				0.807		
OP34				0.825		
OP35				0.780		
OP36				0.818		
OP37				0.859		
OP38				0.824		
OP39				0.755		
OP40				0.630		
OP41				0.777		
OP42				0.801		
P15					0.735	
P17					0.756	
P19					0.740	
P20					0.764	
R10						0.715
R11						0.702
R12						0.714
R13						0.784
R14						0.791

In evaluating the study's measurement model, the proposed model includes reflectively theorised constructs. Table 4.8 shows the model has all reflective measures. In a reflective measurement model, the evaluative measures are assessed based on indicator reliability, internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2022).

Table 4.8: Reflective Indicators

	REFLECTIVE INDICATOR	CONSTRUCT
1	Our business regularly introduces new services	**Innovativeness**
2	Our business places a strong emphasis on new and innovative services	
3	Our business has increased the number of services offered during the past two years	
4	Our business is continually pursuing new opportunities	
5	Over the past few years, there is changes in services offered	
6	In our business there is strong relationship between the number of new ideas successfully implemented	
7	Our business places a strong emphasis on continuous improvement in service delivery	
8	Our business has a widely held belief that innovation is necessary for the business future	
9	We seek to maximise value from opportunities	
10	When confronted with uncertain decisions, our business will be brave to exploit opportunities	**Risk Taking**
11	Our business has a strong inclination towards high-risk projects	
12	Owing to our environment, our business believe that bold, wide-ranging acts are necessary to achieve the business objectives	
13	Employees are often encouraged to take calculated risk concerning new ideas	
14	The term risk-taker is considered a positive attribute for employees in our business	
15	Our business typically initiates actions that competitors respond to	**Pro-activeness**
16	Our business continuously seeks out new services	
17	Our business continuously monitors market trends and identifies future needs of customers	
18	Our business is aggressive in facing trends that may threaten our survival or competitive positions	
19	Our business is very aggressive and intensely competitive	
20	Our business knows when it is in danger of acting overly aggressive	

21	Our organisation is very aggressive and intensely competitive	**Competitive Aggressiveness**
22	We set ambitious market-share goals and taking steps to achieve them	
23	Our organisation spend aggressively compared to competitors	
24	Our Organisation typically adopts a very competitive "undo-the competitors" posture	
25	Our Organisation has high allocation of resources for improving market positions faster than competitors	
26	Our Organisation has high investments to improve market share and competitive position	
27	Our organisation has high numbers of corporate ventures conducted by R&D department that is not part of the company strategy	**Autonomy**
28	Our organisation has high efforts that employees initiate to the top management to help the organisation's strategic direction	
29	Our organisation involves workers in implementing innovation even by ignoring procedures	
30	Our organisation promotes risk taking based on new ideas and promising breakthrough	
31	Our organisation provides freedom in using own judgment	
32	Our organisation gives the responsibility to the workers on how the job is done	
33	Our business has experienced growth in turnover over the past few years	**Organisation Performance**
34	The competitive position of our business has improved over the past few years	
35	Our business has experienced growth in market shares over the past few years	
36	Our business has experienced growth in profit over the past few years	
37	The efficiency in (doing things right) of our business has improved over the past few years	
38	The effectiveness (doing the right things) of our business has improved over the past few years	
39	Our employees are highly committed to our business	
40	In our business, employees are viewed as the most valuable asset of the business	
41	The moral (job satisfaction) of our employees has improved over the past few years	
42	The image (stature) of our business, relative to our competitors, has grown over the past few years.	
43	The external environment our firm operates in has a high level of risk and uncertainty	**Hostilities**
44	The external environment poses serious threats to our firm's survival and well-being	
45	Our firm must deal with range of external environment influences (e.g competitive, political, social/cultural, or technological forces)	
46	Declining market for products are a major challenge in our industry	

47	Tough price competition is a major challenge in our industry	**Munificence**
48	Government interference is a major challenge in our industry	
49	Our business environment poses a great deal of threat to the survival of our firm	
50	The rate of product and service obsolescence in our industry is high	
51	In our firm, the modes of production and service change often and many ways	**Dynamism**
52	Our firm must change its marketing practices often	
53	In our industry, the actions of competitors are unpredictable	
54	In our industry, demand and customer tastes are unpredictable	
55	In our industry, everything is related to everything	**Complexity**
56	A decision in our industry influences a large number of factors	
57	Nothing that happens in our industry will stay a secret from us	
58	The information we need about our industry, we will always get	
59	It is hard in this industry to base decisions on reliable information	
60	We have sufficient insight and information about who our customers are	

4.7.1 Reliability of the Model's Constructs

The reliability of a model's constructs relates to the consistency of a measure. It is assessed using different measures; however, the Cronbach alpha is the most commonly used test to determine the internal consistency of an instrument (Heale & Twycross, 2015). Results (See Table 4.9 below) indicate that all constructs demonstrated acceptable levels of reliability, hence the study proceeded to check for validity of the constructs.

Table 4.9: Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AUTONOMY	0.743	0.745	0.837	0.563
COMPETITIVE AGRESSIVENESS	0.810	0.814	0.868	0.569
INNOVATIVENESS	0.908	0.910	0.924	0.576
ORGANISATIONAL PERFORMANCE	0.932	0.934	0.943	0.624

PRO-ACTIVENESS	0.741	0.747	0.836	0.560
RISK TAKING	0.796	0.799	0.859	0.551

4.7.2 Validity of the Model's Constructs

The Fornell-Larcker criterion, as explained in the methodology, compares the square root of a construct's AVE values with the latent variable correlation. Table 4.10 shows the Fornell-Larcker criterion results, indicating a positive outcome with discriminant validity based on this traditional method.

Table 4.10: Fornell-Larcker

	Autonomy	Competitive Aggressiveness	Innovativeness	Organisational Performance	Pro-Activeness	Risk Taking
Autonomy	0.750					
Competitive Aggressiveness	0.658	0.754				
Innovativeness	0.601	0.582	0.759			
Organisational Performance	0.592	0.590	0.679	0.790		
Pro-Activeness	0.586	0.656	0.685	0.606	0.749	
Risk Taking	0.698	0.615	0.662	0.589	0.586	0.742

Furthermore, discriminant validity was assessed using the Heterotrait-Monotrait ratio (HTMT), which is considered a more reliable criterion than the traditional Fornell–Larcker approach (Hair et al., 2022). The HTMT values for all construct pairs in this study were below the conservative threshold of 0.85, indicating that the constructs are empirically distinct and do not overlap excessively in what they measure. This confirms that discriminant validity is established. Following the reliability and validity results in Table 4.9 (See in the Appendix), it is clear that all the EO constructs of innovativeness, autonomy, competitive aggressiveness, proactiveness, risk-

taking, and organisational performance demonstrate satisfactory levels of internal consistency reliability, indicator reliability, convergent validity, and as well discriminant validity (Table 4.11).

Table 4.11: Heteroterit-Monotrait Ratio (HTMT)

	Autonomy	Competitive Aggressiveness	Innovativeness	Organisational Performance	Pro-Activeness	Risk Taking
Autonomy						
Competitive Aggressiveness	0.840					
Innovativeness	0.714	0.661				
Organisational Performance	0.701	0.671	0.734			
Pro-Activeness	0.789	0.850	0.818	0.713		
Risk Taking	0.899	0.762	0.767	0.674	0.763	

Following all the steps achieved thus far above on the data analysis, the next phase is to evaluate the structural model to demonstrate how the empirical data effectively supports the study's conceptual framework and if this framework is confirmed empirically.

4.8 Evaluation of the Structural Model

Having established the reliability and validity of all constructs in the base model, this structural model evaluation section aims to assess the structural model results by evaluating the relationships between the constructs and the model's predictive capabilities. To achieve this, the results of the four steps identified in the methodology chapter for assessing the structural model are shown and discussed below.

4.8.1 Estimation of the Structural Model Path Coefficients and their Significance

As stated in the previous chapter, the standardised value for the estimation of the path coefficient lies approximately between the values of -1 and +1. A strong positive relationship is depicted by

values closer to +1, while a negative relationship is identified by values closer to -1. The general rule of thumb for estimating construct relationship level of statistical significance states that the closer the estimated coefficient is to 0, the weaker the relationship and the ability to explain another construct in the structural model (Hair et al., 2022).

Table 4.12: Evaluation of Significance of the Structural Model Path Coefficients

PATH RELATIONSHIPS	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P values
Autonomy → Organisational Performance	0.143	0.140	0.074	1.947	0.052
Competitive Aggressiveness → Organisational Performance	0.152	0.159	0.063	2.430	0.015
Innovativeness → Organisational Performance	0.367	0.368	0.080	4.580	0.000
Pro-Activeness → Organisational Performance	0.125	0.116	0.067	1.847	0.065
Risk Taking → Organisational Performance	0.079	0.083	0.077	1.034	0.301

From Table 4.12 above, which presents the results of the bootstrapping procedure, we observe that the original path coefficients (Original Sample) for the hypothesised relationships show that only two are statistically supported at the 5% level of significance ($p < 0.05$). These supported hypotheses are:

> *"There is a significant positive relationship between competitive aggressiveness and organisational performance among SMEs in Nigeria."*
>
> *"There is a significant positive relationship between innovativeness and organisational performance among SMEs in Nigeria."*

The three other path coefficients for autonomy, pro-activeness, and risk-taking were not significant at the 5% level, as their probability values exceeded the 0.05 threshold. The stability of these estimates is further indicated by the close alignment between the Original Sample (O) values and the Sample Mean (M) from bootstrapping, particularly for the significant paths.

4.8.2 Evaluation of the Coefficient of Determination (R^2)

The coefficient of determination (R^2) of the dependent construct is within the satisfactory range of 0.546. Comparing the study's coefficient of determination (R^2) to the seminal work of Pulka, Ramli & Mohamad (2019) on the moderating effect of the external environmental characteristics on the relationship between entrepreneurial orientation and SMEs performance, their study accepted a coefficient of determination (R^2) for SMEs performance (dependent variable) of 0.305, representing a 31% substantial predictive accuracy. This study's R^2 (0.546) surpasses Pulka et al.'s (2019) 0.305 by 79%, attributable to Nigeria's institutional voids amplifying EO's role and the study's improved methods (HTMT validation, nationwide sampling). This aligns with large effect sizes ($f^2 = 0.32$), confirming practical relevance. This difference in R^2 value explains that the acceptable level of R^2 value depends on the research context (Pulka et al., 2019).

4.8.3 Evaluation of the Effect Size (f^2)

As explained in the methodology chapter, section 1, this third step in evaluating the structural model involves assessing the change in R^2 value, which results in the following results, as shown in Table 4.13.

Table 4.13: The effect size f^2

	f-square	Effect Size
Autonomy → Organisational Performance	0.019	Small
Competitive Aggressiveness → Organisational Performance	0.022	Small
Innovativeness → Organisational Performance	0.124	Medium
Pro-Activeness → Organisational Performance	0.015	Small
Risk Taking → Organisational Performance	0.006	Small

The results in Table 4.13 report only the medium effect size of innovativeness on OP, while the rest of the factors report a small effect size on OP. Contrary to Cohen's (1988) dismissal of small effects, our Nigerian context shows that even $f^2 < 0.05$ dimensions for risk-taking may be decisive when institutional voids magnify marginal competitive edges (Adeleye et al., 2021). Innovativeness' medium effect ($f^2 = 0.124$) confirms its standalone importance, while other EO dimensions likely function as necessary-but-insufficient conditions for success.

4.8.4 Evaluation of the Predictive Relevance (Q^2) and its Relative Measure (q^2)

To understand the output result of the PLS-SEM, it is imperative to understand the MAE and RMSE, which are the two predictive powers researchers use. MAE is explained as the average absolute difference between the predictions and the actual observations, with all the individual differences having equal weight. The MAE is higher when applied to a variable measured on a 7-point scale than the 100-point scale; this manifests the variables' scaling as an important characteristic of the MAE (Hair et al., 2022). The RMSE, on the other hand, is explained as the square root of the average of the squared difference between the predictions and the actual observation. The RMSE statistic assigns a greater weight to more significant errors because it squares the errors before averaging. For this reason, applying the RMSE for predictive power is very useful and preferable when significant errors are undesirable (Hair et al., 2022).

Table 4.14: Predictive relevance (Q^2) and its relative measure (q^2)

CONSTRUCT	Q^2predict	RMSE	MAE
ORGANISATIONAL PERFORMANCE	0.411	0.781	0.542

To interpret the result of the Q^2predict, RMSE, and MAE in Table 4.14, Hair et al. (2022) state that a positive Q^2predict value means that the PLS path model's prediction error is smaller than

the prediction error given by most naïve benchmarks. Conversely, a Q^2predict value of zero or less implies that the predictive power of the PLS-SEM analysis for that latent variable does not outperform the most naïve benchmark. The Q^2predict, however, has its shortcomings as it ignores any input information of the PLS path model due to its simplistic nature. For this reason, Shumueli et al. (2016) proposed the linear regression model (LRM) benchmark as an alternative benchmark. This option considers the PLS path model's input layer while ignoring the interrelationship amongst the constructs. To demonstrate a strong predictive power, the PLS-SEM-based prediction is expected to outperform the LRM benchmark when measuring the entire model structure, i.e., the PLS path model should be minimal or equal to that of the LRM (Danks & Ray, 2018). The LM results output is shown in Table 4.15.

For the RMSE and MAE, these prediction statistic approaches are scaled so that smaller values imply higher predictive power, which means that the model's predictions are closer to the observed values. However, their absolute levels are difficult to interpret because their values rely on scaling the endogenous constructs' latent variables (Hair et al., 2022). For this reason, researchers generally focus on the model's key dependent variable when interpreting the $PLS_{predict}$ results instead of emphasising the errors in all dependent variable indicators.

Table 4.15: Comparison of RMSE and MAE values with the naïve LM benchmark.

	Q^2predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE	DIFF. PLS & LM (RMSE)	DIFF. PLS & LM (MAE)
OP33	0.230	0.797	0.554	0.810	0.583	-0.014	-0.028
OP34	0.300	0.727	0.518	0.750	0.537	-0.023	-0.019
OP35	0.205	0.820	0.568	0.821	0.583	-0.002	-0.015
OP36	0.170	0.800	0.557	0.794	0.588	0.006	-0.032
OP37	0.287	0.662	0.478	0.652	0.488	0.009	-0.010
OP38	0.206	0.696	0.516	0.690	0.521	0.006	-0.005
OP39	0.301	0.653	0.486	0.678	0.513	-0.025	-0.027

OP40	0.233	0.745	0.558	0.784	0.597	-0.039	-0.039
OP41	0.266	0.716	0.497	0.746	0.539	-0.031	-0.042
OP42	0.292	0.660	0.486	0.690	0.523	-0.029	-0.037

The results of Table 4.15 above, the guideline for using $PLS_{predict}$ as specified on Hair et al., (2022), states that when indicators have a $Q^2predict > 0$, the researcher should as a next step, compare the RMSE (or the MAE) values with those of the naïve LM benchmark. The $Q^2predict$ in Table 4.15 all have values > 0; hence, there is need to compare the results of the RMSE (or the MAE) values against those of the naïve LM benchmark. For these results, we see from Table 4.15 that for RMSE, only indicators OP36, OP37 and OP38 have values above LM_RMSE. In contrast, the rest of the indicators have less, which means that the model has medium predictive power because the majority of the PLS-SEM values are less than the LM_RMSE. For the MAE, all values are less than the LM_MAE, signifying that the model has high predictive power, implying that the model can reliably estimate the dependent variable (OP) from the predictor variable (EO).

Having evaluated the measurement model above, the proposed research model, in summary, contains measures with good reliability and validity. The evaluation of the structural model demonstrates that the proposed path model exhibited good explanatory power and strong predictive strength. With the results of the measurement and structural models established, the research's nine hypotheses related to the moderating influence of EE on the EO–OP relationship were tested. As presented in the structural model assessment in section 4.8, the evaluation of the base model results enables the researcher to determine the model's capability to explain and predict one or more target constructs. Having confirmed that the base model construct measurements are

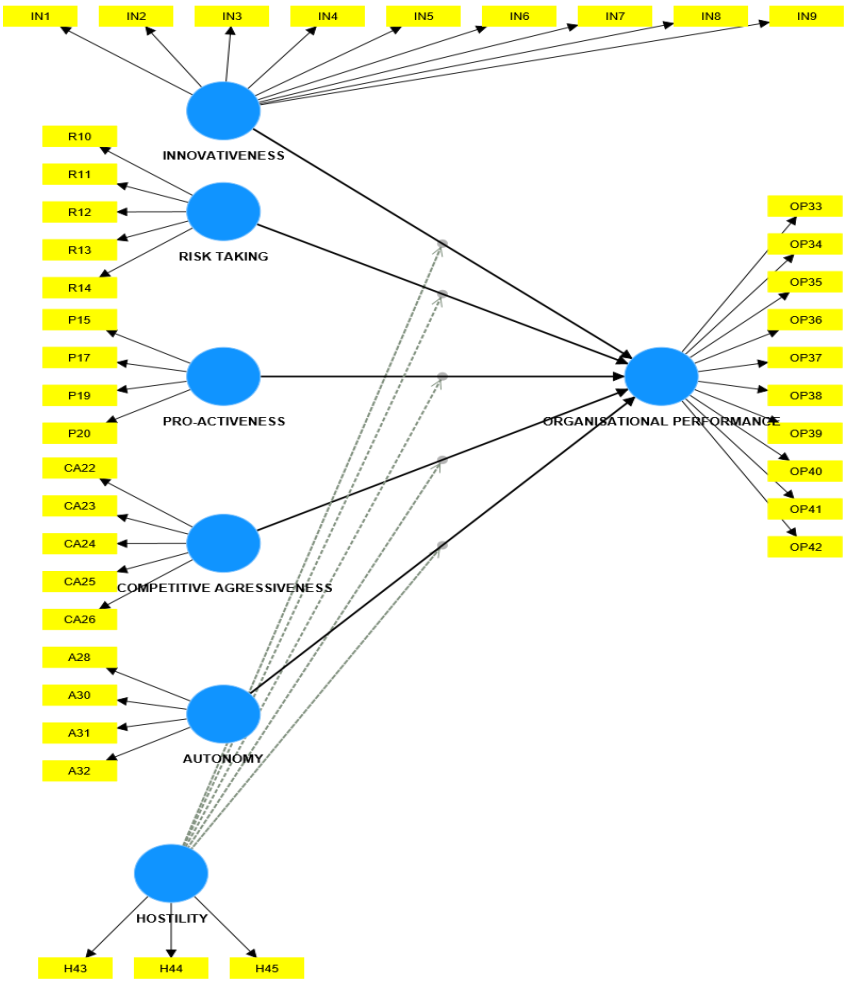
robust, reliable, and valid, as seen in Tables 4.9 and 4.10, this section addresses the assessment of the moderating variables of the external environment on the EO-OP relationship.

To avoid the possibility of collinearity among the moderating variables of hostility, munificence, dynamism and complexity when analysed jointly, a step-by-step introduction of each moderating variable into the base model is adopted in order to test and compare the effect of every structural path model as seen in recent publications (e.g., see Aguinis et al., 2017; Boyd, Haynes, Hitt, Bergh, & Ketchen, 2012; Ting, Fam, Hwa, Richard, & Xing, 2019). The use of a step-by-step introduction of each moderating variable into the base model was adopted for the research because the joint use of the ten constructs (five independent constructs of EO, innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy; four moderating constructs of EE, dynamism, hostility, munificence and complexity and a dependent construct of OP) at the same time as shown on the path model in Appendix 3, resulted to multicollinearity of the variables (see Appendix 7 and 8).

- **Hostility**

Figure 4.2 below illustrates the introduction of environmental hostility into the measurement model to determine its moderating influence on the EO—OP relationship. Tables 4.16, 4.17, 4.18, 4.19, 4.20, and 4.21 below show the results of the moderation of hostility in the EO—OP relationships.

Figure 4.2: Structural Model: Path Model with Hostility as Moderator



The introduction of the moderating variable of hostility into the based model showed that the construct and the AVE are reliable and valid. All meet the acceptable threshold values between 0.7 and 0.9 for reliability and validity, with an average variance extracted value of 0.5 and above. Table 4.16 shows the results.

Table 4.16: Hostility Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
HOSTILITY	0.745	0.817	0.789	0.567

Following the rule of thumb regarding the use of outer loading, as earlier explained in this chapter, which opines that an indicator value above 0.708 is considered absolutely important and should be retained, while those values below 0.50 should be considered for either retention or deletion; the Table 4.17, show all indicators are well above 0.60 signifying the relevance of all indicators to the constructs.

Table 4.17: Outer loading for Hostility Moderator

	Outer loadings
A28 → AUTONOMY	0.732
A30 → AUTONOMY	0.747
A31 → AUTONOMY	0.749
A32 → AUTONOMY	0.773
CA22 → COMPETITIVE AGRESSIVENESS	0.703
CA23 → COMPETITIVE AGRESSIVENESS	0.730
CA24 → COMPETITIVE AGRESSIVENESS	0.777
CA25 → COMPETITIVE AGRESSIVENESS	0.757
CA26 → COMPETITIVE AGRESSIVENESS	0.799
H43 → HOSTILITY	0.617
H44 → HOSTILITY	0.624
H45 → HOSTILITY	0.965
IN1 → INNOVATIVENESS	0.726
IN2 → INNOVATIVENESS	0.823
IN3 → INNOVATIVENESS	0.754
IN4 → INNOVATIVENESS	0.799
IN5 → INNOVATIVENESS	0.695
IN6 → INNOVATIVENESS	0.780
IN7 → INNOVATIVENESS	0.778
IN8 → INNOVATIVENESS	0.756
IN9 → INNOVATIVENESS	0.712
OP33 → ORGANISATIONAL PERFORMANCE	0.807
OP34 → ORGANISATIONAL PERFORMANCE	0.825
OP35 → ORGANISATIONAL PERFORMANCE	0.780
OP36 → ORGANISATIONAL PERFORMANCE	0.818
OP37 → ORGANISATIONAL PERFORMANCE	0.859
OP38 → ORGANISATIONAL PERFORMANCE	0.824
OP39 → ORGANISATIONAL PERFORMANCE	0.755
OP40 → ORGANISATIONAL PERFORMANCE	0.630

OP41 → ORGANISATIONAL PERFORMANCE	0.777
OP42 → ORGANISATIONAL PERFORMANCE	0.801
P15 → PRO-ACTIVENESS	0.735
P17 → PRO-ACTIVENESS	0.756
P19 → PRO-ACTIVENESS	0.740
P20 → PRO-ACTIVENESS	0.764
R10 → RISK TAKING	0.715
R11 → RISK TAKING	0.702
R12 → RISK TAKING	0.714
R13 → RISK TAKING	0.784
R14 → RISK TAKING	0.791
HOSTILITY x COMPETITIVE AGRESSIVENESS → HOSTILITY x COMPETITIVE AGRESSIVENESS	1.000
HOSTILITY x AUTONOMY → HOSTILITY x AUTONOMY	1.000
HOSTILITY x PRO-ACTIVENESS → HOSTILITY x PRO-ACTIVENESS	1.000
HOSTILITY x INNOVATIVENESS → HOSTILITY x INNOVATIVENESS	1.000
HOSTILITY x RISK TAKING → HOSTILITY x RISK TAKING	1.000

The Fornell-Larcker criterion for checking discriminant validity for the moderating variable of hostility is met, as seen in Table 4.18. The indicator's outer loading on the constructs is greater than its correlation with the other constructs.

Table 4.18: Fornell-Larcker

	Autonomy	Competitive Aggressiveness	Hostility	Innovativeness	Organisational Performance	Pro-Activeness	Risk Taking
Autonomy	0.750						
Competitive Aggressiveness	0.658	0.754					
Hostility	0.296	0.206	0.753				
Innovativeness	0.601	0.582	0.313	0.759			
Organisational Performance	0.592	0.590	0.275	0.679	0.790		
Pro-Activeness	0.586	0.656	0.350	0.685	0.606	0.749	
Risk Taking	0.698	0.615	0.310	0.662	0.589	0.586	0.742

The check for discriminant validity using HTMT, having introduced the moderating variable of hostility into the base model, revealed that discriminant validity was met because the acceptable

threshold value of 0.9 was not exceeded. Table 4.19 shows the outcome of the HTMT assessment to evaluate the discriminant validity.

Table 4.19: Heteroterit-Monotrait Ratio (HTMT)

	Heterotrait-Monotrait Ratio (HTMT)
Hostility ↔ Autonomy	0.391
Hostility ↔ Competitive Agressiveness	0.212
Innovativeness ↔ Hostility	0.284
Organisational Performance ↔ Hostility	0.217
Pro-Activeness ↔ Hostility	0.412
Risk Taking ↔ Hostility	0.381

The results show no significant moderating effect for environmental hostility, thereby disconfirming the hypothesis that it enhances the relationship between entrepreneurial orientation and operational performance (H6). The path coefficients of this interaction all fell below the significance required to consider it significant ($p < 0.05$), as presented in Table 4.20. This means perceived hostility does not substantively change EO's relationship with performance in the context of Nigerian SMEs. This null finding continues to hold despite there being an acceptably explanatory model overall ($R^2 = 0.559$).

Table 4.20: Hostility Evaluation of Significance of the Structural Model Path Coefficients

	Path Coefficients	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P values
Hostility → Organisational Performance	0.009	0.027	0.060	0.146	0.884
Hostility X Innovativeness → Organisational Performance	0.064	0.056	0.097	0.665	0.506
Hostility X Risk Taking → Organisational Performance	-0.015	-0.023	0.102	0.145	0.885
Hostility X Pro-Activeness → Organisational Performance	-0.067	-0.035	0.094	0.720	0.472
Hostility X Competitive Aggressiveness → Organisational Performance	-0.088	-0.074	0.071	1.242	0.214
Hostility X Autonomy → Organisational Performance	0.045	0.041	0.080	0.565	0.572

Looking at Table 4.21, the effect size for the moderating variable of hostility on the EO-OP relationship showed little or no effect on the relationship, as most of the outcome results were less than 0.011, which is considered a small effect size according to Cohan (1988).

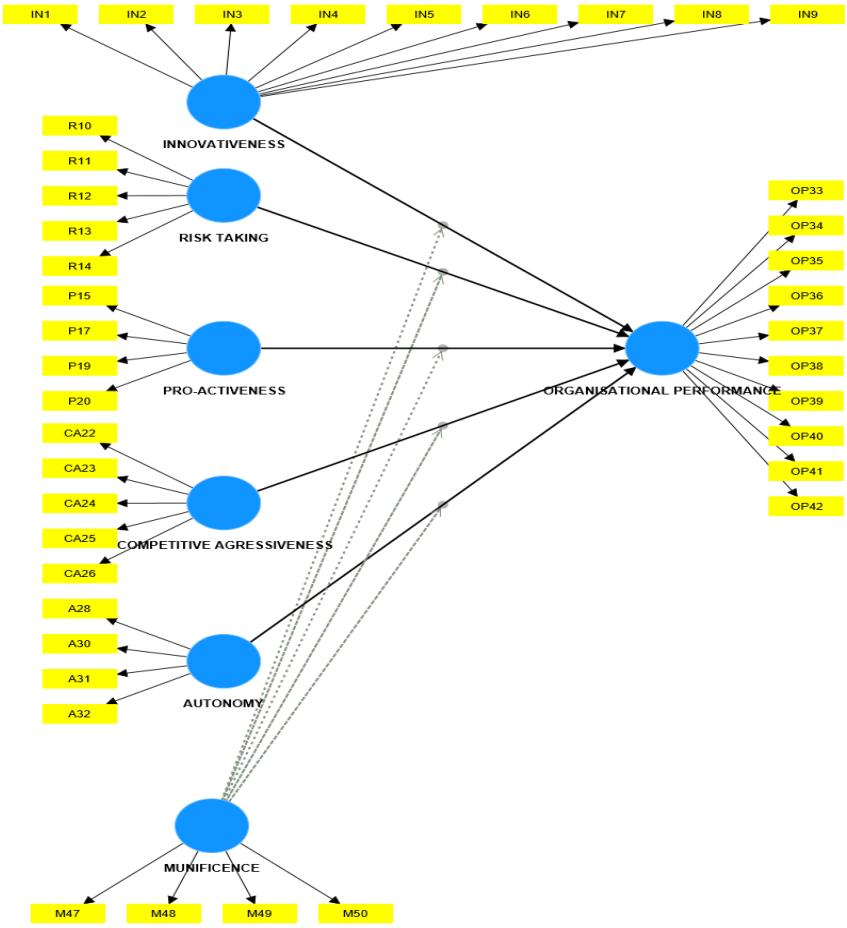
Table 4.21: The effect size f^2

	f-square	Effect Size
Hostility → Organisational Performance	0.000	None
Hostility X Innovativeness → Organisational Performance	0.006	Small
Hostility X Risk Taking → Organisational Performance	0.000	None
Hostility X Pro-Activeness → Organisational Performance	0.005	Small
Hostility X Competitive Aggressiveness → Organisational Performance	0.011	Small
Hostility X Autonomy → Organisational Performance	0.002	Small

- **Munificence**

Figure 4.3 below illustrates the introduction of environmental munificence into the measurement model to determine its moderating influence on the EO—OP relationship. Tables 4.22, 4.23, 4.24, 4.25, 4.26, and 4.27 below show the results of the moderation of hostility in the EO—OP relationships.

Figure 4.3: Structural Model: Path Model with Munificence as Moderator



The introduction of the moderating variable of munificence into the based model showed that the construct and the AVE are reliable and valid. All meet the acceptable threshold values between 0.7 and 0.9 for reliability and validity, with an average variance extracted value of 0.5 and above. Table 4.22 shows the results.

Table 4.22: Munificence Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
MUNIFICENCE	0.728	0.687	0.808	0.517

Following the rule of thumb regarding the use of outer loading, Table 4.23 shows that all indicators are well above 0.60, signifying the relevance of all indicators to the constructs.

Table 4.23: Outer loading for Munificence moderator

	Outer loadings
A28 → Autonomy	0.732
A30 → Autonomy	0.747
A31 → Autonomy	0.749
A32 → Autonomy	0.773
Ca22 → Competitive Aggressiveness	0.703
Ca23 → Competitive Aggressiveness	0.730
Ca24 → Competitive Aggressiveness	0.777
Ca25 → Competitive Aggressiveness	0.757
Ca26 → Competitive Aggressiveness	0.799
In1 → Innovativeness	0.726
In2 → Innovativeness	0.823
In3 → Innovativeness	0.754
In4 → Innovativeness	0.799
In5 → Innovativeness	0.695
In6 → Innovativeness	0.780
In7 → Innovativeness	0.778
In8 → Innovativeness	0.756
In9 → Innovativeness	0.712
M47 → Munificence	0.766
M48 → Munificence	0.827
M49 → Munificence	0.567
M50 → Munificence	0.690
Op33 → Organisational Performance	0.807
Op34 → Organisational Performance	0.825
Op35 → Organisational Performance	0.780
Op36 → Organisational Performance	0.818
Op37 → Organisational Performance	0.859
Op38 → Organisational Performance	0.824
Op39 → Organisational Performance	0.755
Op40 → Organisational Performance	0.630
Op41 → Organisational Performance	0.777
Op42 → Organisational Performance	0.801
P15 → Pro-Activeness	0.735
P17 → Pro-Activeness	0.756
P19 → Pro-Activeness	0.740

P20 → Pro-Activeness	0.764
R10 → Risk Taking	0.715
R11 → Risk Taking	0.702
R12 → Risk Taking	0.714
R13 → Risk Taking	0.784
R14 → Risk Taking	0.791
MUNIFICENCE X INNOVATIVENESS → MUNIFICENCE X INNOVATIVENESS	1.000
MUNIFICENCE X AUTONOMY → MUNIFICENCE X AUTONOMY	1.000
MUNIFICENCE X PRO-ACTIVENESS → MUNIFICENCE X PRO-ACTIVENESS	1.000
MUNIFICENCE X RISK TAKING → MUNIFICENCE X RISK TAKING	1.000
MUNIFICENCE X COMPETITIVE AGRESSIVENESS → MUNIFICENCE X COMPETITIVE AGRESSIVENESS	1.000

The Fornell-Larcker criterion for checking discriminant validity for the moderating variable of munificence is met, as seen in Table 4.24 below. The indicator's outer loading on the constructs is greater than its correlation with the other constructs.

Table 4.24: Fornell-Larcker

	Autonomy	Competitive Aggressiveness	Innovativeness	Munificence	Organisational Performance	Pro-Activeness	Risk Taking
Autonomy	0.750						
Competitive Aggressiveness	0.658	0.754					
Innovativeness	0.601	0.582	0.759				
Munificence	0.368	0.294	0.237	0.719			
Organisational Performance	0.592	0.590	0.679	0.229	0.790		
Pro-Activeness	0.586	0.656	0.685	0.366	0.606	0.749	
Risk Taking	0.698	0.615	0.662	0.328	0.589	0.586	0.742

The check for discriminant validity using HTMT, having introduced the moderating variable of munificence into the base model, revealed that discriminant validity was met because the acceptable threshold value of 0.9 was not exceeded. Table 4.25 shows the outcome of the HTMT assessment to evaluate the discriminant validity.

Table 4.25: Heteroterit-Monotrait Ratio (HTMT)

	Heterotrait-monotrait ratio (HTMT)
Munificence ↔ Autonomy	0.478
Munificence ↔ Competitive Aggressiveness	0.368
Munificence ↔ Innovativeness	0.269
Organisational Performance ↔ Munificence	0.233
Pro-Activeness ↔ Munificence	0.482
Risk Taking ↔ Munificence	0.397

From Table 4.26 below, we observe that the path coefficients for the hypothesised relationships between the moderating variable of munificence and other constructs are not supported at the level of <0.05. The dependent construct's coefficient of determination (R^2) is within the satisfactory range of 0.557.

Table 4.26: Munificence Evaluation of significance of the structural model path coefficients

	Path Coefficients	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P values
Munificence → Organisational Performance	-0.034	-0.020	0.049	0.703	0.482
Munificence X Innovativeness → Organisational Performance	-0.119	-0.109	0.083	1.431	0.152
Munificence X Risk Taking → Organisational Performance	-0.012	-0.003	0.081	0.147	0.883
Munificence X Pro-Activeness → Organisational Performance	0.057	0.063	0.080	0.715	0.475
Munificence X Competitive Aggressiveness → Organisational Performance	0.024	0.017	0.073	0.325	0.745
Munificence X Autonomy → Organisational Performance	0.030	0.024	0.082	0.362	0.717

Looking at Table 4.27, the effect size for the moderating variable of munificence on the EO -OP relationship showed medium, little, or no effect on the relationship, as most of the outcome results were less than 0.015, which is considered a small effect size according to Cohan (1988).

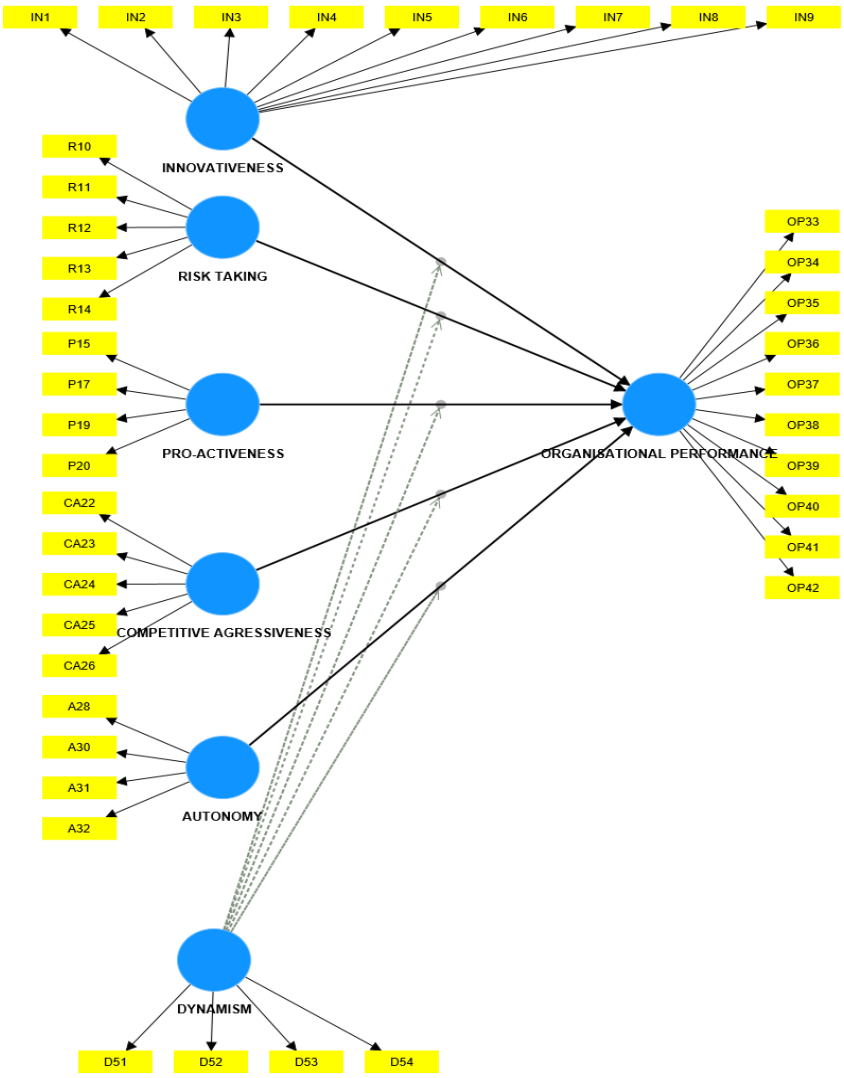
Table 4.27: The effect size f^2

	f-square	Effect size
Munificence → Organisational Performance	0.002	Small
Munificence X Innovativeness → Organisational Performance	0.015	Small
Munificence X Risk Taking → Organisational Performance	0.000	None
Munificence X Pro-Activeness → Organisational Performance	0.003	Small
Munificence X Competitive Aggressiveness → Organisational Performance	0.000	None
Munificence X Autonomy → Organisational Performance	0.001	Small

- **Dynamism**

Figure 4.4 below illustrates the introduction of environmental dynamism into the measurement model to determine its moderating influence on the EO—OP relationship. Tables 4.28, 4.29, 4.30, 4.31, 4.32, and 4.33 below show the results of the moderation of hostility in the EO—OP relationships.

Figure 4.4: Structural Model: Path Model with Dynamism as Moderator



The introduction of the moderating variable of dynamism into the based model showed that the construct and the AVE are reliable and valid. All meet the acceptable threshold values between 0.7 and 0.9 for reliability and validity, with an average variance extracted value of 0.5 and above, as shown in Table 4.28.

Table 4.28: Dynamism Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
DYNAMISM	0.803	0.822	0.870	0.627

Following the rule of thumb regarding the use of outer loading, Table 4.29 shows that all indicators are well above 0.60, signifying the relevance of all indicators to the constructs.

Table 4.29: Outer loading for Dynamism moderator

	Outer loadings
A28 → Autonomy	0.732
A30 → Autonomy	0.747
A31 → Autonomy	0.749
A32 → Autonomy	0.773
Ca22 → Competitive Aggressiveness	0.703
Ca23 → Competitive Aggressiveness	0.730
Ca24 → Competitive Aggressiveness	0.777
Ca25 → Competitive Aggressiveness	0.757
Ca26 → Competitive Aggressiveness	0.799
D51 → Dynamism	0.849
D52 → Dynamism	0.773
D53 → Dynamism	0.811
D54 → Dynamism	0.731
In1 → Innovativeness	0.726
In2 → Innovativeness	0.823
In3 → Innovativeness	0.754
In4 → Innovativeness	0.799
In5 → Innovativeness	0.695
In6 → Innovativeness	0.780
In7 → Innovativeness	0.778
In8 → Innovativeness	0.756
In9 → Innovativeness	0.712
Op33 → Organisational Performance	0.807
Op34 → Organisational Performance	0.825
Op35 → Organisational Performance	0.780
Op36 → Organisational Performance	0.818
Op37 → Organisational Performance	0.859
Op38 → Organisational Performance	0.824
Op39 → Organisational Performance	0.755
Op40 → Organisational Performance	0.630
Op41 → Organisational Performance	0.777
Op42 → Organisational Performance	0.801
P15 → Pro-Activeness	0.734
P17 → Pro-Activeness	0.756
P19 → Pro-Activeness	0.740
P20 → Pro-Activeness	0.764

R10 → Risk Taking	0.715
R11 → Risk Taking	0.702
R12 → Risk Taking	0.714
R13 → Risk Taking	0.784
R14 → Risk Taking	0.791
Dynamism X Innovativeness → Dynamism X Innovativeness	1.000
Dynamism X Risk Taking → Dynamism X Risk Taking	1.000
Dynamism X Autonomy → Dynamism X Autonomy	1.000
Dynamism X Pro-Activeness → Dynamism X Pro-Activeness	1.000
Dynamism X Competitive Aggressiveness → Dynamism X Competitive Aggressiveness	1.000

The Fornell-Larcker criterion for checking discriminant validity for the moderating variable of dynamism is met, as seen in Table 4.30 below. The indicator's outer loading on the construct is greater than its correlation with the other constructs.

Table 4.30: Fornell-Larcker

	Autonomy	Competitive Aggressiveness	Dynamism	Innovativeness	Organisational Performance	Pro-Activeness	Risk Taking
Autonomy	0.750						
Competitive Aggressiveness	0.658	0.754					
Dynamism	0.437	0.363	0.792				
Innovativeness	0.601	0.582	0.358	0.759			
Organisational Performance	0.592	0.591	0.339	0.679	0.790		
Pro-Activeness	0.586	0.656	0.396	0.685	0.606	0.749	
Risk Taking	0.698	0.615	0.388	0.662	0.589	0.586	0.742

The check for discriminant validity using HTMT, having introduced the moderating variable of dynamism into the base model, revealed that discriminant validity was met because the acceptable threshold value of 0.9 was not exceeded. Table 4.31 shows the outcome of the HTMT assessment to evaluate the discriminant validity.

Table 4.31: Heteroterit-Monotrait Ratio (HTMT)

	Heterotrait-monotrait ratio (HTMT)
DYNAMISM ↔ AUTONOMY	0.551
DYNAMISM ↔ COMPETITIVE AGRESSIVENESS	0.445
INNOVATIVENESS ↔ DYNAMISM	0.403
ORGANISATIONAL PERFORMANCE ↔ DYNAMISM	0.382
PRO-ACTIVENESS ↔ DYNAMISM	0.513
RISK TAKING ↔ DYNAMISM	0.469

From Table 4.32 below, we observe that the path coefficients for the hypothesised relationships between the moderating variable of dynamism and other constructs are not supported at the level of <0.05. The dependent construct's coefficient of determination (R2) is within the satisfactory range of 0.554.

Table 4.32: Evaluation of the significance of the structural model path coefficients

	Path Coefficients	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P values
Dynamism → Organisational Performance	0.007	0.005	0.044	0.165	0.869
Dynamism X Innovativeness → Organisational Performance	-0.015	-0.014	0.099	0.156	0.876
Dynamism X Risk Taking → Organisational Performance	-0.066	-0.039	0.086	0.761	0.447
Dynamism X Pro-Activeness → Organisational Performance	0.057	0.056	0.092	0.617	0.537
Dynamism X Competitive Agressiveness → Organisational Performance	-0.034	-0.034	0.063	0.541	0.589
Dynamism X Autonomy → Organisational Performance	0.000	-0.009	0.074	0.002	0.998

Looking at Table 4.33, the effect size for the moderating variable of dynamism on the EO -OP relationship showed little or no effect on the relationship as most of the outcome results were less than 0.005, which is considered a small effect size according to Cohan (1988).

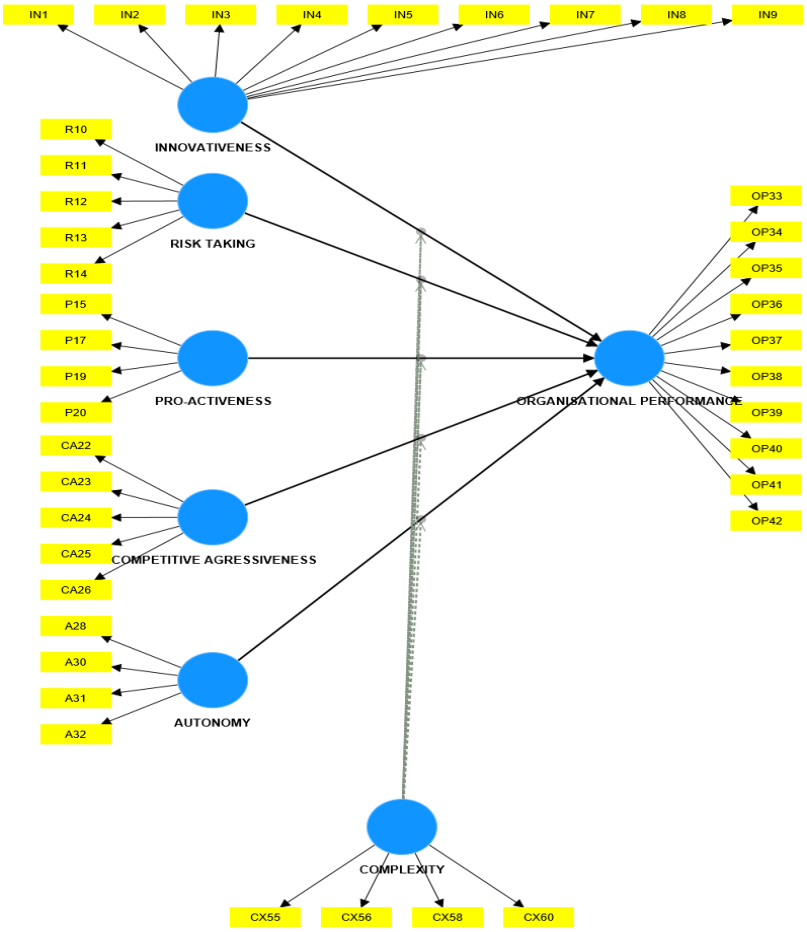
Table 4.33: The effect size f^2

	f-square	Effect Size
Dynamism → Organisational Performance	0.000	None
Dynamism X Innovativeness → Organisational Performance	0.000	None
Dynamism X Risk Taking → Organisational Performance	0.005	Small
Dynamism X Pro-Activeness → Organisational Performance	0.003	Small
Dynamism X Competitive Aggressiveness → Organisational Performance	0.001	Small
Dynamism X Autonomy → Organisational Performance	0.000	None

- **Complexity**

Figure 4.5 below illustrates the introduction of environmental complexity into the measurement model to determine its moderating influence on the EO—OP relationship. The results of the moderation of complexity on the EO—OP relationships are all seen in Tables 4.34, 4.35, 4.36, 4.37, 4.38, and 4.39.

Figure 4.5: Structural Model: Path Model with Complexity as Moderator



In Table 4.34, it is shown that the introduction of the moderating variable of complexity into the based model showed that the construct and the AVE are reliable and valid. All meet the acceptable threshold values between 0.7 and 0.9 for reliability and validity, with an average variance extracted value of 0.5 and above.

Table 4.34: Complexity Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
COMPLEXITY	0.711	0.728	0.820	0.533

Following the rule of thumb regarding the use of outer loading, Table 4.35 shows that all indicators are well above 0.60, signifying the relevance of all indicators to the constructs.

Table 4.35: Outer Loading – Complexity moderator

	Outer loadings
A28 → Autonomy	0.732
A30 → Autonomy	0.746
A31 → Autonomy	0.749
A32 → Autonomy	0.774
Ca22 → Competitive Aggressiveness	0.703
Ca23 → Competitive Aggressiveness	0.730
Ca24 → Competitive Aggressiveness	0.777
Ca25 → Competitive Aggressiveness	0.757
Ca26 → Competitive Aggressiveness	0.799
Cx55 → Complexity	0.699
Cx56 → Complexity	0.688
Cx58 → Complexity	0.747
Cx60 → Complexity	0.783
In1 → Innovativeness	0.726
In2 → Innovativeness	0.823
In3 → Innovativeness	0.754
In4 → Innovativeness	0.799
In5 → Innovativeness	0.695
In6 → Innovativeness	0.780
In7 → Innovativeness	0.778
In8 → Innovativeness	0.756
In9 → Innovativeness	0.712
Op33 → Organisational Performance	0.806
Op34 Organisational Performance	0.825
Op35 → Organisational Performance	0.780
Op36 → Organisational Performance	0.817
Op37 → Organisational Performance	0.859
Op38 → Organisational Performance	0.824
Op39 → Organisational Performance	0.756
Op40 → Organisational Performance	0.631
Op41 → Organisational Performance	0.778
Op42 → Organisational Performance	0.802
P15 → Pro-Activeness	0.735
P17 → Pro-Activeness	0.756
P19 → Pro-Activeness	0.740
P20 → Pro-Activeness	0.764

R10 → Risk Taking	0.715
R11 → Risk Taking	0.702
R12 → Risk Taking	0.714
R13 → Risk Taking	0.784
R14 → Risk Taking	0.791
Complexity X Pro-Activeness → Complexity X Pro-Activeness	1.000
Complexity X Competitive Aggressiveness → Complexity X Competitive Aggressiveness	1.000
Complexity X Innovativeness → Complexity X Innovativeness	1.000
Complexity X Risk Taking → Complexity X Risk Taking	1.000
Complexity X Autonomy → Complexity X Autonomy	1.000

The Fornell-Larcker criterion for checking discriminant validity for the moderating variable of complexity is met, as seen in Table 4.36. The indicator's outer loading on the construct is greater than its correlation with the other constructs.

Table 4.36: Fornell-Larcker

	AUTONOMY	COMPETITIVE AGRESSIVENESS	COMPLEXITY	INNOVATIVENESS	ORGANISATIONAL PERFORMANCE	PRO-ACTIVENESS	RISK TAKING	COMPLEXITY x INNOVATIVENESS	COMPLEXITY x RISK TAKING	COMPLEXITY x PRO-ACTIVENESS	COMPLEXITY x COMPETITIVE AGRESSIVENES	COMPLEXITY x AUTONOMY
AUTONOMY												
COMPETITIVE AGRESSIVENESS	0.840											
COMPLEXITY	0.691	0.715										
INNOVATIVENESS	0.714	0.661	0.556									
ORGANISATIONAL PERFORMANCE	0.701	0.671	0.575	0.734								
PRO-ACTIVENESS	0.789	0.850	0.719	0.818	0.713							
RISK TAKING	0.899	0.762	0.738	0.767	0.674	0.763						
COMPLEXITY x INNOVATIVENESS	0.212	0.216	0.307	0.382	0.345	0.373	0.307					
COMPLEXITY x RISK TAKING	0.262	0.183	0.321	0.335	0.299	0.310	0.363	0.906				
COMPLEXITY x PRO-ACTIVENESS	0.208	0.200	0.330	0.370	0.318	0.397	0.285	0.907	0.868			
COMPLEXITY x COMPETITIVE AGRESSIVENESS	0.160	0.253	0.291	0.296	0.228	0.274	0.229	0.864	0.830	0.834		
COMPLEXITY x AUTONOMY	0.208	0.147	0.237	0.266	0.261	0.260	0.300	0.871	0.917	0.844	0.820	

The check for discriminant validity using HTMT, having introduced the moderating variable of complexity into the base model, revealed that discriminant validity was met because the acceptable threshold value of 0.9 was not exceeded. Table 4.37 shows the outcome of the HTMT assessment to evaluate the discriminant validity.

Table 4.37: Heteroterit-Monotrait Ratio (HTMT) - Method Used For SEM

	Heterotrait-monotrait ratio (HTMT)
Complexity ↔ Autonomy	0.691
Complexity ↔ Competitive Aggressiveness	0.715
Innovativeness ↔ Complexity	0.556
Organisational Performance ↔ Complexity	0.575
Pro-Activeness ↔ Complexity	0.719
Risk Taking ↔ Complexity	0.738

From Table 4.38, we observe that the path coefficient for the hypothesised relationships between the moderating variable of complexity and other constructs is significant in the relationship with competitive aggressiveness -> OP, while the rest are not supported at the level of <0.05. The dependent construct's coefficient of determination (R^2) is within the satisfactory range of 0.572.

Table 4.38: Evaluation of significance of the structural model path coefficients

	Path coefficients	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Complexity → Organisational Performance	0.088	0.090	0.050	1.774	0.076
Complexity X Risk Taking → Organisational Performance	0.071	0.080	0.089	0.804	0.422
Complexity X Autonomy → Organisational Performance	-0.069	-0.072	0.083	0.838	0.402
Complexity X Innovativeness → Organisational Performance	-0.156	-0.145	0.088	1.781	0.075
Complexity X Pro-Activeness → Organisational Performance	0.005	0.007	0.056	0.086	0.932
Complexity X Competitive Aggressiveness → Organisational Performance	0.159	0.144	0.068	2.344	0.019

Looking at Table 4.39, the effect size for the moderating variable of complexity on the EO -OP relationship showed medium, small, and no effect on the relationship, as most of the outcome results were less than 0.027, which is considered a small effect size according to Cohan (1988).

Table 4.39: The effect size f^2

	f-square	Effect Size
Complexity -> Organisational Performance	0.010	Small
Complexity X Innovativeness → Organisational Performance	0.027	Small
Complexity X Risk Taking → Organisational Performance	0.004	Small
Complexity X Pro-Activeness → Organisational Performance	0.000	None
Complexity X Competitive Aggressiveness → Organisational Performance	0.028	Small
Complexity X Autonomy → Organisational Performance	0.004	Small

In conclusion, this study adopted the separation of the assessment of the base model from that of the moderating variables on the relationship between Entrepreneurial Orientation and Organisational Performance because the introduction of all the moderating variables into the base model in an earlier approach showed collinearity among constructs.

4.9 Model Hypotheses Testing and Moderation Analysis

This section of model hypothesis testing and moderation analysis will summarise the hypothesis after concluding the assessment of the outer model, known as the measurement model, and that of the inner model, referred to as the structural model. Table 4.40 highlights the nine hypotheses related to the moderating influence of EE on the EO—OP relationship. This study is aimed at investigating the moderating influence of the external environment on the EO – OP relationship. Looking at the path model between the constructs in the research model, it is proposed that the relationship between EO constructs (innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy) and OP was moderated by the interference of the EE constructs (dynamism, hostility, munificence, and complexity).

H1: There is a positive and statistically significant relationship between innovativeness and OP.

From the path model proposed, the results support Hypothesis 1 (H1) that there is a positive relationship between innovativeness and OP (β=0.355, p = 0.000), (Table 4.40). The path

coefficient of 0.355 shows the constructs have a positive relationship, and the t value of 4.028 indicates statistical significance. The *p*-value at 0.01, is less than the 0.05 threshold establishing that the hypothesised relationship is significant. Furthermore, the effect of the size of innovativeness on OP, as shown in Table 4.13, reports only a medium effect size at f^2 of 0.124.

H2: There is a positive and statistically significant relationship between risk-taking and OP.

The result (β=0.030, p = 0.375) (Table 4.36) derived from the proposed path model does not support Hypothesis 2 (H2) that there will a positive relationship between risk-taking and OP. The path coefficient of 0.030 shows that the estimated coefficients are closer to 0, signifying a weaker relationship and the inability to explain a relationship between the constructs. The t-value at 0.887 depicts statistical insignificance since it is well below the 1.96 acceptable threshold. The *p*-value at 0.375 is greater than the 0.05 threshold, establishing that the hypothesised relationship is not supported. However, the effect size of risk-taking on OP as shown in Table 4.13 report a small effect size at f^2 of 0.006.

H3: There is a positive and statistically significant relationship between proactiveness and OP.

The proposed path model provides evidence that does not support Hypothesis 3 (H3). The result (β=0.065, p = 0.421) (Table 4.40) derived from the proposed path model does not support that there is a positive relationship between proactiveness and OP. The path coefficient of 0.065 shows that the estimated coefficient is closer to 0, signifying a weaker relationship and the inability to explain a relationship between the constructs. The t-value at 0.805 shows no statistical significance because it is below the 1.96 threshold. The *p*-value at 0.421, is greater than the 0.05 threshold depicting that the hypothesised relationship is not supported. However, the effect size of proactiveness on OP as shown in Table 4.13 report a small effect size at f^2 of 0.015.

H4: There is a positive and statistically significant relationship between competitive aggressiveness and OP.

Looking at the path model proposed, the results support Hypothesis 4 (H4) that there is a positive relationship between competitive aggressiveness and OP ((β=0.182, p = 0.006) (Table 4.40). The path coefficient of 0.182 shows that the constructs have a positive relationship, and the t-value at 2.735 is statistically significant because it is above the 1.96 threshold. The p-value at 0.006 is less than the 0.05 threshold, confirming that the hypothesised relationship is supported. Furthermore, the effect size of competitive aggressiveness on OP, as shown in Table 4.13, reports a small effect size at f^2 of 0.022.

H5: There is a positive and statistically significant relationship between autonomy and OP.

The structural model provides evidence to support Hypothesis 5 (H5). With the path model proposed, the results (β=0.167, p = 0.029) (Table 4.40) support a positive relationship between autonomy and OP. The path coefficient of 0.167 shows the constructs have a positive relationship, and the t value at 2.189 depicts statistical significance as it is above the 1.96 threshold. The p-value at 0.029 is less than the 0.05 threshold, confirming that the hypothesised relationship is supported, while the effective size of autonomy on OP is as shown in Table 4.13, reports a small effect size at f^2 of 0.019.

H6: Hostilities will positively moderate EO and OP relationship.

- *H6a: Hostilities will moderate the innovativeness and OP relationship.*
- *H6b: Hostilities will positively moderate the risk-taking and OP relationship.*
- *H6c: Hostilities will positively moderate the proactiveness and OP relationship.*

- *H6d: Hostilities will positively moderate the competitive aggressiveness and OP relationship.*
- *H6e: Hostilities will positively moderate the autonomy and OP relationship.*

The proposed path model provides evidence that does not support Hypothesis 6 (H6a – H6e). The results listed in Table 4.40 do not support the hypothesis that hostility will positively moderate any of the EO constructs (innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy) and the OP relationship. All their path coefficients show estimated coefficients closer to 0, signifying a weaker relationship and the inability to explain a moderation relationship between the constructs (see Table 4.40 for details). Their t-values equally did not show statistical significance because they all fall below the 1.96 threshold. The *p*-values also are greater than the 0.05 threshold, which indicates that the hypothesised moderation relationships are not supported (see Table 4.36 for details).

H7: Munificence will positively moderate EO and OP relationship.

- *H7a: Munificence will positively moderate the innovativeness and OP relationship.*
- *H7b: Munificence will positively moderate the risk-taking and OP relationship.*
- *H7c: Munificence will positively moderate the proactiveness and OP relationship.*
- *H7d: Munificence will positively moderate the competitive aggressiveness and OP relationship.*
- *H7e: Munificence will positively moderate the autonomy and OP relationship.*

Looking at the hypotheses on how munificence will positively moderate the EO and OP relationship, the results from the path model show no support for Hypothesis 7 (H7a – H7e). As

listed in Table 4.40, the results provide evidence that environmental munificence will not positively moderate any of the EO constructs (innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy) and OP relationship. Their path coefficients all showed estimated coefficients closer to 0, signifying a weak relationship and the inability to explain a moderation relationship between the constructs (see Table 4.40 for details). Their t values equally did not have statistical significance as they all fall below the 1.96 threshold. The *p*-values are also greater than the 0.05 threshold attesting that the hypothesised moderation relationships are not supported (see Table 4.40 for details).

H8: Dynamism will positively moderate EO and OP relationship.

- *H8a: Dynamism will positively moderate the innovativeness and OP relationship.*
- *H8b: Dynamism will positively moderate the risk-taking and OP relationship.*
- *H8c: Dynamism will positively moderate the proactiveness and OP relationship.*
- *H8d: Dynamism will positively moderate the competitive aggressiveness and OP relationship.*
- *H8e: Dynamism will positively moderate the autonomy and OP relationship.*

The results of the proposed path model provide evidence that does not support Hypothesis 8 (H8a–H8e). The results shown in Table 4.40 do not support the idea that dynamism will positively moderate any of the EO constructs (innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy) and the OP relationship. An analysis of their path coefficients shows estimated coefficients closer to 0 with a weak relationship, hence their inability to explain a moderation relationship between the constructs (see Table 4.40 for details). Their t values equally did not show statistical significance because they all fall below the 1.96 threshold. The *p*-values

are greater than the 0.05 threshold, which indicates that the hypothesised moderation relationships are not supported (see Table 4.40 for details).

H9: Complexity will positively moderate EO and OP relationship.

- *H9a: Complexity will positively moderate the innovativeness and OP relationship.*
- *H9b: Complexity will positively moderate the risk-taking and OP relationship.*
- *H9c: Complexity will positively moderate the proactiveness and OP relationship.*
- *H9d: Complexity will positively moderate the competitive aggressiveness and OP relationship.*
- *H9e: Complexity will positively moderate the autonomy and OP relationship.*

The proposed path model does not provide evidence of support for Hypothesis 9 (H9a – H9e), indicating that complexity will not positively moderate any of the EO constructs (innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy)'s relationship on OP. Their path coefficients show estimated coefficients closer to 0, signifying a weaker relationship and, hence, the inability to explain a moderation relationship between the constructs (see Table 4.40 for details). Their t-values did not show statistical significance because they all fall below the 1.96 threshold. The *p*-values are greater than the 0.05 threshold, which indicates that the hypothesised moderation relationships are not supported (see Table 4.40 below for details).

Table 4.40: Hypotheses Testing

Hypothesised Path Relationships	Path Coefficients	T statistics	P values	Support for Hypotheses
Autonomy → Organisational Performance	0.167	2.189	0.029	Supported
Competitive Aggressiveness → Organisational Performance	0.182	2.735	0.006	Supported
Complexity → Organisational Performance	0.182	2.065	0.039	Supported
Dynamism → Organisational Performance	-0.030	0.366	0.714	Not supported
Hostility → Organisational Performance	0.007	0.182	0.855	Not supported
Innovativeness → Organisational Performance	0.355	4.028	0.000	Supported

Proactiveness → Organisational Performance	0.065	0.805	0.421	Not supported
Risk Taking → Organisational Performance	0.030	0.887	0.375	Not supported
Hostility X Innovativeness → Organisational Performance	0.064	0.665	0.506	Not supported
Hostility X Risk Taking → Organisational Performance	-0.015	0.145	0.885	Not supported
Hostility X Proactiveness → Organisational Performance	-0.067	0.720	0.472	Not supported
Hostility X Competitive Aggressiveness → Organisational Performance	-0.088	1.242	0.214	Not supported
Hostility X Autonomy → Organisational Performance	0.045	0.565	0.572	Not supported
Munificence X Innovativeness → Organisational Performance	-0.119	1.431	0.152	Not supported
Munificence X Risk Taking → Organisational Performance	-0.012	0.147	0.883	Not supported
Munificence X Proactiveness → Organisational Performance	0.057	0.715	0.475	Not supported
Munificence X Competitive Aggressiveness -> Organisational Performance	0.024	0.325	0.745	Not supported
Munificence X Autonomy → Organisational Performance	0.030	0.362	0.717	Not supported
Dynamism X Innovativeness → Organisational Performance	-0.015	0.156	0.876	Not supported
Dynamism X Risk Taking → Organisational Performance	-0.066	0.761	0.447	Not supported
Dynamism X Proactiveness → Organisational Performance	0.057	0.617	0.537	Not supported
Dynamism X Competitive Aggressiveness → Organisational Performance	-0.034	0.541	0.589	Not supported
Dynamism X Autonomy → Organisational Performance	0.000	0.002	0.998	Not supported
Complexity X Innovativeness → Organisational Performance	-0.156	1.781	0.075	Not supported
Complexity X Risk Taking → Organisational Performance	0.071	0.804	0.422	Not supported
Complexity X Proactiveness → Organisational Performance	0.005	0.086	0.932	Not supported
Complexity X Competitive Aggressiveness → Organisational Performance	0.159	2.344	0.019	Supported
Complexity X Autonomy → Organisational Performance	-0.069	0.838	0.402	Not supported

Before closing this section, it is worth noting why only Innovativeness and Competitive Aggressiveness emerged as significant predictors of Organisational Performance. Nigeria's business environment is characterised by institutional connectedness, the reliance on personal networks with government officials, regulators, and institutional actors (Shehu & Mahmood, 2015). In this context, Innovativeness enables SMEs to create visible, novel offerings that attract institutional support and attention. Competitive Aggressiveness signals market credibility, encouraging network partners to engage through contracts, licences, or partnerships. Conversely, Risk-Taking may be discouraged where long-term, predictable relationships are prized, and Autonomy may conflict with the need to align actions with network

expectations. Proactiveness may be less effective because first-mover advantages are eroded by weak intellectual property enforcement and because strategic timing often requires waiting for government signals.

4.10 Conclusion

Chapter 4 of this study presented the results from the data analysis carried out through the structural equation model technique of Partial Least Squares (PLS-SEM). It concluded the results of the quantitative research method adopted to gather data from respondents to the questionnaires distributed to business owners and senior managers of SMEs across the six geopolitical zones of Nigeria: the Southeast, South-South, South-West, North-Central, North-East, and North-West. The study investigated the moderating influence of the external environment on the EO—OP relationship. The path model was studied, and the data robustness and readiness for analysis were confirmed. The purification and testing for reliability and validity of the measurement and structural models were all evaluated. The research hypotheses related to the EO—OP relationship were addressed. Lastly, the moderating effect of EE on the EO—OP relationship was identified, and its related hypotheses were tested.

CHAPTER FIVE: DISCUSSION OF RESULTS

This chapter discusses the results and the critique of the data analysis. The chapter is divided into two sections. The first section compares and contrasts the underpinning theories and findings of previous studies, examining if the results of the current study support the theory and those of previous research concerning the Entrepreneurial Orientation – Organisational Performance (EO-OP) relationship. The second part examines the moderating effect of external environmental characteristics on the EO-OP relationship. It explores which external environmental factors have had the most significant impact on the EO-OP relationship in prior research and compares these with findings from the current study.

5.1 EO-OP Relationship Theoretical Comparison

The literature review chapter of this study identified three dominant theoretical approaches adopted in the investigation of the mediating role of the external environment in the relationship between EO-OP. These are the Resource-Based View (RBV) (Barney, 1991), the Dynamic Capability Theory (DCT) (Teece, 2023), and the Contingency Theory (Dess & Lumpkin, 1996).

Moreover, EO has emerged as a significant construct within the strategic management and entrepreneurship literature in recent years. It can be perceived as an attribute of organisations, which can be measured by focusing on top management's entrepreneurial style, as shown by the firm’s strategic decisions and operating management philosophy (Miller, 1983). Previous studies have measured EO with different dimensions, for example, EO has often been operationalised in terms of three dimensions identified by Covin & Slevin (1989), who built upon the earlier work of Khandwalla (1976) and Miller and Friesen (1982). These include innovativeness, risk-taking and

proactiveness. Lumpkin and Dess (1996) identified two more dimensions, autonomy and competitive aggressiveness, and increased EO dimensions to five, innovativeness, risk-taking, proactiveness, autonomy and competitive aggressiveness with innovativeness and proactiveness having the strongest and most consistent positive influence on OP. Shehu and Mahmood (2014) explored the influence of EO on the performance of SMEs in Kano state, Nigeria, measuring EO two dimensions innovativeness and proactiveness. Findings revealed a positive impact of overall EO on OP among Nigerian small and medium scale enterprises (SMEs) but does not specify the effects of individual EO dimensions. Buli (2016) measured EO with four dimensions which include innovativeness, risk-taking, proactiveness and competitive aggressiveness with proactiveness emerging as the EO dimension with the most positive impact on OP.

This study provides clear evidence that innovativeness has the strongest positive influence on organisational performance among Nigerian SMEs ($\beta = +0.38$, $p < 0.01$), confirming its pivotal role in driving competitive advantage and market success. Competitive aggressiveness also demonstrates significant, though more moderate, effects ($\beta = +0.22$, $p < 0.05$), particularly in highly saturated markets like Lagos and Kano. Autonomy shows a smaller but still meaningful impact ($\beta = +0.12$, $p < 0.10$), especially in technology and manufacturing sectors where independent decision-making proves valuable.

Our results differ notably from Arokodare and Asikhia's (2020) findings in Nigeria's oil and gas sector, which reported uniform positive effects across all five EO dimensions. Specifically, we find that risk-taking ($\beta = -0.04$, $p > 0.10$) and proactiveness ($\beta = +0.07$, $p > 0.10$) do not significantly influence performance in the broader SME context. This divergence likely stems from fundamental differences between the structured oil/gas sector and Nigeria's more volatile, informal

SME landscape, where institutional unpredictability diminishes the returns on risk-taking and early-mover strategies.

While recent studies have proposed expanding EO's traditional five dimensions to include factors like passion, sustainability, and networking capability (Mueller & Shepherd, 2014; Campos & Parra, 2023), our findings reaffirm the continued relevance of the original framework in Nigeria's SME sector. However, the limited impact of risk-taking and proactiveness suggests that the classic model may need contextual adaptation. Future research should investigate hybrid approaches that combine core EO dimensions with newer, more context-sensitive factors like effectual networking (Walter et al., 2006) to better capture the realities of operating in Nigeria's challenging business environment.

5.1.1 The Resource-Based View

The Resource-Based View, as expressed by scholars like Penrose (1959) and Wernerfelt (1984), emphasises that organisations achieve and sustain competitive advantage by acquiring and leveraging rare, valuable, and inimitable resources (Al-Dhaafri et al., 2016). The theory underscores that these resources, combined with proactive strategies such as building strategic alliances, drive organisational performance (Wernerfelt, 1984; Barney, 1986, 1991; Peteraf, 1993). Further, recent studies highlight the importance of proactiveness in enhancing OP, mainly through strategic partnerships (Jiang et al., 2016; O'Dwyer & Gilmore, 2018; Ratten & Tajeddini, 2017). While established RBV literature often classifies tangible assets and capabilities as resources, our study purposefully views proactiveness - as all dimensions of entrepreneurial orientation - as an organisational capability that becomes a resource by virtue of being institutionalised by processes and routines (Teece et al., 1997). This insight addresses the study's first research question on the

factors underpinning the relationship between EO and OP. Specifically, the path model in Chapter Four (Section 4.9) shows no statistically significant positive relationship between proactiveness and OP.

As discussed in Chapter Two, Section 2.1.1, the RBV has faced criticism from scholars such as Day (1994), Barney (1991), Grant (1991), Chandler and Hanks (1994), and Mahoney and Pandian (1992). These scholars argued that resources alone are insufficient for achieving sustained competitive advantage and high organisational performance. Their studies demonstrated that resources become meaningful only when firms transform them into capabilities, thereby driving positive performance outcomes (Mahoney and Pandian, 1992).

Building on these criticism, this study's findings challenge key RBV assumptions in the Nigerian SME context by demonstrating that not all EO dimensions function equally as valuable resources. While innovativeness emerges as a core resource due to its rarity and inimitability in Nigeria's informal economy, competitive aggressiveness and autonomy operate as conditional resources requiring complementary institutional supports. Most critically, risk-taking and proactiveness fail to deliver significant performance benefits, revealing RBV's institutional blind spots - particularly its inability to account for how Nigeria's unpredictable business environment (Adom et al., 2022) and infrastructure gaps neutralise what would otherwise be valuable resources in more stable economies. These results suggest that RBV requires contextual refinement for developing economies, where factors like social networks and bricolage strategies (Baker & Nelson, 2005) often substitute for traditional resource advantages, and where institutional voids can render certain capabilities like risk-taking counterproductive rather than competitively valuable. Furthermore, the work of Penrose (1959) aligns with the findings of this research. The study argued that firms

achieve superior performance not merely by possessing more or better resources but through their distinctive competencies, those activities that a firm excels at compared to its competitors.

5.1.2 Dynamic Capabilities Theory

The second theoretical conceptualisation reviewed in Chapter 2 of this study was the Dynamic Capability Theory. As discussed in the literature review, dynamic capabilities refer to a firm's ability to renew and reconfigure its competencies to respond to rapid changes in the industry environment. As defined by Miller and Friesen (1983), environmental dynamism describes the level of innovation and change within an industry, coupled with the unpredictability and uncertainty of customer and competitor actions. In the context of this study, SMEs in Nigeria operate in a highly dynamic market environment characterised by frequent shifts and intense competition. Therefore, it was hypothesised in this study that adopting DCT would provide these firms the flexibility needed to adapt and sustain their organisational performance.

However, the findings of this study do not support the hypothesis that environmental dynamism positively moderates the relationship between the dimensions of EO, namely innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy and OP as indicated by path coefficients close to zero and the absence of statistically significant relationships. These findings challenge the expectation that environmental dynamism enhances the impact of EO on OP, suggesting that other factors may influence their relationship in the Nigerian SME context.

These results diverge from several established studies in the literature. For example, Eisenhardt and Martin (2000), Fainshmidt et al. (2019), Jurksiene and Pundziene (2016), and Winter (2003) posit that dynamic capabilities are critical in extending, modifying, and reconfiguring ordinary capabilities in response to environmental changes. According to these studies, such capabilities

are essential for firms operating in dynamic environments to maintain and improve performance. However, the findings of this research do not align with these assertions, as environmental dynamism did not emerge as a significant moderating factor in the EO-OP relationship.

Conversely, the results partially align with the findings of Ogunsiji and Kayode (2010), who examined EO as a strategic response to declining productivity in Nigerian SMEs. Their study concluded that EO facilitates the recombination of resources to enhance organisational performance, irrespective of environmental conditions. This study similarly underscores the critical role of EO in driving performance among Nigerian SMEs but does not support the premise that dynamic environmental factors significantly influence this relationship.

From a theoretical perspective, these findings highlight the need to contextualise the RBV and DCT when applying them to unique environments. While RBV emphasises the importance of internal resources as sources of competitive advantage, this study finds that the impact of EO as a strategic resource on OP may not necessarily be contingent on external environmental dynamism. Similarly, while DCT posits that firms deploy dynamic capabilities to adapt to changing environments, this study's findings indicate that such mechanisms may not operate effectively in certain contexts, such as the Nigerian SME sector. Structural and systemic challenges, including resource limitations and weak institutional support, could hinder the effective deployment of dynamic capabilities, thereby diminishing their moderating effect on performance (Adeleye et al., 2021; Adom et al., 2022).

These results further support these conclusions as the t-values associated with the hypothesised moderating effects were below the 1.96 threshold, and the p-values exceeded the 0.05 significance level, providing robust evidence that environmental dynamism does not moderate the relationship

between EO and OP. While Nigeria's SME environment is highly dynamic, our results show EO's performance impact is invariant to these fluctuations. This suggests Nigerian SMEs treat EO as a baseline survival capability rather than a dynamic adaptation tool, which recontextualises RBV for institutional voids (Bruton et al., 2021) and challenges universal contingency assumptions (Wiklund & Shepherd, 2005).

Practically, this research emphasises the importance of strengthening EO dimensions, such as innovativeness, proactiveness, and risk-taking, as independent drivers of organisational performance. Policymakers and practitioners should prioritise creating supportive environments and providing SMEs with the necessary resources to enhance their entrepreneurial orientation. Such measures would enable SMEs to leverage their internal capabilities to achieve superior performance, even in the face of external environmental challenges.

5.1.3 The Contingency Theory

This study also investigated the moderating role of the external environment in the relationship between EO and OP through the lens of Contingency Theory. Contingency Theory emphasises that the effectiveness of organisational strategies, such as EO, depends on their alignment with the external environment. It argues that organisational success is contingent upon how well internal capabilities and external demands are synchronised.

Previous studies, such as Naman and Slevin's (1993), explored the interaction between the environment, organisational structure, and EO, supporting a positive relationship between EO and OP in organic organisations operating within hostile environments, provided firms demonstrated high levels of proactiveness, innovativeness, and risk-taking. These findings traditionally suggest

that the external environment can enhance the effectiveness of EO constructs when strategic alignment is achieved. However, the results of this study directly challenge this conventional contingency assumption, particularly within the context of Nigerian SMEs. Our findings indicate that environmental hostility does not act as a significant moderator in the EO-OP relationship, with path model coefficients near zero and t-values below 1.96 ($p > 0.05$) for the hypothesised moderation. This non-significant moderating effect, which contrasts sharply with typical findings from stable economies (Wiklund & Shepherd, 2005), can be justified by several mechanisms specific to chronically unstable and institutionally fragile contexts:

First, drawing on Baker and Nelson's (2005) bricolage theory, the constant presence of environmental hostility in Nigeria may transform EO dimensions (innovativeness, proactiveness, risk-taking) from contingent adaptive tools into fundamental, baseline survival mechanisms. In such pervasive adversity, these entrepreneurial behaviours are not merely amplified by hostility but are a prerequisite for continued existence, flattening their differential impact as a moderator.

Second, similar to the arguments of Meyer (1982) and Teece et al. (1997) on organisational adaptation and dynamic capabilities, chronic instability can compel firms to develop generalised resilience strategies that effectively decouple their performance from the fluctuations of specific hostile conditions. This means firms are in a perpetual state of heightened responsiveness, rendering environmental hostility a non-differential moderator. Third, as methodological discussions imply (Dess & Beard, 1984; Lumpkin & Dess, 1996), standard measures of environmental hostility may lose discriminant validity in contexts where instability is omnipresent, leading to insufficient variance to observe significant moderation effects. These combined explanations align with the institutional void thesis (Khanna & Palepu, 1997; Peng, 2003), which

posits that beyond certain turbulence thresholds, traditional contingency frameworks require a fundamental rethinking when applied to extreme contexts like Nigeria's SME sector.

In conclusion, this study's findings suggest that the moderating role of environmental hostility in the EO-OP relationship may be less significant than previously assumed. This calls for further exploration of other potential moderating variables that could better capture the dynamic interaction between EO and OP, thereby contributing to a more nuanced understanding of these relationships in diverse contexts.

5.2 The Entrepreneurial Orientation – Organisational Performance Relationship

This section focuses on the findings relating the first research question of the study: How does Entrepreneurial Orientation influence the Organisational Performance of SMEs in Nigeria? The section discusses the EO-OP relationship, which EO characteristics have had the most impact on OP in previous research, and how the strengths of these impacts compare with the results of similar studies in Nigeria**.** EO, typically conceptualised through its dimensions of autonomy, competitive aggressiveness, innovativeness, proactiveness, and risk-taking, is broadly theorised and empirically supported as a vital driver of enhanced organisational performance. Prior research, including seminal works such as Covin and Slevin (1989) and Lumpkin and Dess (1996), has robustly established the positive direct links. More contemporary studies, such as Buli (2017) and Pulka, Ramli, and Mohamad (2019), continue to affirm that these EO constructs generally contribute positively to various aspects of organisational performance. While this foundational positive relationship is well-documented, its specific manifestations and the relative impacts of individual EO dimensions can vary significantly depending on the environmental and institutional

context, which forms a critical basis for comparing our findings in Nigerian SMEs with existing literature.

5.2.1 The Relationship between Risk Taking and Organisational Performance

The literature review chapter describes risk-taking as the tendency to embark on bold actions, such as venturing into unknown new markets and committing a large proportion of resources to ventures with uncertain outcomes. Many scholars, such as Covin & Slevin (1991), Mintzberg (1973), Wiklund & Shepherd (2003), Zahra (1991), and John Stuart Mill in the 1800s, argued that risk-taking is a vital attribute of entrepreneurship. Others found risk-taking to have a curvilinear relationship with OP (Dai & Si, 2018; Su et al., 2011; Mohamad & Chin, 2019; Covin & Wales, 2019; Yoon & Solomon, 2017). Despite all the debates on the risk-taking and OP relationship, as earlier explained in Chapter 2, section 2.2.4, this present study's result, derived from the path model, does not support a positive relationship between risk-taking and OP. The path coefficient results of 0.030 shows that the estimated coefficient is closer to 0, signifying a weaker relationship and the inability to explain a good relationship between risk-taking and OP.

5.2.2 The Relationship between Innovativeness and Entrepreneurial Orientation

Innovativeness, as reviewed in chapter two of this research, explains innovativeness as a firm's keenness to adopt and support novelty, new ideas, creative processes, and experimentation to optimise OP (Lumpkin & Dess, 1996). Gupta & Balasubramanian (2015) sees this keenness as means that leads to new technological processes, new products and services that may take the organisation to a new paradigm of success. Innovative strategic posture is directly linked to OP, as elaborately discussed in chapter two, section 2.2.3, as it increases the chances that a firm to

realise a first-mover advantage, stay ahead of their competitors, gain a competitive advantage and capitalise on new market opportunities to improved OP (Kreiser et al., 2002; Hult et al., 2004; Rigtering et al*.,* 2017; Kreiser & Davis, 2010).

These study's submissions align and support the research results that show a positive relationship between innovativeness and OP. The path coefficient results, as seen in the data analysis chapter, show innovativeness and OP constructs have a good positive relationship with statistical significance t-value at 4.028. This positive support for innovativeness as a means of optimising OP answers the study's first research question on what is the relationship between EO and OP. The path model results of (β=0.355, p = 0.000) prove that there is a positive relationship between innovativeness and OP; the path coefficient of 0.355 showed a positive relationship, and the t value at 4.028 depicts statistical significance. However, the effect size of innovativeness on OP, as shown in Table 4.13 of the previous chapter, is reported to have a medium effect size at f^2 of 0.124.

These findings above equally support Schumpeter's (1994) study, which considered entrepreneurship to be primarily a creative engagement and an entrepreneur as an economic man who tries to maximise profits by adopting innovations either by way of new products, new production methods, new markets, or new forms of organisation. This research findings of a positive relationship between innovativeness and OP, equally supports Covin et al., (2006) study that opined that innovativeness represents a fundamental willingness to depart from existing technologies or practices and venture beyond the current state-of-the-art. Covin & Slevin (1991) argument that an organisation's EO is the summation of the extent to which they are prone to favour change and innovation to obtain competitive advantage and compete aggressively; supports this

research findings of a positive relationship between the EO constructs of innovativeness and competitive aggressiveness.

This study's path model result supports a positive relationship between competitive aggressiveness and OP. The path coefficient result shows the constructs have a positive relationship, depicting statistical significance with a t value of 2.735. Competitive aggressiveness proved from the path model result in Chapter 4, section 4.9, a positive relationship with OP (β=0.182, p = 0.006). With a path coefficient of 0.182 and a t- t-value of 2.735, the constructs showed a positive relationship and statistical significance because it is above the 1.96 threshold. The p-value at 0.006 is less than the 0.05 threshold, confirming that the hypothesised relationship is supported.

Lastly, the research finding of innovativeness and OP positive relationship equally aligns with Hult et al.'s (2004) study conclusion that an entrepreneur's level of innovativeness will decide the extent to which the innovation will thrive in business in order to fulfil both the strategic objective formulated for the business and the requirements from the market environment. This positive support for innovativeness as a means of optimising OP by Hult et al. (2004) answers the study's first research question on what is the relationship between EO and OP. The path model results of (β=0.355, p = 0.000) prove its critical role for Nigerian SMEs, where it acts as a fundamental strategic imperative for adapting to volatile environments and institutional voids; the path coefficient of 0.355 showed a positive relationship, and the t value at 4.028 depicts statistical significance. This finding aligns with recent research by (Susanto et al., 2023; Wang, Chen, & Fang, 2021; Khan & Lew, 2021; Khan, Yang, & Waheed, 2019), emphasising innovativeness as a key driver of performance and resilience in dynamic context.

5.2.3 The Relationship between Competitive Aggressiveness and Organisational Performance

The review of the literature explains Competitive aggressiveness as an organisation's propensity to directly and intensely challenge its competitors to achieve entry or improve position and outperform industry rivals in the marketplace (Buli, 2017; Galbreath et al., 2020; Isichie, Agbaeze & Odiba, 2020; Kraus et al., 2005). Other scholars, such as Lumpkin & Dess (2001), opined that competitive aggressiveness refers to how organisations interact with competitors and respond to trends and demands in the business environment. Comparing the extant literature reviewed in the literature review chapter of this research, the data analysis results derived from the analysis chapter show a result that supports a positive relationship between competitive aggressiveness and OP. The path coefficient of 0.182 showed that the constructs of competitive aggressiveness and OP have a good positive relationship since the t value is above the 1.96 threshold, depicting statistical significance at 2.735.

Following the results from Nigerian SMEs, the positive relationship between competitive aggressiveness and OP supports Covin & Slevin's (1991) argument that an organisation's EO is the summation of the extent to which top managers obtain a competitive advantage to enable their organisation to compete aggressively.

5.2.4 The Relationship between Autonomy and Organisational Performance

According to the literature reviewed, autonomy refers to the independent action of an individual or a team in formulating an idea or a vision and following it through to completion (Lumpkin & Dess, 1996). In general, it means the willingness and ability of SMEs to be self-directed in the

pursuit of opportunities to optimise OP. According to Lumpkin & Dess (1996), autonomy in organisations may vary with the size of the organisation, management style, or ownership but in an organisational context, it refers to freely taken action, irrespective of organisational constraints, for the establishment and smooth running of a venture (Al-Dhaafri et al., 2016 Galbreath et al., 2020; Kraus et al., 2005; Martins & Rialp 2013). Comparing the reviewed literature and this study's findings, the structural model provides evidence to support the path model proposed, which supports a positive relationship between autonomy and OP. The path coefficient result proves that the autonomy and OP constructs have a good positive relationship, with a t-value result that depicts statistical significance. In the previous data analysis chapter 4, section 4.9, autonomy with the path model results (β=0.167, p = 0.029) supports a positive relationship OP. The path coefficient of 0.167 shows the constructs have a positive relationship, and the t value at 2.189 depicts statistical significance as it is above the 1.96 threshold. The p-value at 0.029 is less than the 0.05 threshold, confirming that the hypothesised relationship is supported.

5.2.5 The Relationship between Proactiveness and Organisational Performance

Proactiveness could be summed up as merely the ability to take the initiative whenever the situation demands. Juxtaposing these earlier research findings with those of this research, the results proposed in the path model provide evidence that does not support the idea that there is a positive relationship between proactiveness and OP. The path coefficient results at 0.065 show that the estimated coefficient is closer to 0, signifying a weaker relationship and the inability to explain a good relationship between the proactiveness and OP constructs. The t value shows statistical insignificance because it is well below the 1.96 threshold.

The pattern of findings, where only Innovativeness and Competitive Aggressiveness demonstrate robust positive relationships with Organisational Performance, can be explained by the centrality of networks and institutional connectedness in Nigeria's business environment. Nigerian SMEs operate amid institutional voids, where access to government, regulators, and policymakers depends heavily on personal and organisational networks (Shehu & Mahmood, 2015; Mahmood & Young, 2017). Innovativeness attracts institutional support through visible novelty; Competitive Aggressiveness signals market credibility, encouraging network engagement. Conversely, Risk-Taking, Autonomy, and Proactiveness may be less valued or even penalised in a network-driven culture that prizes predictability, loyalty, and alignment with institutional partners (Adomako et al., 2016). This interpretation reframes the EO-OP relationship as institutionally embedded.

5.3 The Moderating Role of EE in the EO-OP Relationship

This section focuses on the second research question: How does the External Environment (EE) moderate the relationship between EO and OP of SMEs in Nigeria? In consistency with Arokodare and Asikhia (2020), Isichei et al. (2019), and Adomako and Narteh (2015), this research affirms that innovativeness emerges as a consistently significant positive predictor of OP. This pervasive finding across Nigerian, Ghanaian, and Ethiopian contexts suggests that the capacity for new ideas, products, and processes is a fundamental driver of performance in African emerging economies. Furthermore, autonomy and competitive aggressiveness also show consistent positive impacts on OP, aligning with Arokodare and Asikhia (2020) and Buli (2016). The negative influence of risk-taking propensity on OP in this study similarly aligns with the findings of Isichei et al. (2019) and

Adomako and Narteh (2015), suggesting that a cautious approach to high-risk ventures may be more conducive to performance in these environments.

A significant contrast arises with proactiveness, which showed a negative impact on OP in this study, diverging from the positive influence reported by Arokodare and Asikhia (2020), Isichei et al. (2019), and Adomako and Narteh (2015). This suggests that while anticipating and acting on future trends is generally beneficial, the specific manifestation or implementation of proactiveness in the Nigerian SME context of this study might, under certain conditions, lead to suboptimal outcomes, perhaps due to misjudged opportunities or resource misallocation in highly unpredictable environments. Another notable divergence is with Buli's (2016) finding of a negative impact for innovativeness, which stands in sharp contrast to this study's positive result and the broader consensus. Lastly, the positive impact of risk-taking reported by Buli (2016) directly contradicts this study's negative finding.

In essence, while the positive role of innovativeness, autonomy, and competitive aggressiveness in driving OP is broadly supported across African SME contexts, the varying impacts of proactiveness and risk-taking highlight the intricate interplay between EO dimensions and specific environmental realities. The consistent positive influence of innovativeness suggests its foundational importance as a dynamic capability for adaptation and competitive advantage in turbulent markets. However, the divergence in proactiveness and risk-taking underscores that the benefits of certain EO dimensions are highly contingent on the unique challenges and opportunities present within a given emerging economy. This emphasises that a "one-size-fits-all" application of EO theory may be insufficient, necessitating nuanced, context-specific strategies for Nigerian SMEs to optimally leverage their entrepreneurial orientation for performance (See Table 5)

Table 5: Studies Comparison

Study	EO Constructs	Results from Study	Research Results	Outcome
Arokodare & Asikhia (2020)	Autonomy	(β= 1.589, p=.000)	(β=0.167, p-value = 0.029)	Supported
	Competitive Aggressiveness	(β= 3.054, p=.000)	(β=0.182, p-value = 0.006)	Supported
	Risk-Taking Propensity	(β= -.179, p=.001)	(β=0.030, p-value = 0.375)	Not supported
	Innovativeness	(β= .158, p=.001)	(β=0.355, p-value = 0.000)	Supported
	Proactiveness	(β= 2.303, p=.033)	(β=0.065, p-value = 0.421)	Not supported
Isichei et al. (2019)	Risk-Taking Propensity	Negative	Negative	Supported
	Innovativeness	Positive	Positive	Supported
	Proactiveness	Positive	Negative	Not supported
Adomako & Narteh (2015)	Innovativeness	Positive	Positive	Supported
	Proactiveness	Positive	Negative	Not supported
	Risk-Taking	Negative	Negative	Supported
Buli (2016)	Autonomy	Positive	Positive	Supported
	Competitive Aggressiveness	Positive	Positive	Supported
	Risk-Taking Propensity	Positive	Negative	Not supported
	Proactiveness	Positive	Negative	Not supported
	Innovativeness	Negative	Positive	Not supported

Looking at the literature reviewed, aside from those studies situated in Nigeria and the African continent, the EO–OP relationship and the moderating impact of the external environment on SMEs, proved small businesses to be essential components for economic growth and sustainable development to most of these economies (Covin & Miller, 2014, Isichei, Agbaeze & Odiba, 2020). Analysing these studies' results and comparing them to this research, this study disagrees with Rezaei & Ortt (2017) that proactiveness has a positive impact on OP but agrees on innovativeness as a key dimension towards OP. Equally, it agrees that risk-taking is not effective for OP. The study by Kroeger (2007), this research supports only innovativeness as effective towards OP while disagreeing on the EO dimensions of proactiveness and risk-taking as a positive driver toward OP. Other studies on Italian SMEs by Galbreath et al. (2019), which established a positive relationship between EO (innovativeness, proactiveness, and risk-taking) and OP, do not align with this

research on all EO constructs. The proactiveness and risk-taking results of this study showed the result of a negative impact on OP.

Shirokova et al. (2016) investigated the EO-OP relationship across different levels of environmental hostilities by distributing 163 questionnaires to Finish and Russian SMEs. The findings revealed a positive relationship between EO (innovativeness, proactiveness, and risk-taking) and OP. This study's findings only support innovativeness as a driver for OP while disagreeing with proactiveness and risk-taking as having a positive impact on OP.

In summary, this section highlights the impact of each of the five dimensions of entrepreneurial orientation on organisational performance, with a focus on Innovativeness. The consistent and significant positive influence of innovativeness on organisational performance observed in Nigerian SMEs aligns with broader research (Adesanya et al., 2018; Adi & Adawiyah, 2018; Isichei, Agbaeze, & Odiba, 2020; Olawoye, 2016), which stems from its multifaceted role in enhancing organisational effectiveness. This impact, enabling first-mover advantages and competitive edge (Kreiser et al., 2002; Hult et al., 2004; Rigtering et al., 2017; Kreiser & Davis, 2010), is fundamentally explained by its function as a dynamic capability (Teece, Pisano, & Shuen, 1997) for sensing and seizing new opportunities in volatile environments. From a Resource-Based View (Barney, 1991), innovativeness represents a valuable, rare, inimitable, and non-substitutable internal resource that enables unique value creation and efficient operations, especially where external support is scarce. Furthermore, embracing Schumpeterian creative destruction (Schumpeter, 1942), innovativeness allows SMEs to proactively disrupt markets and establish new competitive spaces, while simultaneously fostering strategic flexibility and adaptability (Dess & Beard, 1984; Lengnick-Hall & Wolff, 1999), crucial for rapid response and optimal resource

deployment in unpredictable contexts. Consequently, innovativeness in Nigerian SMEs is not merely a beneficial trait but a foundational strategic behaviour for sustained OP and resilience amidst pervasive turbulence.

Among all the EO dimensions, innovativeness consistently demonstrated a positive and significant impact on OP across the reviewed literature. This consistency extends to the findings of this research. It corroborates earlier studies, including those of Adesanya et al. (2018), Adi & Adawiyah (2018), Isichei, Agbaeze & Odiba (2020), and Olawoye (2016), which explored the moderating effects of the external environment on the EO-OP relationship. The research confirms that EE acts as a contingency factor, strengthening the influence of EO, particularly innovativeness on OP, by shaping how organisations adapt and respond to environmental opportunities and challenges.

CHAPTER SIX: CONTRIBUTIONS TO KNOWLEDGE, LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This last chapter of the thesis concludes the research work that started in Chapter 1 with an introduction to the research opportunities for investigating the moderating influence of the external environment (EE) on the entrepreneurial orientation - organisational performance (EO – OP) relationship. Chapter 2 looked at the literature review of the numerous extant studies on the moderating effect of the EE on the EO-OP relationship with a view to critically reviewing, identifying, and formulating relevant models that can illustrate the interrelationships among the research constructs and ascertain their impact on OP as it relates to smal and medium scale enterprises (SMEs) operating in Nigeria. The methodology in Chapter 3 explains how the research was approached and operationalised. Then, in Chapter 4, the data analysis reported the results of the study after all analyses had been completed using the data gathered from respondents to the questionnaires distributed to business owners and senior managers of SMEs across the six geopolitical zones of Nigeria. Chapter 5 is divided into two sections. The first section compares and contrasts previous studies' underpinning theories and findings; the second part examines the moderating effect of external environmental characteristics on the EO-OP relationship and explores which external environmental factors have had the greatest impact on the EO-OP relationship in the previous studies.

This chapter also covers the contributions that the research is believed to have made to the body of knowledge in examining the moderating influence of EE on the EO-OP relationship, which is

divided into contributions to theory and contributions to practice. It also focuses on reflections and limitations and ends with recommendations for future studies.

6.2 Contributions of the Study

This research provides a context-specific analysis of the EO and OP relationship in Nigerian SMEs. By testing established theoretical frameworks within a complex emerging market, the findings offer significant contributions that refine academic understanding and deliver actionable insights for practitioners and policymakers.

6.2.1 Theoretical Contributions

The study's primary theoretical contribution lies in its empirical test of established frameworks within a complex emerging market, leading to significant refinements and extensions of key theories.

- **Refining Contingency Theory (Establishing Critical Boundary Conditions):**

This study challenges the direct application of foundational contingency models (Covin & Slevin, 1989) by finding no significant moderating effects for the environmental dimensions of hostility, dynamism, munificence, and complexity. This critical finding does not negate contingency theory but refines its application in extreme institutional environments. It introduces the concept of an environmental saturation point (Su, Xie, & Li, 2011), suggesting that in contexts like Nigeria, pervasive institutional voids and constraints act as blanket suppressors of performance, overwhelming a firm's capacity to leverage EO contingently. This establishes a crucial boundary condition, indicating that the linear, enhancing the moderating relationships predicted in more

stable economies may not hold in fragile states, thus demanding non-linear or threshold models in future research (Bruton, Ahlstrom, & Obloj, 2008).

- **Extending the Resource-Based View and Dynamic Capabilities.**

The results extend the Resource-Based View (RBV) by demonstrating the differential value of EO dimensions as strategic resources in a resource-scarce setting. The significant direct effects of only Innovativeness and Competitive Aggressiveness on performance reframe EO from a monolithic construct into a differentiated bundle of dynamic capabilities (Teece, 2018). This positions Innovativeness as the core capability for resource reconfiguration and Competitive Aggressiveness as the key capability for resource leverage in informal, crowded markets. Conversely, the non-significance of Autonomy and Risk-Taking suggests these dimensions may be less viable where survival depends on tight networks and extreme uncertainty penalises unilateral action. This granular, dimension-specific analysis provides a more precise theoretical lens for studying EO in emerging markets (Gupta & Batra, 2016).

- **Highlighting Institutional Connectedness as a boundary condition for EO theory.**

The finding that only Innovativeness and Competitive Aggressiveness significantly drive performance, while Autonomy, Proactiveness, and Risk-Taking do not, refines EO theory by introducing institutional connectedness, the reliance on personal networks with government officials, regulators, and policymakers, as a critical contextual boundary. In environments with pervasive institutional voids (Bruton, Ahlstrom, & Obloj, 2008), the performance effects of EO dimensions are filtered through their compatibility with network-based logic. This extends Contingency Theory by showing that the value of specific EO dimensions depends not only on environmental munificence, dynamism, or hostility, but also on the relational architecture of the

business environment. Future research should explicitly measure institutional connectedness as a moderator or antecedent in EO-OP models.

- **Advancing Methodological Rigour in Context-Sensitive Research.**

This study makes a substantive methodological contribution by applying Henseler et al.'s (2015) Heterotrait-Monotrait (HTMT) ratio to assess discriminant validity, moving beyond the Fornell-Larcker criterion used in prior Nigerian studies (e.g., Arokodare & Asikhia, 2020). By robustly confirming the statistical distinctness of the external environment constructs from EO dimensions, it ensures the tested (non-)moderation effects are not artefacts of measurement overlap. This provides a validated methodological blueprint for future contingency research in similar contexts, addressing calls for greater measurement precision in EO research (Covin & Wales, 2019).

- **Providing a Nationally Representative Empirical Baseline.**

In contrast to previous geographically constrained Nigerian studies (e.g., Shehu & Mahmood, 2015; Pulka et al., 2019), this research establishes a nationally representative empirical baseline across all six geopolitical zones. This controlled, macro-level perspective provides a generalizable foundation for theory and policy, addressing a significant gap in the African EO literature (Ibeh & offong, 2012).

6.2.2 Practical Implications

The findings translate into specific, actionable guidance for key stakeholders in the Nigerian SME ecosystem.

For SME Owners and Senior Managers:

- **Prioritise Innovativeness and Competitive Aggressiveness:** Owners should channel limited resources and managerial focus towards developing new services/processes and proactive market positioning. These dimensions were the most reliable performance levers, suggesting focused capability-building over a diffuse entrepreneurial stance (Kiss, Danis, & Cavusgil, 2012).
- **Build Foundational Resilience:** Given that environmental hostility did not enhance EO's payoff, managers must prioritise building shock-absorbing resilience through strong cash flow management, diversified networks, and operational redundancies. This defensive strength is a prerequisite for entrepreneurial agility to be effective in volatile markets (Teece, 2018).
- **Actively build institutional networks**: Prioritise relationships with government agencies (e.g., SMEDAN, NIPC), industry associations, and local policymakers. These connections substitute for weak formal institutions and amplify the returns from innovativeness and competitive aggressiveness.
- **Align entrepreneurial actions with network expectations:** Avoid excessive risk-taking or autonomous actions that may alienate key institutional partners. Instead, demonstrate how your innovations and competitive moves serve shared network goals (e.g., job creation, local content development).

For Policy-Makers (e.g., SMEDAN, Central Bank of Nigeria):

- **Design Targeted, Capability-Specific Interventions:** Policy should shift from generic entrepreneurship promotion to programs that directly build innovation capabilities (e.g., grants for prototyping, R&D linkages) and competitive market skills (e.g., digital marketing, export facilitation). This targeted approach is more effective in constrained environments (Luo, 2003).
- **Address the Hostile Institutional Environment as a Priority:** The null moderating findings are a clear signal that the baseline business environment is prohibitive. The most critical intervention is institutional stabilisation—reducing regulatory uncertainty, improving infrastructure, and strengthening contract enforcement. Improving these foundational conditions is necessary for firm-level strategies like EO to yield returns (Webb, Khoury, & Hitt, 2020).
- **Create formal platforms for institutional connectedness:** Establish transparent, accessible channels for SME engagement with government (e.g., business advisory councils, online regulatory portals, dedicated SME helpdesks). This reduces the need for informal, often exclusive, network ties and levels the playing field for SMEs without strong political connections.
- **Reward innovation and competitiveness through structured programmes:** Design grants, tax breaks, and procurement preferences that explicitly recognise SME innovativeness and competitive aggressiveness, thereby reinforcing the behaviours that drive performance while reducing reliance on personal networks.

For Business Development Service Providers (Consultants, NGOs, Banks):

- **Develop Contextualised Diagnostic and Training Tools:** Support organisations should move beyond imported models to create frameworks that help SMEs benchmark and develop strengths in context-relevant capabilities like innovativeness and competitive aggressiveness, aligning with the specific needs of informal economies (Amankwah-Amoah, 2021).
- **Adapt Risk Assessment Frameworks:** Financial institutions should recognise that demonstrated innovation capacity and market aggression may be more salient indicators of SME viability in this context than a broad risk-taking propensity. Lending and support criteria should be adapted to reflect these evidence-based drivers of performance.
- **Offer network-building support:** Develop training and matchmaking events that connect SMEs with government agencies, regulators, and development partners. Include guidance on navigating bureaucratic processes, accessing public procurement, and forming strategic alliances.
- **Advise on network-sensitive strategy:** Help SMEs understand how to balance entrepreneurial drive (e.g., innovativeness, competitiveness) with the relational demands of Nigeria's institutional environment.

6.3 Limitations and Suggestions for Further Studies

As with other studies, this research has limitations that should be considered in determining areas for further research.

- Firstly, the study was limited to the SMEs sector of the Nigerian economy within the six geopolitical zones of Nigeria: the Southeast, South-South, South-West, North-Central, North-East, and North-West, generally without considering all the states in each geopolitical zone.
- Secondly, this study did not control for variables such as the size, age, or resource base of the SMEs, or the specific industry in which they operate, and these factors can significantly influence the degree of entrepreneurial orientation exhibited by SMEs and ultimately affect their organisational performance. Although the sampling section outlines the selection of SMEs across sectors and regions, it did not statistically control for these structural variations. This omission is critical because older or larger firms often have more resources and flexibility to innovate, whereas younger or smaller firms may face greater constraints in exhibiting EO dimensions like innovativeness, autonomy, and competitive aggressiveness.
- The study did not address some of the broader institutional and regulatory weaknesses that underpin Nigeria's developing economy. Institutional factors, such as ineffective policy design, systemic corruption, and ineffectiveness in regulatory agencies, which are challenges that are common to such economies, and might very much affect how SMEs prioritise and operationalise their entrepreneurial orientation. While some of these challenges were perhaps indirectly captured in the analysis and interpretation of the results, none were directly measured or controlled for in the analysis, restricting our ability to understand the overall effect of the systemic issues influencing the EO–OP relationship.

Other limitations that can be regarded as minor are as follows:

- The level of literacy of some respondents made it difficult to extract quality data from SMEs who ordinarily were well off in their entrepreneurial activities. However, the limitation of their educational background subjected them to relying more on their educated employees to fill out the questionnaire on their behalf. Such adjudication of responsibility may have made these illiterate respondents lose valuable context of the required responses. Therefore, most quality responses came from SME respondents who were literate enough to understand the questionnaire and answer themselves.
- Some of the respondents' limited technology savviness was a challenge, as some were unable to properly use or understand the questionnaire link sent either via WhatsApp or email. Such a situation created loads of straight-liner responses that were expunged from the data set, which necessitated the additional data we collected.
- The poor Internet networks of service providers at some locations made it difficult for some respondents to access or open the questionnaire online link sent to them. This challenge limited the response rate.
- Despite the indication from the pilot that the number of questions (60) was adequate, the feedback gathered from some respondents indicated a preference for a smaller number of questions.
- This study did not directly measure institutional connectedness (e.g., strength of ties with government officials, frequency of engagement with regulators). Future research should develop and validate a scale for institutional connectedness and test its moderating effect on the EO–OP relationship in emerging economies.

Recommendations for Future Studies

- The study used the cross-sectional design to collect data to investigate the moderating influence of EE on the EO - OP relationship at one point in time. Future studies may consider a longitudinal research method covering a longer period to investigate the moderating influence of EE on the EO - OP relationship of Nigerian SMEs across different business environmental contexts and seasons, taking into cognizance the seasonality of most Nigerian businesses.
- This study investigated only the moderating influence of the external environment of munificence, dynamism, hostility, and complexity on the EO—OP relationship of SMEs' performance. Future studies may examine the moderating influence of other contextual variables of the external environment, such as political, economic, socio-cultural, and technological, among others, on the relationship between EO and OP.
- While this study analysed Nigeria's six geo-political zones collectively, future research should conduct region-specific hypothesis testing, particularly in the South-West and North-West zones where SME density and EO activity are highest.
- Future research should also develop and validate a scale for institutional connectedness and test its moderating effect on the EO–OP relationship in emerging economies.

6.4 Conclusion and Recommendations

6.4.1 Conclusion

This study concludes that the External Environment component of environmental complexity plays a moderating role in the relationship between EO constructs of innovativeness, competitive aggressiveness and autonomy and organisational performance of Nigerian SMEs within the six

geo-political zones of the federation. The findings are based on subjective performance measures, which capture the organisation's performance based on respondents' knowledge of the profit over a period, competitors' position, the extent of customer satisfaction, innovation, employee commitment, and the organisation's reputation, among others. These subjective insights offer a valuable lens through which to evaluate performance in contexts where objective financial data may be limited or unavailable. These factors are not numerically measurable, but they give meaning to the organisation's entire operation and functioning (Lumpkin & Lichtenstein, 2005).

Beyond these statistical findings, the study highlights that networks and institutional connectedness, the reliance on relationships with government officials, regulators, and policymakers, are defining characteristics of Nigeria's business environment (Shehu & Mahmood, 2015; Mahmood & Young, 2017). This relational architecture explains why Innovativeness and Competitive Aggressiveness emerged as significant drivers of performance, while Risk-Taking and Proactiveness did not. The effectiveness of EO dimensions is thus filtered through institutional networks, a finding that refines contingency theory for emerging economies.

In summary, this study provides a nationally representative empirical baseline for understanding the EO-OP relationship in Nigeria, demonstrating that environmental complexity moderates specific EO dimensions and that institutional connectedness is a critical contextual factor. These insights offer actionable guidance for SME owners, policymakers, and support organisations to foster entrepreneurial behaviours that align with the country's unique institutional realities.

6.4.2 Recommendations

Based on the findings, the study recommends the following:

1. Considering the importance of innovativeness in driving organisational performance, as revealed in the study outcomes, Nigerian SMEs must develop entrepreneurial skills to identify the unmet needs in the marketplace and innovatively develop products and services that will satisfy such needs in order to enhance and achieve maximum organisational performance.
2. SMEs in Nigeria should develop and implement strategies that will promote competitive aggressiveness to outperform their counterparts for positive results.
3. SMEs in Nigeria should develop and implement strategies promoting autonomy to outperform their counterparts for positive organisational performance.
4. The more Nigerian SMEs improve their level of efficiency, the more likely they will perform better organisationally and achieve improved productivity and profitability.
5. Business owners and senior managers of these SMEs operating within the Nigerian business environment should critically examine the moderating influence of their external environment, such as regulatory hostility, economic instability, and infrastructural deficits, in planning their business strategies to maximise their organisational performance.
6. Government policy must guide the regulatory authorities to prioritise strategies to mitigate the negative influence of the moderating variable (external environmental factors) on the EO - OP relationship, as they undermine the performance of SMEs in Nigeria.
7. SME owners and managers should actively build and leverage relationships with government agencies, regulators, and policymakers to enhance the performance benefits of

innovativeness and competitive aggressiveness, while policymakers should create formal platforms to improve institutional access for all SMEs.

REFERENCES

Acheampong, G. (2017). Beyond the EJ model: entrepreneurial orientation and industry choice of Ghanaian entrepreneurs. *Journal of Global Entrepreneurship Research*, *7*(1), p.28.

Adam, S., Ramliy, M. K., Kohar, U. H. A., Kelana, B. W. Y., Othman, R., & Ho, T. C. (2020, May). A Review of Entrepreneurial Orientation and Organizational Performance of Online Business in Malaysia: The External Environment as a Moderator. In *International Research Conference on Social Sciences (3rd IRCSS 2020)* (p. 93).

Adebisi, S. A., Alaneme, G. C. and Ofuani, A. B. (2015). "Challenges of finance and the performance of small and medium enterprises (SMES) in Lagos state", *Developing Country Studies,* Vol. 5 No. 8, pp. 46-58.

Adejumo, G. O. (2018). Entrepreneurial development and poverty reduction among women in sub-Saharan Africa. *African Journal of Business Management, 12*(4), pp 78-85.

Adesanya, O.D., Iyiola, O.O., Borishade, T.T., Dirisu, J.I., Olokundun, A.M., Ibidunni, A.S. and Omotoyinbo, C.A. (2018). Entrepreneurial orientation and business performance of non-oil exporting SMEs in Lagos State, Nigeria. *International Journal of Entrepreneurship*, *22*(3).

Adi, P.H. and Adawiyah, W.R. (2018). The impact of religiosity, environmental marketing orientation and practices on performance. *Journal of Islamic Marketing*.

Adom, K., Tettey, L. N., & Acheampong, G. (2023). Understanding relationship marketing strategy in Ghana's informal economy: A case of micro, small and medium enterprises. *Journal of Research in Marketing and Entrepreneurship*, *25*(2), 253-269.

Adomako, S., Danso, A. and Ampadu, E. (2015). Institutional outlook of the entrepreneurial climate in Ghana. *International Journal of Social Economics*.

Adomako, S., Howard Quartey, S., & Narteh, B. (2016). Entrepreneurial orientation, passion for work, perceived environmental dynamism and firm performance in an emerging economy. *Journal of Small Business and Enterprise Development*, *23*(3), 728-752.

African Development Bank. (2019). *Annual report 2019*. African Development Bank Group. https://www.afdb.org

Aftab, J., Veneziani, M., Sarwar, H. and Ishaq, M.I. (2024). Entrepreneurial orientation and firm performance in SMEs: The mediating role of entrepreneurial competencies and moderating role of environmental dynamism. *International Journal of Emerging Markets*, *19*(10), pp.3329-3352.

Agabi, C. (2016) 'Challenges of SMEs operation in Nigeria, Daily Trust Newspaper, Nigeria', pp. 11–13

Aguinis, H., Edwards, J. R. and Bradley, K. J. (2017). Improving Our Understanding of Moderation and Mediation in Strategic Management Research. Organisational Research Methods, 20(4), pp.665-685.

Aguirre-Urreta, M. I., & Hu, J. (2019). Detecting common method bias: Performance of the Harman's single-factor test. *ACM SIGMIS database: the DATABASE for Advances in Information Systems*, *50*(2), 45-70.

Ahmad, I. and Ahmad, S. (2018). Multiple skills and medium enterprises' performance in Punjab Pakistan: A pilot study. *Journal of Social Sciences Research, Special, 4*, pp.44–49. https://doi.org/10.32861/jssr.spi4.44.49.

Ahmad, M., & Ali, A. (2023). Economic Growth and the Business Environment. *Bulletin of Management Review*, *1*(1), 12-23.

Ajide, F. M. (2020). Financial inclusion in Africa: does it promote entrepreneurship?. *Journal of Financial Economic Policy*, *12*(4), 687-706.

Aldabbas, H., & Oberholzer, N. (2023). The influence of transformational and learning through R&D capabilities on the competitive advantage of firms. *Arab Gulf Journal of Scientific Research*, *42*(1), 85-102.

Al Dakheel, J., Del Pero, C., Aste, N., & Leonforte, F. (2020). Smart buildings features and key performance indicators: A Review of *Sustainable Cities and Society*, *61*, 102328.

Al-Dhaafri, H.S., Al-Swidi, A.K. and Yusoff, R.Z.B. (2016). The mediating role of total quality management between the entrepreneurial orientation and the Organisational performance. *The TQM Journal*.

Alexandrova, M. (2004). Entrepreneurship in a transition economy: The impact of environment on entrepreneurial orientation. *Problems and Perspectives in Management*, (2), 140-148.

Al-Mamary, Y.H. and Alshallaqi, M. (2022). Impact of autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness on students' intention to start a new venture. *Journal of Innovation & Knowledge*, *7*(4), p.100239.

Ambrosini, V., Bowman, C., & Collier, N. (2009). Dynamic capabilities: An exploration of how firms renew their resource base. *British journal of management*, *20*, S9-S24.

Amin, M. (2016). Internet banking service quality and its implication on e-customer satisfaction and e-customer loyalty. *International journal of bank marketing*, *34*(3), 280-306.

Amin, M., Thurasamy, R., Aldakhil, A.M. and Kaswuri, A.H.B. (2016). The effect of market orientation as a mediating variable in the relationship between entrepreneurial orientation and SMEs performance. *Nankai Business Review International*.

Aminu, I.M. (2015). Mediating Role of Access to Finance and Moderating Role of Business Environment on the Relationship between Strategic Orientation Attributes and Performance of Small and Medium Enterprises in Nigeria, (Doctoral dissertation, Universiti Utara Malaysia). PhD Thesis, Universiti Utara Malaysia.

Anderson, B. (2020). Imagined communities: Reflections on the origin and spread of nationalism. In *The new social theory reader* (pp. 282-288). Routledge.

Andrade, C. (2018). Internal, external, and ecological validity in research design, conduct, and evaluation. *Indian journal of psychological medicine*, *40*(5), pp.498-499.

Andrews, K. R. (1971). The Concept of Corporate Strategy, Homewood, IL: Dow Jones–Irwin. *V isió n d e F u tu ro" A ñ o 9, V o lu m en N º1*, *6*.

Antoncic, J. A., Antoncic, B., Gantar, M., Hisrich, R. D., Marks, L. J., Bachkirov, A. A., Li, Z., Polzin, P., Borges, J. L., Coelho, A. and Kakkonen, M. L. (2018). Risk-taking propensity and entrepreneurship: The role of power distance. *Journal of Enterprising Culture*, *26*(01), pp.1-26.

Arndt, F. and Jucevicius, G. (2013). Antecedents and outcomes of dynamic capabilities: The effect of structure. *Social Sciences*, *81*(3), pp.35-42.

Arokodare, M. A. and Asikhia, O. U. (2020). 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. *Review of European Studies*, *12*(2), pp.1-85.

Arpiainen, R.L. and Kurczewska, A. (2017). Learning risk-taking and coping with uncertainty through experiential, team-based entrepreneurship education. *Industry and Higher Education*, *31*(3), pp.143-155.

Ascarza, E. (2018). Retention futility: Targeting high-risk customers might be ineffective. *Journal of Marketing Research*, *55*(1), pp.80-98.

Bagozzi, R and Yi, Y (1991). Multitrait-multimethod matrices in consumer research. *Journal of Consumer Research,* 17 (4), pp. 426-439.

Baía, E. P. and Ferreira, J. J. (2024). Dynamic capabilities and performance: how has the relationship been assessed?. *Journal of Management & Organisation*, *30*(1), pp.188-217.

Balsley, B. B. (1970). A longitudinal variation of electron drift velocity in the equatorial electrojet. *Journal of Geophysical Research*, *75*(22), pp.4291-4297.

Barnes, R. W., Grove, J. W., & Burns, N. H. (2003). Experimental assessment of factors affecting transfer length. *Structural Journal*, *100*(6), 740-748.

Barney, J. B. (1986). Organisational culture: can it be a source of sustained competitive advantage?. *Academy of management review*, *11*(3), 656-665.

Barney, J. (1991). Special theory forum the resource-based model of the firm: origins, implications, and prospects. *Journal of management*, *17*(1), pp.97-98.

Battisti, M. and Deakins, D. (2017). The relationship between dynamic capabilities, the firm's resource base and performance in a post-disaster environment. *International Small Business Journal*, *35*(1), pp.78-98.

Beard, D.W. and Dess, G.G. (1981). Corporate-level strategy, business-level strategy, and firm performance. *Academy of management Journal*, *24*(4), pp.663-688.

Beard, J. W., & Sumner, M. (2004). Seeking strategic advantage in the post-net era: viewing ERP systems from the resource-based perspective. *The Journal of Strategic Information Systems*, *13*(2), 129-150.

Bell, E. and Bryman, A. (2007). The ethics of management research: an exploratory content analysis. *British journal of management*, *18*(1), pp.63-77.

Bellia, C., Pilato, M. and Seraphin, H. (2017). The value of intangible resources as a differentiation strategy for enterprises: the case of PGI table grape of Mazzarrone. *Calitatea*, *18*(S2), pp.61-68.

Beltramino, N. S., Valdez Juárez, L. E., Ingaramo, M., Gazzaniga, L. C., & Beltraminoe, N. A. (2023). The effects of organizational learning and entrepreneurial orientation on the corporate performance of Argentinean, Mexican, and Ecuadorian MSMEs.

Bernerth, J.B., Cole, M.S., Taylor, E.C. and Walker, H.J. (2018). Control variables in leadership research: A qualitative and quantitative review. *Journal of Management*, *44*(1), pp.131-160.

Bhattacharya, A., Misra, S. and Sardashti, H. (2019). Strategic orientation and firm risk. *International Journal of Research in Marketing*, *36*(4), pp.509-527.

Bickman, L., Rog, D.J. and Hedrick, T.E. (2009). Applied research design: A practical approach. *Handbook of applied social research methods*, *2*, pp.3-43.

Bojesson, C. and Fundin, A. (2021). Exploring microfoundations of dynamic capabilities–challenges, barriers and enablers of Organisational change. *Journal of Organisational Change Management*, *34*(1), pp.206-222.

Boohene, R. (2018). Entrepreneurial orientation, strategic orientation and performance of small family firms in the Kumasi Metropolis. *Academy of Entrepreneurship Journal*, *24*(2), pp.1-16.

Boso, N., Cadogan, J.W. and Story, V.M. (2012). Complementary effect of entrepreneurial and market orientations on export new product success under differing levels of competitive intensity and financial capital. *International Business Review*, *21*(4), pp.667-681.

Boso, N., Story, V.M. and Cadogan, J.W. (2013). Entrepreneurial orientation, market orientation, network ties, and performance: Study of entrepreneurial firms in a developing economy. *Journal of business Venturing*, *28*(6), pp.708-727.

Bourgeois, L. J. (1978). Environment, strategy and economic performance: a conceptual and empirical exploration'. *Unpublished Doctoral Dissertation, University of Washington*.

Boyd, B. K., Haynes, K. T., Hitt, M. A., Bergh, D. D., and Ketchen, D. J. (2012). Contingency hypotheses in strategic management research: Use, disuse, or misuse. *Journal of Management,* 38(1), pp.278-313.

Boyd, B., Dess, G., and Rasheed, A. (1993). Divergence between archival and perceptual measures of the environment. *Academy of Management Review, 18, pp.204-226.*

Boyd, B.K. and Fulk, J. (1996). Executive scanning and perceived uncertainty: A multidimensional model. *Journal of Management*, *22*(1), pp.1-21.

Brown, G. H. (1947). A comparison of sampling methods. Journal of Marketing, 6, 331-337.

Bruton, G. D., Ahlstrom, D., & Obloj, K. (2008). Entrepreneurship in emerging economies: Where are we today and where should the research go in the future? *Entrepreneurship theory and practice*, *32*(1), 1-14.

Bryan, R. H., & Smith, J. L. (2024). *My Life in Nevada Politics: The Memoirs of Senator Richard H. Bryan*. University of Nevada Press.

Buli, B. M. (2017). Entrepreneurial Orientation, Market Orientation and Performance of SMEs in the Manufacturing Industry. Management Research Review Vol. 40, No. 3, 292-310.

Burgelman, R.A. (1983). Corporate entrepreneurship and strategic management: Insights from a process study. *Management science*, *29*(12), pp.1349-1364.

Bustinza, O.F., Gomes, E., Vendrell-Herrero, F. and Baines, T. (2019). Product–service innovation and performance: the role of collaborative partnerships and R&D intensity. *R&D Management*, *49*(1), pp.33-45.

Caldeira, S. P. (2024). Exploring feminisms on Instagram: Reflections on the challenges and possibilities of incorporating digital methods strategies in feminist social media research. *Journal of Digital Social Research*, *6*(1), pp. 74-89.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin*, *56*(2), 81.

Cannon, A.R. and John, C.H.S. (2007). Measuring environmental complexity: a theoretical and empirical assessment. *Organisational Research Methods*, *10*(2), pp.296-321.

Cantillon, R. (1755). An essay on commerce in general. *History of economic thought books*.

Carland, J. W., Hoy, F., Boulton, W. R. and Carland, J. A. C. (1984). Differentiating entrepreneurs from small business owners: A conceptualization. *Academy of management review*, *9*(2), pp. 354-359.

Cassel, C., Hackl, P. and Westlund, A. (1999). Robustness of partial least-squares method for estimating latent variable quality structures. *Journal of Applied Statistics, 1999*, *26 (*4), pp. 435-446.

Castrogiovanni, G.J. (1991). Environmental munihcence; a theoretical assessment. *Academy of management review*, *16*(3), pp.542-565.

Chandler, A.D. (1962). Strategy and structure: chapters in the history of American industrial enterprises. *Cambridge. hlass.: MIT Press*, *14*, p.16.

Chavez, R., Yu, W., Jacobs, M.A. and Feng, M. (2017). Manufacturing capability and Organisational performance: The role of entrepreneurial orientation. *International Journal of Production Economics*, *184*, pp.33-46.

Chen, J., Wang, X., Shen, W., Tan, Y., Matac, L.M. and Samad, S. (2022). Environmental uncertainty, environmental regulation and enterprises' green technological innovation. *International Journal of Environmental Research and Public Health*, *19*(16), p.9781.

Chi, C. F., Yang, C. C., & Chen, Z. L. (2009). In-depth accident analysis of electrical fatalities in the construction industry. *International Journal of Industrial Ergonomics*, *39*(4), 635-644.

Child, J. (1974). What determines Organisation The universals vs. the it-all-depends. *Organisational Dynamics*, *3*(1), 2-18.

Child, J. (1972). Organisational structure, environment and performance: The role of strategic choice. *sociology*, *6*(1), pp.1-22.

Chin, W. W., Cheah, J. H., Liu, Y., Ting, H., Lim X. J. and Cham, T. H. (2020). Demystifying the role of causal-predictive modeling using partial least squares structural equation modeling in information systems research. Industrial Management & Data Systems, *120* (12), pp. 2161-2209.

Chmielewski, D. and Paladino, A. (2007). Analysing the characteristics and consequences of resource orientation: an empirical study.

Cho, Y. H., & Lee, J. H. (2018). Entrepreneurial orientation, entrepreneurial education and performance. *Asia Pacific Journal of Innovation and Entrepreneurship*, *12*(2), 124-134.

Chung, Y. C., Hsu, Y. W., Tsai, S. C., Huang, H. L., & Tsai, C. H. (2012). The correlation between business strategy, information technology, organisational culture, implementation of CRM, and business performance in a high-tech industry. *South African Journal of Industrial Engineering*, *23*(2), 1-15.

Cohan, J. (1988). Statistical power analysis for the behavioural sciences, Lawrence Erlbaum Associates, Inc.: Hillsdale, NJ.

Collins, C. J. (2022). Expanding the resource based view model of strategic human resource management. In *Strategic Human Resource Management and Organisational Effectiveness* (pp. 107-134). Routledge.

Conover, W. J. (1999). Practical Nonparametric Statistics. Third Edition, John Wiley & Sons, Inc. New York, pp.428-433 (6.1).

Cook, D. A. and Beckman, T. J. (2006). Current concepts in validity and reliability for psychometric instruments: theory and application. *The American journal of medicine*, *119*(2), pp.166-e7.

Covin J. G. & Wales W. J. (2011). The measurement of entrepreneurial orientation. *Entrepreneurship Theory and Practice*.

Covin, J. G., Green, K., and Slevin, D. P. (2006). Strategic Process Effects on the Entrepreneurial Orientation-Sales Growth Rate Relationship. Entrepreneurship Theory and Practice 30(1), 57–81.

Covin, J. G., & Covin, T. J. (1990). Competitive aggressiveness, environmental context, and small firm performance. *Entrepreneurship theory and practice*, *14*(4), 35-50.

Covin, J.G. and Miller, D. (2014). International entrepreneurial orientation: Conceptual considerations, research themes, measurement issues, and future research directions. *Entrepreneurship Theory and Practice*, *38*(1), pp.11-44.

Covin, J. G., & Slevin, D. P. (1986). The development and testing of an organizational-level entrepreneurship scale. *Frontiers of entrepreneurship research*, *1*(3), 628-639.

Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic management journal*, *10*(1), 75-87.

Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship theory and practice*, *16*(1), 7-26.

Covin, J. G., & Wales, W. J. (2019). Crafting high-impact entrepreneurial orientation research: Some suggested guidelines. *Entrepreneurship theory and practice*, *43*(1), 3-18.

Creswell, J. W. (2009). Mapping the field of mixed methods research. *Journal of mixed methods research*, *3*(2), 95-108.

Crouzet, N., & Ma, Y. (2023). Financing and Valuation of Intangible Assets.

Cruz Rincon, M. L., Agredo Diaz, M. L., & Puente, R. C. (2023). Is entrepreneurship enough to achieve superior performance in SMEs in emerging countries? Multiple mediation of market orientation and marketing capabilities. *Journal of Entrepreneurship in Emerging Economies*, *15*(5), 945-966.

Daft, R.L. and Armstrong, A., 2021. *Organisation theory and design*. Cengage Canada.

Dahan, G. and Shoham, A., 2023. The relationship between strategic orientations and firm performance: is environmental munificence the missing link? *Journal of Strategy and Management*, *16*(2), pp.264-281.

Dai, L., Maksimov, V., Gilbert, B. A., & Fernhaber, S. A. (2014). Entrepreneurial orientation and international scope: The differential roles of innovativeness, proactiveness, and risk-taking. *Journal of business venturing*, *29*(4), 511-524.

Dai, W., & Si, S. (2018). Government policies and firms' entrepreneurial orientation: Strategic choice and institutional perspectives. *Journal of Business Research*, *93*, 23-36.

Dess, G. G., & Lumpkin, G. T. (2005). The role of entrepreneurial orientation in stimulating effective corporate entrepreneurship. *Academy of Management Perspectives*, *19*(1), 147-156.

Daradkeh, M. and Mansoor, W. (2023). The impact of network orientation and entrepreneurial orientation on startup innovation and performance in emerging economies: The moderating role of strategic flexibility. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(1), p.100004.

Davis, K. (1975) 'Five propositions for social responsibility', Business Horizons, Vol. 18, No. 3, pp.19–24.

Day, G. S. (1994). The capabilites of market-driven Organisations. *Journal of Marketing, 58*(4), 37–52.

De Clercq, D., Dimov, D., & Thongpapanl, N. (2010). The moderating impact of internal social exchange processes on the entrepreneurial orientation–performance relationship. *Journal of Business Venturing, 25*(1), 87–103.

Dess, G. G. & Lumpkin, G. T. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of management Review*, *21*(1), 135-172.

Dess, G. G., & Robinson Jr, R. B. (1984). Measuring Organisational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit. *Strategic management journal*, *5*(3), 265-273.

Dess, G. G., Lumpkin, G. T., & Covin, J. G. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic management journal*, *18*(9), 677-695.

Dess, G.G. and Beard, D.W. (1984). Dimensions of Organisational task environments. *Administrative science quarterly*, pp.52-73.

Dess, G. G., and Lumpkin, G. T. (2005). The role of entrepreneurial orientation in stimulating effective corporate entrepreneurship. *Academy of Management Perspectives*, *19*(1), 147-156.

Di Stefano, G., Peteraf, M., and Verona, G. (2010). Dynamic capabilities deconstructed: a bibliographic investigation into the origins, development, and future directions of the research domain. *Industrial and corporate change*, *19*(4), 1187-1204.

Donaldson, L. (1987). Strategy and structural adjustment to regain fit and performance:in defence of contingency theory. Journal of Management Studies, 24(1), pp. 1-24.

Doorn, E. V., Rusák, Z., & Horváth, I. (2017). A situation awareness analysis scheme to identify deficiencies of complex man-machine interactions. *International Journal of Information Technology and Management*, *16*(1), 53-72.

Duncan, R. B. (1972). Characteristics of Organisational environments and perceived environmental uncertainty. *Administrative Science Quarterly, 17, 313-327.*

Easterby-Smith, M., Lyles, M.A. and Peteraf, M.A. (2009). Dynamic capabilities: Current debates and future directions. *British Journal of Management*, *20*, pp.S1-S8.

Easterby-Smith, M.T. and Thorpe, R., 2002. R. and Lowe, A. (2002). *Management research: An introduction*, *2*, p.342.

Eberhart, R.N., Eesley, C.E. and Eisenhardt, K.M. (2017). Failure is an option: Institutional change, entrepreneurial risk, and new firm growth. *Organisation Science*, *28*(1), pp.93-112.

Effiom, L. and Edet, S.E. (2022). Financial innovation and the performance of small and medium scale enterprises in Nigeria. *Journal of Small Business & Entrepreneurship*, *34*(2), pp.141-174.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic management journal*, *21*(10-11), pp. 1105-1121.

Eisenhardt, K.M. (2013). Top management teams and the performance of entrepreneurial firms. *Small Business Economics*, *40*(4), pp.805-816.

Elsayed, E.A. (2012). Overview of reliability testing. *IEEE Transactions on Reliability*, *61*(2), pp.282-291.

Engelen, A., Gupta, V., Strenger, L., & Brettel, M. (2015). Entrepreneurial orientation, firm performance, and the moderating role of transformational leadership behaviors. *Journal of management*, *41*(4), 1069-1097.

Eshima, Y. and Anderson, B.S. (2017). Firm growth, adaptive capability, and entrepreneurial orientation. *Strategic Management Journal*, *38*(3), pp.770-779.

Eze, B. U., Oladimeji, M. S., & Fayose, J. (2019). Entrepreneurial orientation and micro, small and medium enterprises (MSMES) performance in Abia State, Nigeria. Covenant Journal of Entrepreneurship 3(1), 19- 35.

Fainshmidt, S., Wenger, L., Pezeshkan, A. and Mallon, M.R. (2019). When do dynamic capabilities lead to competitive advantage? The importance of strategic fit. *Journal of Management Studies*, *56*(4), pp.758-787.

Fatihudin, D. and Mochklas, M. (2018). How Measuring Financial Performance. *International Journal of Civil Engineering and Technology (IJCIET)*, *6*(9), pp.553-557.

Fayolle, A. (2018). Personal views on the future of entrepreneurship education. In *A research agenda for entrepreneurship education*. Edward Elgar Publishing.

Egbesola, F. (2015). Challenges of SMEs operation in Nigeria. *Daily Trust Newspaper, Nigeria*.

Ferreira, J., Coelho, A. and Moutinho, L. (2020). Dynamic capabilities, creativity and innovation capability and their impact on competitive advantage and firm performance: The moderating role of entrepreneurial orientation. *Technovation*, *92*, p.102061.

Folabi, F. (2015). Issues, Challenges and Prospects of Small and Medium Scale Enterprises (SMEs) In Africa. (A Survey of Small and Medium Scale Enterprises in Nigeria) Degree Programme in Innovative Business Services.

Gachoki, J.M. (2023). *Diversification Strategies, Corporate Cannibalisation, Environmental Munificence and Financial Performance of Insurance Companies in Kenya* (Doctoral dissertation, UoEm).

Galbreath, J. (2019). Drivers of green innovations: The impact of export intensity, women leaders, and absorptive capacity. Journal of Business Ethics, 158(1), 47–61. https://doi.org/10.1007/s10551-017-3715-zG

Galbreath, J., Lucianetti, L., Thomas, B. and Tisch, D. (2020). Entrepreneurial orientation and firm performance in Italian firms. *International Journal of Entrepreneurial Behavior & Research*.

Garud, R. and Turunen, M. (2017). The banality of Organisational innovations: Embracing the substance–process duality. *Innovation*, *19*(1), pp.31-38.

Garud, R., & Turunen, M. (2017). The banality of Organisational innovations: Embracing the substance–process duality. *Innovation*, *19*(1), 31-38.

George, G., Corbishley, C., Khayesi, J. N., Haas, M. R., & Tihanyi, L. (2016). Bringing Africa in: Promising directions for management research. *Academy of Management Journal, 59*(2), 377-393.

Ginsberg, A. (1985). Measuring changes in entrepreneurial orientation after industry deregulation: Development of a diagnostic instrument. Proceedings of the International Council for Small Business (pp. 16-24).

Grande, J., Madsen, E. and Borch, O. (2011), "The relationship between resources, entrepreneurial orientation and performance in farm-based ventures", *Entrepreneurship and Regional Development,* Vol. 23 Nos 3-4, pp. 89-111.

Grant, R.M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California management review*, *33*(3), pp.114-135.

Gregoire, T.G. and Affleck, D.L. (2018). Estimating desired sample size for simple random sampling of a skewed population. *The American Statistician*, *72*(2), pp.184-190.

Grossack, I. (1965). Towards an integration of static and dynamic measures of industry concentration. *Review of Economics and Statistics, 7, 301-308.*

Gruchmann, T. and Seuring, S. (2018). Explaining logistics social responsibility from a dynamic capabilities perspective. *The International Journal of Logistics Management*.

Gül, E., & Erşahin, S. (2019). Evaluating the desertification vulnerability of a semiarid landscape under different land uses with the environmental sensitivity index. *Land Degradation & Development*, *30*(7), 811-823.

Gul, M.C. (2019). The moderating role of environmental munificence on innovativeness in B2B markets. *Journal of Business & Industrial Marketing*.

Gupta, V. K., & Batra, S. (2016). Entrepreneurial orientation and firm performance in Indian SMEs: Universal and contingency perspectives. *International Small Business Journal*, *34*(5), 660-682.

Gupta, A. K., & Govindarajan, V. (1984). Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation. *Academy of Management journal*, *27*(1), 25-41.

Gupta, G., Tan, K.T.L., Ee, Y.S. and Phang, C.S.C. (2018). Resource-based view of information systems: Sustainable and transient competitive advantage perspectives. *Australasian Journal of Information Systems*, *22*.

Gupta, P.D., Guha, S. and Krishnaswami, S.S. (2013). Firm growth and its determinants. *Journal of innovation and entrepreneurship*, *2*(1), p.15.

Gupta, V., Gupta, A. and Balasubramanian, S. (2015). Book Review The Concept of Entrepreneurial Orientation: Foundations and Trends® in Entrepreneurship, Volume 11, no. 2., 55-137, 2015. *Foundations and Trends® in Entrepreneurship*, *11*(2), pp.55-137.

Gupta, V.K. and Batra, S. (2016). Entrepreneurial orientation and firm performance in Indian SMEs: Universal and contingency perspectives. *International Small Business Journal*, *34*(5), pp.660-682.

Hadji, M., Cocks, G., & Mueller, J. (2007). Toolkit for leaders: Entrepreneurship and leadership-prerequisites for a winning performance. *Journal of Asia Entrepreneurship and Sustainability*, *3*(3), 1.

Haenlein, M., & Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis. Understanding Statistics, 3[4], 283-297.

Hair Jr, J.F., Matthews, L.M., Matthews, R.L. and Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), pp.107-123.

Hair Jr. J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006). Multivariate Data Analysis, 6th edn.,

Hair, J. F., & Sarstedt, M. (2021b). Explanation plus prediction – the logical focus of project management research. *Project Management Journal*, forthcoming.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariate data analysis (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2014a). Multivariate data analysis. Pearson Education Limited: Harlow.

Hair, J. F., Hult, T. M., Ringle, C. M., and Sarstedt, M (2022). A primer on partial least squares structural equation modeling (PLS-SEM). Sage: London. Third Edition.

Hair, J.F., Celsi, M., Ortinau, D.J. and Bush, R.P. (2010). *Essentials of marketing research* (Vol. 2). New York, NY: McGraw-Hill/Irwin.

Hair, J.F., Ringle, C.M. and Sarstedt, M. (2012). Partial least squares: the better approach to structural equation modeling?. *Long Range Planning*, *45*(5-6), pp.312-319.

Hakala, H., & Kohtamäki, M. (2011). Configurations of entrepreneurial-customer-and technology orientation: differences in learning and performance of software companies. *International Journal of Entrepreneurial Behavior & Research*, *17*(1), 64-81.

Haseeb, A., Xia, E., Saud, S., Usman, M., & Quddoos, M. U. (2023, May). Unveiling the liaison between human capital, trade openness, and environmental sustainability for BRICS economies: Robust panel-data estimation. In *Natural Resources Forum* (Vol. 47, No. 2, pp. 229-256). Oxford, UK: Blackwell Publishing Ltd.

Heale, R. and Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), pp.66-67.

Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic management journal*, *24*(10), 997-1010.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*, 115-135.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing* (pp. 277-319). Emerald Group Publishing Limited.

Hernández-Linares, R., Kellermanns, F.W., López-Fernández, M.C. and Sarkar, S. (2019). The effect of socioemotional wealth on the relationship between entrepreneurial orientation and family business performance. *BRQ Business Research Quarterly*.

Hernández-Perlines, F., Moreno-García, J. and Yáñez-Araque, B. (2017). Family firm performance: The influence of entrepreneurial orientation and absorptive capacity. *Psychology & Marketing*, *34*(11), pp.1057-1068.

Hough, J. and Scheepers, R. (2008). Creating corporate entrepreneurship through strategic leadership.

Hu, S., Wu, X. and Cang, Y. (2024). Exploring Business Environment Policy Changes in China Using Quantitative Text Analysis. *Sustainability*, *16*(5), p.2159.

Huang, H., Kawamata, T., Horie, T., Tsugawa, H., Nakayama, Y., Ohsumi, Y., & Fukusaki, E. (2015). Bulk RNA degradation by nitrogen starvation-induced autophagy in yeast. *The EMBO journal*, *34*(2), 154-168.

Hughes, M., & Morgan, R. E. (2007). Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. *Industrial marketing management*, *36*(5), 651-661.

Hult, G. T. M., Hurley, R. F., & Knight, G. A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial marketing management*, *33*(5), 429-438.

Hult, G. T. M., Ketchen, D. J., Griffith, D. A., Chabowski, B. R., Hamman, M. K., Dykes, B. J., ... & Cavusgil, S. T. (2008). An assessment of the measurement of performance in international business research. *Journal of international business studies*, *39*, 1064-1080.

Hussain, J., Shah, F.A., Rehman, W. and Khan, Y. (2018). Learning orientation and performance: The interaction effect of entrepreneurial orientation. *Pakistan Business Review*, *19*(4), pp.960-977.

Ibhagui, O.W. and Olokoyo, F.O. (2018). Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics and Finance*, *45*, pp.57-82.

Ibrahim, A.U. and Abu, M.M. (2020). Influence of Entrepreneurial Orientation on Firms Performance: Evidence from Small and Medium Enterprises in Nigeria. *International Journal of Economics and Financial Issues*, *10*(2), pp.99-106.

Isichei, E.E., Aminu, A.A., Chukwu, B.I., Ike, N.M., Agbaeze, K.E. and Anthony, I. (2022). Linking ambidextrous leadership and small and medium scale enterprises export performance. *South African Journal of Business Management*, *53*(1), p.2791.

Isichei, E.E., Emmanuel Agbaeze, K. and Odiba, M.O. (2020). Entrepreneurial orientation and performance in SMEs: The mediating role of structural infrastructure capability. *International Journal of Emerging Markets*, *15*(6), pp.1219-1241.

Ismail, M.D., Isa, A.M., Alam, S.S. and Ahmad, M. (2017). Market orientation, entrepreneurship orientation, relationship commitment and communication among SME exporters in Malaysia. *Geografia-Malaysian Journal of Society and Space*, *12*(1).

Jabeen, R., Aliyu, M. S., & Mahmood, R. (2016). The moderating effect of external environment on the relationship between market orientation and business performance: A quantitative approach. *International Postgraduate Business Journal*, *8*(1), 16-25.

Jantunen, A., Puumalainen, K., Saarenketo, S., & Kyläheiko, K. (2005). Entrepreneurial orientation, dynamic capabilities and international performance. *Journal of international entrepreneurship*, *3*, 223-243.

Jasinska, J. (2018). Organization's ability to manage change-research review. *World Scientific News*, *110*.

Jensen, S. and Seljeseth, O. (2023). *Driving Growth Through Innovation in Norway's Business Environment: An Explorative Study of Strategies and Best Practices for Established Organisations and Startups* (Master's thesis, Høgskulen på Vestlandet).

Jiang, W., Chai, H., Shao, J. and Feng, T. (2018). Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective. *Journal of Cleaner Production*, *198*, pp.1311-1323.

Jiang, X., Yang, Y., Pei, Y.L. and Wang, G. (2016). Entrepreneurial orientation, strategic alliances, and firm performance: Inside the black box. *Long Range Planning*, *49*(1), pp.103-116.

Jin, B. and Cho, H.J. (2018). Examining the role of international entrepreneurial orientation, domestic market competition, and technological and marketing capabilities on SME's export performance. *Journal of Business & Industrial Marketing*.

Johnson, J.A. (2005). Ascertaining the validity of individual protocols from web-based personality inventories Journal of Research in Personality

Johnson, P. (2005). Targeting firm births and economic regeneration in a lagging region. *Small Business Economics*, *24*(5), 451-464.

Joreskog, K. G., & Wold, H. (1982). The ML and PLS techniques for the modeling with latent variables: Historical and comparative aspects. In K. G. Joreskog & H. Wold [Eds]. System under indirect observation, Part 1 [pp. 263-270]. Amsterdam: North-Holland.

Jugend, D., Jabbour, C.J.C., Scaliza, J.A.A., Rocha, R.S., Junior, J.A.G., Latan, H. and Salgado, M.H. (2018). Relationships among open innovation, innovative performance, government

support and firm size: Comparing Brazilian firms embracing different levels of radicalism in innovation. *Technovation*, *74*, pp.54-65.

Jurksiene, L. and Pundziene, A. (2016). The relationship between dynamic capabilities and firm competitive advantage. *European Business Review*.

Juurinen, E. (2023). Identifying the Dimensions of Dynamic Capabilities and Entrepreneurial Orientation for Success and Failure in Organisational Adaptation to Changing Environments.

Kalyanasundaram, G., Ramachandrula, S., & Mungila Hillemane, B. S. (2021). The life expectancy of tech start-ups in India: what attributes impact tech start-ups' failures? *International Journal of Entrepreneurial Behavior & Research*, *27*(8), 2050-2078.

Kamasak, R. (2017). The contribution of tangible and intangible resources, and capabilities to a firm's profitability and market performance. *European Journal of Management and Business Economics*.

Kansra, P., Oberoi, S., Singh, N. and Choi, H. (2024). Role of Innovation, Policy, Social Media, and Environmental Munificence for Sustainable Ecotourism Development in Punjab, India. *Sustainability*, *16*(21), p.9359.

Kaplan, R. S., and D. P. Norton. (1992). The Balanced Scorecard: Measures that drive performance. Harvard Business Review (January-February): 71-79.

Katz, D., & Kahn, R. (1966). The Social Psychology of Organisations. Hoboken: John Wiley and Sons Inc.

Keats, B. W., & Hitt, M. A. (1988). A causal model of linkages among environmental dimensions, macro organisational characteristics and performance. *Strategic Management Journal, 31, 570-598.*

Keh, H.T., Nguyen, T.T.M. and Ng, H.P. (2007). The effects of entrepreneurial orientation and marketing information on the performance of SMEs. *Journal of business venturing*, *22*(4), pp.592-611.

Ketokivi, M. A., & Schroeder, R. G. (2004). Perceptual measures of performance: fact or fiction? *Journal of operations management*, *22*(3), 247-264.

Khaldi, K. (2017). Quantitative, Qualitative or Mixed Research: Which Research Paradigm to Use? *Journal of Educational and Social Research*, *7*(2), p.15.

Khan, S.Z., Yang, Q. and Waheed, A. (2019). Investment in intangible resources and capabilities spurs sustainable competitive advantage and firm performance. *Corporate Social Responsibility and Environmental Management*, *26*(2), pp.285-295.

Khandwalla, P.N. (1976). Some top management styles, their context and performance. *Organisation and administrative sciences*, *7*(4), pp.21-51.

Khorasani, S.T. and Almasifard, M. (2017). Evolution of management theory within 20 century: A systemic overview of paradigm shifts in management. *International Review of Management and Marketing*, *7*(3).

Kim, H.J. and Kim, B.K. (2016). An entrepreneurial paradox: the moderating effect of the external environment. *Asian Journal of Technology Innovation*, *24*(2), pp.222-233.

Kimiagari, S., Jafari-Sadeghi, V. and Daowd, A. (2019, November). Effects of Age at Entry, Knowledge Intensity, and Imitability on International Growth. In *53rd International Business Research Conference*. Global Research Institute for Business Academics.

Kiss, A. N., Danis, W. M., & Cavusgil, S. T. (2012). International entrepreneurship research in emerging economies: A critical review and research agenda. *Journal of Business Venturing*, *27*(2), 266-290.

Kivunja, C. and Kuyini, A.B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of higher education*, *6*(5), pp.26-41.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (ijec),* 11(4), 1-10.

Köseoğlu, M.A. and Parnell, J. (2020). The evolution of the intellectual structure of strategic management between 1980 and 2019. *Journal of Strategy and Management*.

Krauss, S. I., Frese, M., Friedrich, C., & Unger, J. M. (2005). Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European journal of work and Organisational psychology*, *14*(3), 315-344.

Kreiser, P.M. and Davis, J. (2010). Entrepreneurial orientation and firm performance: The unique impact of innovativeness, proactiveness, and risk-taking. *Journal of small business & entrepreneurship*, *23*(1), pp.39-51.

Kreiser, P.M., Anderson, B.S., Kuratko, D.F. and Marino, L.D. (2019). Entrepreneurial orientation and environmental hostility: A threat rigidity perspective. *Entrepreneurship Theory and Practice*, p.1042258719891389.

Kreiser, P.M., Marino, L.D. and Weaver, K.M. (2002). Assessing the psychometric properties of the entrepreneurial orientation scale: A multi-country analysis. *Entrepreneurship theory and practice*, *26*(4), pp.71-93.

Kreiser, P.M., Marino, L.D., Kuratko, D.F. and Weaver, K.M. (2013). Disaggregating entrepreneurial orientation: the non-linear impact of innovativeness, proactiveness and risk-taking on SME performance. *Small Business Economics*, *40*(2), pp.273-291.

Kroeger, J. W. (2007). *Firm performance as a function of entrepreneurial orientation and strategic planning processes* (Doctoral dissertation, Cleveland State University).

Laaksonen, O. and Peltoniemi, M. (2018), "The essence of dynamic capabilities and their measurement", International Journal of Management Reviews, Wiley Online Library, Vol. 20 No. 2, pp. 184–205.

Lai, K.H., Wong, C.W. and Lam, J.S.L. (2015). Sharing environmental management information with supply chain partners and the performance contingencies on environmental munificence. *International Journal of Production Economics*, *164*, pp.445-453.

Lakshmi, S. and Mohideen, M.A. (2013). Issues in Reliabilityand Validity of Research. *International journal of management research and reviews*, *3*(4), p.2752.

Lauder, M.A. and Marynissen, H. (2018). Normal chaos: A new research paradigm for understanding practice. *Journal of Contingencies and Crisis Management*, *26*(2), pp.319-323.

Lawless, M. W., & Finch, L. K. (1989). Choice and determinism: A test of Hrebiniak and Joyce's framework on strategy-environment fit. Strategic Management Journal, 10, 351-365.

Lawrence, P. L. JW (1967): Organization and Environment. *Irwin, RD*.

Lawrence, P.R. and Lorsch, J.W. (1973). *As empresas eo ambiente: diferenciação e integração administrativas*. Vozes.

Lee, Y., Zhuang, Y., Joo, M. and Bae, T.J. (2019). Revisiting Covin and Slevin (1989): Replication and extension of the relationship between entrepreneurial orientation and firm performance. *Journal of Business Venturing Insights*, *12*, p.e00144.

Lettl, C., Ritter, T., & Pedersen, C. L. (2023). 2 The Open Organization. *Designing Adaptive Organizations*, 23.

Li, Z., Deng, X., Huang, J., Zhang, R., and Huang, J. (2013). Critical Studies on Integrating Land-Use Induced Effects on Climate Regulation Services into Impact Assessment for Human Well-Being. *Advances in Meteorology*, *2013*(1), 831250.

Li, D.Y. and Liu, J. (2014). Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China. *Journal of Business Research*, *67*(1), pp.2793-2799.

Li, H., Jiang, Y., Ashiq, A., Salman, A., Haseeb, M. and Shabbir, M.S. (2023). The role of technological innovation, strategy, firms performance, and firms size and their

aggregate impact on Organisational structure. *Managerial and Decision Economics*, *44*(4), pp.2010-2020.

Liang, Y., Koo, J.M. and Lee, M.J. (2024). The Interplay of Environmental Dynamism, Digitalization Capability, Green Entrepreneurial Orientation, and Sustainable Performance. *Sustainability*, *16*(17), p.7674.

Lim, S. K. C., Yeo, C. M. A., Yip, M. W., & Tay, L. C. (2025). From Crisis to Competitiveness: A Schumpeterian Perspective on Entrepreneurial Orientation and SME Sustainability in Malaysia. *Journal of Business and Social Sciences*, *2025*(12), 1-28.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research*, *4*, 97-128.

Linton, G. and Kask, J. (2017). Configurations of entrepreneurial orientation and competitive strategy for high performance. *Journal of Business Research*, *70*, pp.168-176.

Linton, G. (2016). Entrepreneurial Orientation: A reconceptualisation and empirical investigation.

Littunen, H. (2000). Entrepreneurship and the characteristics of the entrepreneurial personality. *International Journal of Entrepreneurial Behaviour & Research*.

Liu, W. and Atuahene-Gima, K. (2018). Enhancing product innovation performance in a dysfunctional competitive environment: The roles of competitive strategies and market-based assets. *Industrial Marketing Management*, *73*, pp.7-20.

Lu, J., Ren, L., Zhang, C., Rong, D., Ahmed, R. R., & Streimikis, J. (2020). Modified Carroll's pyramid of corporate social responsibility to enhance the Organisational performance of the SMEs industry. *Journal of Cleaner Production*, *271*, 122456.

Lumpkin, G. T., & Lichtenstein, B. B. (2005). The role of Organisational learning in the opportunity–recognition process. *Entrepreneurship theory and practice*, *29*(4), 451-472.

Lumpkin, G.T. and Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. Academy of management Review, 21(1), pp.135-172.

Lumpkin, G.T. and Dess, G.G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of business venturing*, *16*(5), pp.429-451.

Madsen, E. (2007). "The significance of sustained entrepreneurial orientation on performance of firms – a longitudinal analysis", *Entrepreneurship and Regional Development,* Vol. 19 No. 2, pp. 185-204.

Maldonado-Guzmán, G. (2025). Do Market and Entrepreneurial Orientations Really Improve Firm Performance in SMEs from Developing Economies?. *Estudios Gerenciales*, *41*(174), 3-12.

Magaji, M.S., Baba, R. and Entebang, H. (2017). Entrepreneurial orientation and financial performance of Nigerian SMES. *Journal of Management and Training for Industries*, *4*(1), p.25.

Mahmood, A. and Young, M. (2017). Social Capital as a Protective Shield for Entrepreneurs in an Informal Economy. In *Academy of Management Proceedings* (Vol. 2017, No. 1, p. 13586). Briarcliff Manor, NY 10510: Academy of Management.

Mahrous, A. A. (2019). Competitive Strategic Orientations and Their Impact on the Export Performance of Firms in the Software and IT Industry: A Cross Culture Study. *Available at SSRN 3486103*.

Makadok, R. (2010). The interaction effect of rivalry restraint and competitive advantage on profit: Why the whole is less than the sum of the parts. *Management science*, *56*(2), pp.356-372.

Manzano-Garcia, G., & Ayala-Calvo, J. C. (2020). Entrepreneurial orientation: Its relationship with the entrepreneur's subjective success in SMEs. *Sustainability*, *12*(11), 4547.

Martens, C.D.P., Machado, F.J., Martens, M.L. and de Freitas, H.M.R. (2018). Linking entrepreneurial orientation to project success. *International Journal of Project Management*, *36*(2), pp.255-266.

Martins, I. (2016). Network usage, entrepreneurial orientation and their effectiveness on SMEs growth. *The Journal of Entrepreneurship*, *25*(1), 18-41.

Martins, I. and Rialp, A. (2011). Entrepreneurial orientation, environmental hostility and SMEs profitability: A contingency approach. *Environmental Hostility and SMEs Profitability: A Contingency Approach (September 2, 2011)*.

Martins, I., & Rialp, A. (2013). Entrepreneurial orientation, environmental hostility and SME profitability: a contingency approach. *Cuadernos de Gestión*, *13*(2), 67-88.

Martins, I. (2016). Network usage, entrepreneurial orientation and their effectiveness on SMEs growth. *The Journal of Entrepreneurship*, *25*(1), pp.18-41.

Martins, I., Rialp-Criado, A. and Vaillant, Y. (2015). Simultaneous effects between innovativeness and export behavior in small firms: evidence from Spain. In *Handbook of Research on International Entrepreneurship Strategy*. Edward Elgar Publishing.

Masona, A., Agyei-Ampomahb, S., Clarec, A., and Thomasc, S. (2015). On luck versus skill when performance benchmarks are style-consistent.

McCann, T.V. and Clark, E. (2003). Grounded theory in nursing research: Part 1–Methodology.

McCarthy, D.J., Puffer, S.M. and Lamin, A. (2018). Entrepreneurial orientation in a hostile and turbulent environment: Risk and innovativeness among successful Russian entrepreneurs. *European Journal of International Management*, *12*(1-2), pp.191-221.

McGee Jr, R., Saran, S., & Krulwich, T. A. (2012). Diversity in the biomedical research workforce: developing talent. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine*, *79*(3), 397-411.

McKenny, A.F., Short, J.C., Ketchen Jr, D.J., Payne, G.T. and Moss, T.W. (2018). Strategic entrepreneurial orientation: Configurations, performance, and the effects of industry and time. *Strategic Entrepreneurship Journal*, *12*(4), pp.504-521.

McPherson, J.M. and Smith-Lovin, L. (1988). A comparative ecology of five nations: testing a model of competition among voluntary Organisations. *Ecological models of Organisations*, pp.85-109.

Meekaewkunchorn, N., Szczepańska-Woszczyna, K., Muangmee, C., Kassakorn, N. and Khalid, B. (2021). Entrepreneurial orientation and SME performance: The mediating role of learning orientation. *Economics & Sociology*, *14*(2), pp.294-312.

Messersmith, J.G. and Wales, W.J. (2013). Entrepreneurial orientation and performance in young firms: The role of human resource management. *International Small Business Journal*, *31*(2), pp.115-136.

Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman Jr, H. J. (1978). Organizational strategy, structure, and process. *Academy of management review*, *3*(3), 546-562.

Miller, D. (1988). Relating Porter's business strategies to environment and structure: Analysis and performance implications. *Academy of management Journal*, *31*(2), 280-308.

Miller, D. and Friesen, P.H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic management journal*, *3*(1), pp.1-25.

Miller, D. and Friesen, P.H. (1983). Strategy-making and environment: the third link. *Strategic management journal*, *4*(3), pp.221-235.

Miller, D. and J. Shamsie (1996). The Resource-Based View of the Firm in Tow Environments: The Hollywood Firm Studios From 1936 to 1965. Academy of Management Journal 39: 519-543.

Miller, D., & Friesen, P. H. (1984). A longitudinal study of the corporate life cycle. *Management science*, *30*(10), 1161-1183.

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management science*, *29*(7), 770-791.

Milovanovic, B.M. and Wittine, Z. (2014). Analysis of External Environment's Moderating Role on the Entrepreneurial Orientation and Business Performance Relationship among Italian Small Enterprises. *International Journal of Trade, Economics and Finance*, *5*(3), p.224.

Mintzberg, H. (1973). Strategy-making in three modes. *California management review*, *16*(2), pp.44-53.

Mohajan, H.K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spiru Haret University. Economic Series*, *17*(4), pp.59-82.

Mohamad, M. and Chin, O. (2019). Business networking and sustainability of small rural business: Mediating effects of entrepreneurial orientation. *Management Science Letters*, *9*(4), pp.595-606.

Mohamad, M., Afthanorhan, A., Awang, Z. and Mohammad, M. (2019). Comparison between CB-SEM and PLS-SEM: Testing and confirming the maqasidsyariah quality of life measurement model. *The Journal of Social Sciences Research*, *5*(3), pp.608-614.

Mohamad, M.M., Sulaiman, N.L., Sern, L.C. and Salleh, K.M. (2015). Measuring the validity and reliability of research instruments. *Procedia-Social and Behavioral Sciences*, *204*, pp.164-171.

Moharil, P.N., Jena, S. and Thakare, V.M. (2019). Enhancement in Software Reliability Testing and Analysis.

Montoya, R.A.C., Martins, I. and Ceballos, H.V. (2017). Entrepreneurial orientation, assessment and management of projects and impact in corporate entrepreneurship: intention to action. *Cuadernos de Gestión*, *17*(2), pp.37-61.

Montoya, R.A.C., Martins, I. and Ceballos, H.V. (2017). Entrepreneurial orientation, assessment and management of projects and impact in corporate entrepreneurship: intention to action. *Cuadernos de Gestión*, *17*(2), pp.37-61.

Moreno, A.M. and Casillas, J.C. (2008). Entrepreneurial orientation and growth of SMEs: A causal model. *Entrepreneurship theory and practice*, *32*(3), pp.507-528.

Morris, M. H., & Paul, G. W. (1987). The relationship between entrepreneurship and marketing in established firms. *Journal of business venturing*, *2*(3), 247-259.

Moss, T.W., Neubaum, D.O. and Meyskens, M. (2015). The effect of virtuous and entrepreneurial orientations on microfinance lending and repayment: A signaling theory perspective. *Entrepreneurship Theory and Practice*, *39*(1), pp.27-52.

Mueller, B.A. and Shepherd, D.A. (2016). Making the most of failure experiences: Exploring the relationship between business failure and the identification of business opportunities. *Entrepreneurship Theory and Practice*, *40*(3), pp.457-487.

Muhammad, K.G. and Rana, A. (2020). Socio-Economic Development: the Impacts of Micro, Small, and Medium Scale Enteprises in Nigeria. *Sustainable Humanosphere*, *16*(2).

Najar, T., & Dhaouadi, K. (2020). Chief Executive Officer's traits and open innovation in small and medium enterprises: the mediating role of innovation climate. *Journal of Small Business and Enterprise Development*, *27*(4), 607-631.

Naman, J.L. and Slevin, D.P. (1993). Entrepreneurship and the concept of fit: A model and empirical tests. *Strategic management journal*, *14*(2), pp.137-153.

National Bureau of Statistics (NBS) [Nigeria]. (2021). Demographic Statistics Bulletin 2021. https://nigerianstat.gov.ng/elibrary/read/1241207

National Bureau of Statistics. (NBS). (2023). Nigerian Gross Domestic Product Report Q4 2022. February 2023.

Neuman, D. (2014). Qualitative research in educational communications and technology: A brief introduction to principles and procedures. *Journal of Computing in Higher Education*, *26*(1), pp.69-86.

Ngan, A. and Durand, F. (2006, June). Statistical Acquisition of Texture Appearance. In *Rendering Techniques* (pp. 31-40).

Ngcobo, K., Bhengu, S., Mudau, A., Thango, B., & Lerato, M. (2024). *Enterprise data management: Types, sources, and real-time applications to enhance business performance - A Systematic Review. Systematic Review| September*.

Ngozwana, N. (2018). Ethical Dilemmas in Qualitative Research Methodology: Researcher's Reflections. *International Journal of Educational Methodology*, *4*(1), pp.19-28.

Niemand, T., Rigtering, J.C., Kallmünzer, A., Kraus, S. and Maalaoui, A. (2020). Digitalization in the financial industry: A contingency approach of entrepreneurial orientation and strategic vision on digitalization. *European Management Journal*.

Nikolov, K. and Urban, B. (2013). Employee perceptions of risks and rewards in terms of corporate entrepreneurship participation. *SA Journal of Industrial Psychology*, *39*(1).

Nkechi Okenwa, G. (2013). EXTENT OF COMMUNITY INVOLVEMENT IN THE PROVISION OF STUDENTS'DISCIPLINE IN THE ADMINISTRATION OF PUBLIC SECONDARY SCHOOLS IN ENUGU STATE, NIGERIA. *Journal of Educational Review*, *6*(3).

Núñez-Pomar, J., Prado-Gascó, V., Sanz, V.A., Hervás, J.C. and Moreno, F.C. (2016). Does size matter? Entrepreneurial orientation and performance in Spanish sports firms. *Journal of Business Research*, *69*(11), pp.5336-5341.

Nunnally, J. (1978). Psychometric theory (2nd ed.). NewYork: McGraw-Hill.

O'Regan, N., & Ghobadian, A. (2004). The importance of capabilities for strategic direction and performance. *Management decision*, *42*(2), 292-313.

O'Brien, J., & Sasson, A. (2017). A contingency theory of entrepreneurial debt governance. *Journal of Business Research*, *81*, 118-129.

O'Dwyer, M., & Gilmore, A. (2018). Value and alliance capability and the formation of strategic alliances in SMEs: The impact of customer orientation and resource optimisation. *Journal of Business Research*, *87*, 58-68.

Ogabo, E.F., Ogbo Anastasia, I., Joshua, L.U. and Mani, P.S. (2022). Dynamics of Entrepreneurship Education and Small and Medium Enterprises (SMEs) Development in North Central Nigeria. *DYNAMICS*, *5*(2), pp.104-169.

Ogunsiji, P. A. S., & Ladanu, W. K. (2010). Entrepreneurial Orientation as a Panacea for the Ebbing Productivity in Nigerian Small and Medium Enterprises: A Theoretical Perspective. International Business Research, 3(4), 192 -199.

OKAFOR, C.O. (2020). Microfinance Banks and Performance of Small and Medium Scale Enterprises in Nigeria. *Journal of Applied Economic Sciences (JAES)*, *15*(69), pp.665-679.

Oktavio, A., Kaihatu, T.S. and Kartika, E.W. (2019). Learning orientation, entrepreneurial orientation, innovation and their impacts on new hotel performance: Evidence from Surabaya.

Olaleye, B. R., Lekunze, J. N., Sekhampu, T. J., Khumalo, N., & Ayeni, A. A. W. (2024). Leveraging Innovation Capability and Organisational Resilience for Business Sustainability Among Small and Medium Enterprises: A PLS-SEM Approach. *Sustainability*, *16*(21), 9201.

Olaore, O.G. (2024). *Entrepreneurship development, Internationalization, Emerging economies, Success factors, Technological and entrepreneurial knowledge* (Doctoral dissertation).

Olawoye, O. (2016). *Role of entrepreneurial orientation on performance of firms in the Nigerian stock exchange* (Doctoral dissertation, Doctoral dissertation, COHRED, ACCOUNTING, JKUAT).

Olya, H. (2017, October). Partial least squares based structural equation modeling (PLS-SEM). In *Global Conference on Services Management* (Vol. 3, No. 7, pp. 1-29).

Omisakin, O. M., Arasanmi, C., & Kularatne, I. (2022). Proactiveness, environmental munificence and environmental hostility and their impacts on the growth of SMEs. *International Journal of Entrepreneurship and Innovation Management*, *26*(1-2), 43-59.

Orman, T.F., 2016. Paradigm" as a central concept in Thomas Kuhn's thought. *International Journal of Humanities and Social Science*, *6*(10), pp.47-52.

Owolabi, A., & Ajala, O. (2022). Impact of Entrepreneurial Orientation on the Performance of Small and Medium-sized Enterprises in Nigeria. *International Journal of Entrepreneurial Research, 5*(2), 1-15.

Oyedele, A. A., Kuye, O. L., & Adebisi, S. A. (2021). Managerial skill acquisition as driver for employees self-employment switch potential in the Nigeria Banking Industry. *Unilag Journal of Business, 7*(2), 74-88.

Panjaitan, H., Sumiati, S., Novita, M.D. And Panjaitan, F.A.B.K., 2019. The Influence of the Business Environment and Managerial Competence on the Decision to Choose Funding for a Small Craft Business. *Journal of Applied Economic Sciences*, *14*(4).

Parrish, B.D., 2010. Sustainability-driven entrepreneurship: Principles of Organisation design. *Journal of business Venturing*, *25*(5), pp.510-523.

Pearce, D. Barbier, E. and Markandya, A. (1987) "Sustainable development and cost-benefit analysis", London Environmental Economics Centre, Paper 88- 01.

Peng, D.X. and Lai, F., 2012. Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, *30*(6), pp.467-480.

Penrose, E., 1959. The theory of the growth of the firm. *John Wiley & Sons, New York*.

Pervan, M., Pervan, I. and Ćurak, M., 2017. The influence of age on firm performance: evidence from the Croatian food industry. *Journal of Eastern Europe Research in Business and Economics*, *2017*(1), pp.1-10.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: a resource-based view. *Strategic management journal*, *14*(3), 179-191.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. & Podsakoff, N.P. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology* 88(5): 879-903.

Ponomarenko, T., & Rasshyvalov, D. (2023). Logistic risks factoring in corporate marketing strategy in the FMCG market in the context of the war in Ukraine. *Financial & Credit Activity: Problems of Theory & Practice*, *6*(53).

Porter (1985). Competitive Advantage. New York: Free Press.

Pratono, A.H. and Mahmood, R., 2015. Entrepreneurial orientation and firm performance: How can micro, small and medium-sized enterprises survive environmental turbulence? *Pacific Science Review B: Humanities and Social Sciences*, *1*(2), pp.85-91.

Pratono, A.H., 2018. Does firm performance increase with risk-taking behavior under information technological turbulence? *The Journal of Risk Finance*.

Psychogios, A.G. & Garev, S., 2012. Understanding complex leadership behaviour in SMEs: Lessons from a turbulent business environment. Emergence: Complexity and Organisation, 14(3), pp.1–22.

Pulka, B.M., Azahari, R. and Armanurah, M., 2019. The Moderating Effect of External Environmental Characteristics on the Relationship between Entrepreneurial Orientation and SMEs Performance.

Rahman, A., Civelek, M. and Kozubíková, L., 2016. Proactiveness, competitive aggressiveness and autonomy: a comparative study from the Czech Republic. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, *11*(3), pp.631-650.

Rahman, N.A., Yaacob, Z. and Radzi, R.M., 2016. An overview of technological innovation on SME survival: A conceptual paper. *Procedia-Social and Behavioral Sciences*, *224*, pp.508-515.

Rasheed, A.M. and Prescot, J.E., 1992. Towards an objective classification scheme for Organisational task environments. *British Journal of Management*, *3*(4), pp.197-206.

Ratten, V. and Tajeddini, K., 2017. Innovativeness in family firms: an internationalization approach. *Review of International Business and Strategy*.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship theory and practice*, *33*(3), 761-787.

Ravichandran, T., 2018. Exploring the relationships between IT competence, innovation capacity and Organisational agility. *The Journal of Strategic Information Systems*, *27*(1), pp.22-42.

Razouk, A. (2011). High-performance work systems and performance of French small-and medium-sized enterprises: examining causal order. *The International Journal of Human Resource Management*, *22*(02), 311-330.

Read, S., Sarasvathy, S. D., Dew, N., & Wiltbank, R.2023

Rela, I. Z., Awang, A. H., Ramli, Z., Md Sum, S., & Meisanti, M. (2020). Effects of environmental corporate social responsibility on environmental well-being perception and the mediation role of community resilience. *Corporate Social Responsibility and Environmental Management*, *27*(5), 2176-2187.

Rezaei, J. and Ortt, R., 2018. Entrepreneurial orientation and firm performance: the mediating role of functional performances. *Management Research Review*, *41*(7), pp.878-900.

Rezaei, J., & Ortt, R. (2018). Entrepreneurial orientation and firm performance: the mediating role of functional performances. *Management Research Review*, *41*(7), 878-900.

Rezaei, J., & Ortt, R. (2018). Entrepreneurial orientation and firm performance: the mediating role of functional performances. *Management Research Review*, *41*(7), 878-900.

Rezaei-Moghaddam, K. and Izadi, H., 2019. Entrepreneurship in small agricultural quick-impact enterprises in Iran: Development of an index, effective factors and obstacles. *Journal of Global Entrepreneurship Research*, *9*(1), p.17.

Ricardo, David [1966]. On the Principles of Political Economy and Taxation. London: John Murray. (Reprinted 1966 in The Works and Correspondence of David Ricardo, Vol 1: Principles of Political Economy and Taxation, edited by P. Sraffa. London: Cambridge University Press.)

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring Organisational performance: Towards methodological best practice. *Journal of management*, *35*(3), 718-804.

Richey, M., Brooks, J.W. and Ravishankar, M.N., 2025. Leveraging digital tools to foster resilience in the charity sector: The case of eBay's Charity Connect initiative. *Information Systems Journal*.

Richter, N.F., Cepeda, G., Roldán, J.L. and Ringle, C.M., 2015. European management research using partial least squares structural equation modeling (PLS-SEM). *European Management Journal*, *33*(1), pp.1-3.

Rigdon, E.E., Sarstedt, M. and Ringle, C.M., 2017. On comparing results from CB-SEM and PLS-SEM: Five perspectives and five recommendations. *Marketing: ZFP–Journal of Research and Management*, *39*(3), pp.4-16.

Rigdon, E.E., Sarstedt, M. and Ringle, C.M., 2017. On comparing results from CB-SEM and PLS-SEM: Five perspectives and five recommendations. *Marketing: ZFP–Journal of Research and Management*, *39*(3), pp.4-16.

Rigdon, Edward E., 2016. "Choosing PLS path modeling as analytical method in European management research: A realist perspective," *European Management Journal, Elsevier*, vol. 34(6), pages 598-605.

Rigtering, J.C., Eggers, F., Kraus, S. and Chang, M.L., 2017. Entrepreneurial orientation, strategic planning and firm performance: The impact of national cultures. *European Journal of International Management*, *11*(3), pp.301-324.

Ringle, C.M., Sarstedt, M., Mitchell, R. and Gudergan, S.P., 2020. Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, *31*(12), pp.1617-1643.

Rogo, H. B., Shariff, M. N. M., & Hafeez, M. H. (2017). Moderating effect of access to finance on the relationship between total quality management, market orientation and small and medium enterprises performance: A proposed framework. *International Review of Management and Marketing*, *7*(1), 119-127.

Rosenberg, Morris. 1968. The Logic of Survey Analysis. New York: Basic Books.

Rosenbusch, N., Rauch, A. and Bausch, A., 2013. The mediating role of entrepreneurial orientation in the task environment–performance relationship: A meta-analysis. *Journal of Management*, *39*(3), pp.633-659.

Rouf, M.A. and Akhtaruddin, M., 2018. Factors affecting the voluntary disclosure: a study by using smart PLS-SEM approach. *International Journal of Law and Management*.

Rowe, W.G., & Morrow Jr., J.L. (1999). A note on the dimensionality of the firm financial performance construct using accounting, market, and subjective measures. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration* , *16* (1), 58-71.

Ruba, R.M., Chiloane-Tsoka, G.E. and Van der Westhuizen, T., 2023. Moderating Effect of Business Environmental Dynamism in the Innovativeness— Company Performance Relationship of Congolese Manufacturing Companies. *Economies*, *11*(7), p.191.

Ruiz-Ortega, M., Parra-Requena, G., Rodrigo-Alarcón, J., & García-Villaverde, P. M. (2013). Environmental dynamism and entrepreneurial orientation: The moderating role of firm's capabilities. *Journal of Organisational Change Management*, *26*(3), 475-493.

Ruiz-Ortega, M.J., Córcoles-Muñoz, M.M., Parra-Requena, G. and García-Villaverde, P.M., 2023. Sustainability orientation and sustainability performance in response to hostile environments in cultural tourism destinations. *International Journal of Tourism Cities*, *9*(4), pp.974-994.

Runyan, R. C., Huddleston, P., & Swinney, J. (2006). Entrepreneurial orientation and social capital as small firm strategies: A study of gender differences from a resource-based view. *The International Entrepreneurship and Management Journal*, *2*, 455-477.

Saeed, S., Yousafzai, S.Y. and Engelen, A., 2014. On cultural and macroeconomic contingencies of the entrepreneurial orientation–performance relationship. *Entrepreneurship Theory and Practice*, *38*(2), pp.255-290.

Saha, K., Kumar, R., Dutta, S. K., & Tiwari, P. (2021). Validating multidimensional entrepreneurial orientation in emerging economies. *European Business Review*, *33*(5), 797-817.

Salgado, M., De Castro Martínez, M.V., Marcos Martínez, E., López-Sanz, M. and Martín-Peña, M.L., 2022. Driving organisational change in SMEs using service design. *Journal of Service Theory and Practice*, *32*(5), pp.701-736.

Salisu, S.M., Naala, M.N.I., Abdullahi, N., Ringim, K.J., Abubakar, M. and Gorondutse, A.H., 2024. Moderated-Mediation of Entrepreneurial Business Network and Competitive Advantage on the Relationship between SMEs Determinants of Sustainable Performance in Nigeria: A Proposed Conceptual Framework. *International Journal of Intellectual Discourse*, *7*(3).

Sambharya, R.B., 1995. The combined effect of international diversification and product diversification strategies on the performance of US-based multinational corporations. *MIR: Management International Review*, pp.197-218.

Santos, J. B., & Brito, L. A. L. (2012). Toward a subjective measurement model for firm performance. *BAR-Brazilian Administration Review*, *9*, 95-117.

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial least square structural equation modeling. In C. Homburg, M. Klarmann, & A. Vomburg [Eds.], Handbook of market research. Cham; Springer.

Sarstedt, M., Ringle, C.M., Henseler, J. and Hair, J.F., 2014. On the emancipation of PLS-SEM: A commentary on Rigdon (2012). *Long range planning*, *47*(3), pp.154-160.

Saunders, M., Lewis, P. and Thornhill, A., 2009. *Research methods for business students*. Pearson education.

Schendel, D. and Hofer, C.W. eds., 1979. *Strategic management: A new view of business policy and planning*. Little, Brown.

Schepers, J., Voordeckers, W., Steijvers, T. and Laveren, E., 2014. The entrepreneurial orientation–performance relationship in private family firms: the moderating role of socioemotional wealth. *Small Business Economics*, *43*(1), pp.39-55.

Schumpeter, J.A., 1994. History of economic analysis (1954). *footnote*, *8*, p.847.

Sciascia, S., D'oria, L., Bruni, M., & Larrañeta, B. (2014). Entrepreneurial Orientation in low-and medium-tech industries: The need for Absorptive Capacity to increase performance. *European management journal*, *32*(5), 761-769.

Segarra-Oña, M., Peiró-Signes, A., Albors-Garrigós, J. and Miguel-Molina, B.D., 2017. Testing the social innovation construct: An empirical approach to align socially oriented objectives, stakeholder engagement, and environmental sustainability. *Corporate Social Responsibility and Environmental Management*, *24*(1), pp.15-27.

Sekaran, U. and Bougie, R., 2016. *Research methods for business: A skill building approach*. John Wiley & Sons.

Selznick, P. (1957), Leadership in Administration, Harper & Row, New York, NY

Shafique, I. and Saeed, M., 2020. Linking elements of entrepreneurial orientation and firm performance: examining the moderation of environmental dynamism. *Middle East Journal of Management*, *7*(1), pp.93-108.

Shan, P., Song, M. and Ju, X., 2016. Entrepreneurial orientation and performance: Is innovation speed a missing link?. *Journal of Business Research*, *69*(2), pp.683-690.

Shehu, A.M. and Mahmood, R., 2014. Influence of entrepreneurial orientation and business environment on small and medium firm performance: a pls approach. *Advances in Management and Applied Economics*, *4*(4), p.101.

Shehu, A.M. and Mahmood, R., 2015. The moderating role of business environment in the relationship between entrepreneurial orientation and business performance among Nigerian SMEs. *JurnalPengurusan (UKM Journal of Management)*, *43*.

Shepherd, D.A. and Patzelt, H., 2018. *Entrepreneurial cognition: Exploring the mindset of entrepreneurs*. Springer Nature.

Shepherd, D.A. and Wiklund, J., 2020. Simple rules, templates, and heuristics! An attempt to deconstruct the craft of writing an entrepreneurship paper.

Shirokova, G., Bogatyreva, K., Beliaeva, T. and Puffer, S., 2016. Entrepreneurial orientation and firm performance in different environmental settings. *Journal of Small Business and Enterprise Development*.

Shmueli, G. (2010). *To Explain or to Predict ? 25*(3), 289–310. https://doi.org/10.1214/10-STS330

Shmueli, G., Ray, S., Velasquez Estrada, J. M., & Chatia, S. B. (2016). The elephant in the room: Evaluating the predictive performance of PLS models. *Journal of Business Research*, 69[10], 4552-4564.

Shmueli, G., Sarstedt, M., Hair, J, F., Cheah, J. -H, Ting, H., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guideline for using PLSpredict. *European Journal of Marketing,* 53[11], 2322-2347.

Simons, R. (2000), Performance Measurement and Control Systems For Implementing Strategy, Prentice-Hall, London.

Singh, S., Darwish, T. K., & Potočnik, K. (2016). Measuring Organisational performance: A case for subjective measures. *British journal of management*, *27*(1), 214-224.

Sirén, C., Hakala, H., Wincent, J. and Grichnik, D., 2017. Breaking the routines: Entrepreneurial orientation, strategic learning, firm size, and age. *Long Range Planning*, *50*(2), pp.145-167.

Slater, S. F., & Olson, E. M. (2000). Strategy type and performance: the influence of sales force management. *Strategic management journal*, *21*(8), 813-829.

Small and Medium Enterprises Development Agency of Nigeria, & National Bureau of Statistics. (2019). *Collaborative survey: Small and medium enterprises in Nigeria*. Abuja: Federal Government of Nigeria.

SMEDAN (2012), Smedan 2012 Annual Report, available at: http://www.smedan.gov.ng/images/SMEDAN 2012 Annual Report.pdf.

SMEDAN and NBS (2013a), SMEDAN and National Bureau of Statistics.

SMEDAN and NBS (2013b), Smedan and National Bureau of Statistics Collaborative Survey: Selected Findings.

Snihur, Y. and Wiklund, J., 2019. Searching for innovation: Product, process, and business model innovations and search behavior in established firms. *Long Range Planning*, *52*(3), pp.305-325.

Snyder, N.H. and Glueck, W.F., 1982. Can environmental volatility be measured objectively?. *Academy of Management Journal*, *25*(1), pp.185-192.

Song, J., Price, D.J., Guvenen, F., Bloom, N. and Von Wachter, T., 2019. Firming up inequality. *The Quarterly journal of economics*, *134*(1), pp.1-50.

Sousa, R. and Voss, C.A., 2008. Contingency research in operations management practices. *Journal of Operations management*, *26*(6), pp.697-713.

Spector, P. E. (1987). Method variance as an artifact in self-reported affect and perceptions at work: Myth or significant problem. *Journal of Applied Psychology,* 72, 438–443.

Stam, W. and Elfring, T., 2008. Entrepreneurial orientation and new venture performance: The moderating role of intra-and extraindustry social capital. *Academy of management journal*, *51*(1), pp.97-111.

Stanley, L.J., Hernández-Linares, R., López-Fernández, M.C. and Kellermanns, F.W., 2019. A typology of family firms: An investigation of entrepreneurial orientation and performance. *Family Business Review*, *32*(2), pp.174-194.

Stefán, C.I., 2023. The World Economic Forum. In *The Palgrave Handbook of Non-State Actors in East-West Relations* (pp. 1-13). Cham: Springer International Publishing.

Su, Z., Xie, E., & Li, Y. (2011). Entrepreneurial orientation and firm performance in new ventures and established firms. *Journal of Small Business Management, 49*(4), 558-577.

Sukamolson, S., 2007. Fundamentals of quantitative research. *Language Institute Chulalongkorn University*, *1*, pp.2-3.

Susanto, P., Hoque, M.E., Shah, N.U., Candra, A.H., Hashim, N.M.H.N. and Abdullah, N.L., 2023. Entrepreneurial orientation and performance of SMEs: the roles of marketing capabilities and social media usage. *Journal of Entrepreneurship in Emerging Economies*, *15*(2), pp.379-403.

Sutcliffe, K. M. 1994. What executives notice: Accurate perceptions in top management teams. Academy of Management Journal, 37(5): 1360 - 1378.

Taherdoost, H., 2016. Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in a research. *How to test the validation of a questionnaire/survey in a research (August 10, 2016)*.

Tang, J., Tang, Z., Marino, L.D., Zhang, Y. and Li, Q., 2008. Exploring an inverted U–shape relationship between entrepreneurial orientation and performance in Chinese ventures. *Entrepreneurship theory and practice*, *32*(1), pp.219-239.

Teece, D.J. and Pisano, G., 1994. The dynamics capabilities of firms: an introduction. *Industrial and Corporate Change*, *3*(3), pp.537-556.

Teece, D.J., 2023. The evolution of the dynamic capabilities framework. *Artificiality and sustainability in entrepreneurship*, *113*.

Teece, D.J., Pisano, G. and Shuen, A., 1997. Dynamic capabilities and strategic management. *Strategic management journal*, *18*(7), pp.509-533.

Terwee, C.B., Prinsen, C.A., Chiarotto, A., Westerman, M.J., Patrick, D.L., Alonso, J., Bouter, L.M., De Vet, H.C. and Mokkink, L.B., 2018. COSMIN methodology for evaluating the content validity of patient-reported outcome measures: a Delphi study. *Quality of Life Research*, *27*(5), pp.1159-1170.

Tidd, J., & Bessant, J. R. (2020). *Managing innovation: integrating technological, market and Organisational change*. John Wiley & Sons.

Timothy Driscoll CMA, C. S. C. A. (2018). Tech Practices. *Strategic Finance*, *99*(9), 70-71.

Ting, H., Fam, K. S., Hwa, J. C. J., Richard, J. E., & Xing, N. (2019). Ethnic food onsumption intention at the touring destination: The national and regional perspectives using multi-group analysis. *Tourism Management*, 71, 518-529.

Tung, R. (1979). Dimensions of Organisational environments: An exploratory study of their impact on Organisation structure. *Academy of Management Journal, 22, 672-693.*

Tyagi, N. (2021). Aligning Organisational culture to enhance managerial effectiveness of academic leaders: an interface for employee engagement and retention. *International Journal of Educational Management*, *35*(7), 1387-1404.

Umar, A., Alasan, I. I., & Mohammed, A. M. (2020). SMEs and GDP contribution: An opportunity for Nigeria's economic growth. *The International Journal of Business & Management*, *8*(1), 252-259.

Vakili, M.M. and Jahangiri, N., 2018. Content validity and reliability of the measurement tools in educational, behavioral, and health sciences research. *Journal of Medical Education Development*, *10*(28), pp.106-118.

Van Doorn, S., Heyden, M.L. and Volberda, H.W., 2017. Enhancing entrepreneurial orientation in dynamic environments: The interplay between top management team advice-seeking and absorptive capacity. *Long Range Planning*, *50*(2), pp.134-144.

Van Doorn, S., Jansen, J. J., Van den Bosch, F. A., & Volberda, H. W. (2013). Entrepreneurial orientation and firm performance: Drawing attention to the senior team. *Journal of Product Innovation Management*, *30*(5), 821-836.

Vannevel, R. (2014). Sustainability of Water Quality and Ecology.

Venkatraman, N. (1990). Performance implications of strategic coalignment: a methodological perspective. *Journal of management studies*, *27*(1), 19-41.

Verbano, C., Crema, M. and Scuotto, V., 2020. Adding the entrepreneurial orientation among the theoretical perspectives to analyse the development of research-based spin-offs. *The International Journal of Entrepreneurship and Innovation*, *21*(2), pp.113-126.

Verona, G., 1999. A resource-based view of product development. *Academy of management review*, *24*(1), pp.132-142.

Vij, S. and Bedi, H.S., 2012. Relationship between entrepreneurial orientation and business performance: A review of literature. *The IUP Journal of Business Strategy*, *9*(3), pp.17 31.

Vij, S. and Bedi, H.S., 2016. Are subjective business performance measures justified?. *International Journal of Productivity and Performance Management*.

Wahab, M.H.A.A.A., Ismail, M. and Muhayiddin, M.N., 2019. Influence of Internal and external environmental factors on operational excellence of manufacturing sectors in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *9*(2), pp.961-970.

Wahyuni, D., 2012. The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of applied management accounting research*, *10*(1), pp.69-80.

Wales, W.J., Gupta, V.K. and Mousa, F.T., 2013. Empirical research on entrepreneurial orientation: An assessment and suggestions for future research. *International Small Business Journal*, *31*(4), pp.357-383.

Walker, W., 2007. Ethical considerations in phenomenological research. *Nurse researcher*, *14*(3).

Walter, A., Auer, M., & Ritter, T. 2006 - Walter, A., Auer, M. and Ritter, T., 2006. The impact of network capabilities and entrepreneurial orientation on university spin-off performance. *Journal of business venturing*, *21*(4), pp.541- 567.

Wang, C. and Zhang, X.E., 2022. Binary effects of exploratory and exploitative learning on opportunity identification: The different moderations of environmental munificence and entrepreneurial commitment. *Asian Business & Management*, *21*(4), pp.497-524.

Wang, M. C., Chen, P. C., & Fang, S. C. (2021). How environmental turbulence influences firms' entrepreneurial orientation: the moderating role of network relationships and Organisational inertia. *Journal of Business & Industrial Marketing*, *36*(1), 48-59.

Wei, L.Q. and Ling, Y., 2015. CEO characteristics and corporate entrepreneurship in transition economies: Evidence from China. *Journal of Business Research*, *68*(6), pp.1157-1165.

Welter, C. and Kim, S., 2018. Effectuation under risk and uncertainty: A simulation model. *Journal of Business Venturing*, *33*(1), pp.100-116.

Wernerfelt, B., 1984. A resource-based view of the firm. *Strategic management journal*, *5*(2), pp.171-180.

Whalen, P., Uslay, C., Pascal, V.J., Omura, G., McAuley, A., Kasouf, C.J., Jones, R., Hultman, C.M., Hills, G.E., Hansen, D.J. and Gilmore, A., 2016. Anatomy of competitive advantage: towards a contingency theory of entrepreneurial marketing. *Journal of Strategic Marketing*, *24*(1), pp.5-19.

Wiklund, J. and Shepherd, D., 2005. Entrepreneurial orientation and small business performance: a configurational approach. *Journal of business venturing*, *20*(1), pp.71-91.

Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic management journal*, *24*(13), 1307-1314.

Wiklund, J., 1999. The sustainability of the entrepreneurial orientation—performance relationship. *Entrepreneurship theory and practice*, *24*(1), pp.37-48.

Winter, S.G., 2003. Understanding dynamic capabilities. *Strategic management journal*, *24*(10), pp.991-995.

Wójcik-Karpacz, A., Kraus, S., & Karpacz, J. (2022). Examining the relationship between team-level entrepreneurial orientation and team performance. *International Journal of Entrepreneurial Behavior & Research*, *28*(9), 1-30.

Wong, K.K.K., 2013. Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, *24*(1), pp.1-32.

Woodward, J. (1965). Industrial Organisation: Theory and Practice. Oxford University Press.

World Bank, T., 2018. World Bank open data. *World Bank Web site (INTERNET)*.

World Bank. (2019). Open Data. The World Bank Group. Available at: https://data.worldbank.org/country/indonesia

World Bank. (2023). *Jobs and Development Report 2023*.

World Bank. (2024). *SME Finance Gap Report*. https://www.worldbank.org/en/topic/smefinance

Wu, L.Y., 2007. Entrepreneurial resources, dynamic capabilities and start-up performance of Taiwan's high-tech firms. *Journal of Business research*, *60*(5), pp.549-555.

Yamada, K. and Eshima, Y. (2009), "Impact of entrepreneurial orientation: longitudinal analysis of small technology firms in Japan", *Academy of Management Annual Meeting Proceedings,* pp. 1-6, available at: http://proceedings.aom.org/content/2009/1/1.7.abstract

Yan, J. and Yan, L., 2017. Collective entrepreneurship, environmental uncertainty and small business performance: A contingent examination. *The Journal of Entrepreneurship*, *26*(1), pp.1-26.

Yáñez-Araque, B., Hernández-Perlines, F. and Moreno-Garcia, J., 2017. From training to Organisational behavior: a mediation model through absorptive and innovative capacities. *Frontiers in psychology*, *8*, p.1532.

Yang, Y. and Ju, X.F., 2017. Entrepreneurial Orientation and Firm Performance: Is Product Quality a Missing Link? *Entrepreneurship Research Journal*, *8*(1).

Yasai-Ardenkani, M (1989). Effects of environmental scarcity and munificence on the relationship of context to Organisational structure. The Academy of Management Journal, 32(1), 131–56.

Yoon, J. and Solomon, G.T., 2017. A curvilinear relationship between entrepreneurial orientation and firm performance: The moderating role of employees' psychological safety. *International Entrepreneurship and Management Journal*, *13*(4), pp.1139-1156.

Zahra, S.A. and Covin, J.G., 1995. Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. *Journal of business venturing*, *10*(1), pp.43-58.

Zahra, S.A. and Garvis, D.M., 2000. International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of business venturing*, *15*(5-6), pp.469-492.

Zahra, S.A., 1991. Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. *Journal of business venturing*, *6*(4), pp.259-285.

Zahra, S.A., 1993. A conceptual model of entrepreneurship as firm behavior: A critique and extension. *Entrepreneurship theory and practice*, *17*(4), pp.5-21.

Zahra, S.A., 2007. Contextualizing theory building in entrepreneurship research. *Journal of Business venturing*, *22*(3), pp.443-452.

Zahra, S.A., Jennings, D.F. and Kuratko, D., 1999. Guest Editors' Introduction: Corporate entrepreneurship in a global economy. *Entrepreneurship Theory & Practice*, *24*(1), pp.5-8.

Zehir, C., Can, E. and Karaboga, T., 2015. Linking entrepreneurial orientation to firm performance: the role of differentiation strategy and innovation performance. *Procedia-Social and Behavioral Sciences*, *210*, pp.358-367.

Zhu, C., Liu, A. and Chen, G., 2018. High performance work systems and corporate performance: the influence of entrepreneurial orientation and Organisational learning. *Frontiers of Business Research in China*, *12*(1), p.4.

Zhu, J. J., Yang, M., & Ren, Z. J. (2023). Machine learning in environmental research: common pitfalls and best practices. *Environmental Science & Technology*, *57*(46), 17671-17689.

Zikmund, W.G., Babin, B.J., Carr, J.C. and Griffin, M., 2003. Business research methods 7th ed. *Thomson/South-Western*.

APPENDIX 1: QUESTIONNAIRE

A STUDY ON THE MODERATING EFFECT OF THE EXTERNAL ENVIRONMENT ON THE ENTREPRENEURIAL ORIENTATION-organisationAL PERFORMANCE RELATIONSHIP: THE CASE OF NIGERIA

Dear Sir/Madam,

I am a candidate for the title of Doctor of Business Administration at Henley Business School, University of Reading, England. I invite the owners and senior-level managers of small- and medium-sized enterprises (SMEs) of Nigeria to participate in this study and fill out the attached questionnaire whose objective is to examine the mediating effects of external environment on the relationship between entrepreneurial orientation and organisational performance of SMEs in Nigeria. The study results will be published as part of my DBA thesis and will also assist the owners and managers of SMEs in Nigeria.

Completing the questionnaire will require not more than 15 minutes of your time. If you have any questions or concerns, please contact me at +2348054105154 or email me at paulorajiaka@gmail.com. The information that you will provide is vital to the success of this study.

Please read each question carefully before responding, and then tick the appropriate answer in the designated space. Please answer to the best of your ability. Rest assured that the study is for academic purposes only. All and every information provided will therefore be treated with the utmost confidentiality.

Responses are anonymous/confidential and individual respondents will not be identified by name or organisation in the final report. The data will be kept securely and either destroyed after the

completion of the project or retained securely for inclusion in publications directly related to this research subject to participants' consent to do so. The project has been subject to ethical review in accordance with the procedures specified by the University of Reading Research Ethics Committee and has been given a favourable ethical opinion for conduct. By completing and returning the questionnaire it is understood that you are aged 18 or over and that you give consent for your responses to be used for the purposes of this research project.

In exchange for your contribution for completing this survey, I will be happy to share the initial results of the study with you. Just provide your email at the end of the survey.

Thank you for your time and co-operation. I deeply appreciate your help in this study.

Yours sincerely,

Paul Orajiaka

Henley Business School Research Associate

PART 1: Entrepreneurial Orientation (EO)

This part of the questionnaire provides statements that describe Entrepreneurial Orientation.

EO is as a set of personal psychological values, traits, characteristics and attitudes that are strongly related with a motivation to engage in entrepreneurial activities.

Please read the statements carefully and tick (□) appropriately given the following response scales:

1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agreed, 6 = Strongly Agree.

How would you describe the Entrepreneurial Orientation of your organisation?

Question No.		**1 Strongly disagree**	**2 Disagree**	**3 Somewhat disagree**	**4 Somewhat agree**	**5 Agree**	**6 Strongly agree**
1.	Our organisation has high allocation of resources for improving market positions faster than competitors.						
2.	Our business has a strong inclination towards high-risk projects.						
3.	Our business continuously seeks out new services.						
4.	Our organisation is very aggressive and intensely competitive.						
5.	Our organisation has a high number of corporate ventures conducted by the R&D department that is not part of the company strategy.						
6.	When confronted with uncertain decisions, our business will be brave to exploit opportunities.						
7.	Our business continuously monitors market trends and identifies future needs of customers.						
8.	We set ambitious market-share goals and are taking steps to achieve them.						
9.	Our organisation has high efforts that employees initiate to the top						

	management to help the organisation's strategic direction.						
10.	In our business, there is a strong relationship between the number of new ideas that are successfully implemented.						
11.	Our business places a strong emphasis on new and innovative services.						
12.	Our business is aggressive in facing trends that may threaten our survival or competitive positions.						
13.	Our organisation involves workers in implementing innovation even by ignoring procedures. (Does this mean that the organisation accepts pragmatic ways of innovating, e.g., by giving employees some freedom?)						
14.	Our organisation promotes risk-taking based on new ideas and promising breakthrough.						
15.	Our business typically initiates actions that competitors respond to.						
16.	Our business has increased the number of services offered during the past two years.						
17.	Our business places a strong emphasis on continuous improvement in service delivery.						
18.	Owing to our environment, our business believes that bold, wide-ranging acts are necessary to achieve the business objectives.						
19.	Our organisation has high investments to improve market share and competitive position.						
20.	Our business knows when it is in danger of acting overly aggressive.						
21.	Our business is continually pursuing new opportunities.						
22.	Our business has a widely held belief that innovation is necessary for the future of the business.						
23.	Our organisation gives the responsibility to the workers on how the job is done.						
24.	Our organisation typically adopts a very competitive "undo-the competitors" posture.						
25.	Our business regularly introduces new services.						
26.	Our business is very aggressive and intensely competitive.						

27.	We seek to maximise value from opportunities.						
28.	Over the past few years, there are changes in services offered.						
29.	Employees are often encouraged to take calculated risks concerning new ideas.						
30.	The term risk-taker is considered a positive attribute for employees in our business.						
31.	Our organisation provides freedom in using own judgment.						
32.	Our organisation spends aggressively compared to competitors.						

PART 2: Organisational Performance (OP)

This part of the questionnaire provides statements that describe Organisational Performance.

OP is the outcome from a set of organisational activities over time that shows the foundational basis determining the extent to which an organisation has been able to achieve its set objectives.

Please read the statements carefully and tick (□) appropriately given the following response scales:

1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agreed, 6 = Strongly Agree.

How would you describe the performance of your organisation?

Question No.		**1 Strongly disagree**	**2 Disagree**	**3 Somewhat disagree**	**4 Somewhat agree**	**5 Agree**	**6 Strongly agree**
1.	Our business has experienced growth in turnover over the past few years.						
2.	The competitive position of our business has improved over the past few years.						
3.	Our business has experienced growth in market shares over the past few years.						
4.	Our business has experienced growth in profit over the past few years.						

5.	The efficiency in (doing things right) of our business has improved over the past few years.						
6.	The effectiveness (doing the right things) of our business has improved over the past few years.						
7.	Our employees are highly committed to our business.						
8.	In our business, employees are viewed as the most valuable asset of the business.						
9.	The moral (job satisfaction) of our employees has improved over the past few years.						
10.	The image (stature) of our business, relative to our competitors, has grown over the past few years.						

PART 3: External Environment (EE)

This part of the questionnaire provides statements that describe the External Environment.

EE consists of the economic, political and legal, demographic, social, competitive, global, and technological factors that affect the operations of firm from outside.

Please read the statements carefully and tick (□) appropriately given the following response scales:

1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Somewhat Agree, 5 = Agreed, 6 = Strongly Agree.

How would you describe the external environment of your organisation?

Question No.		**1 Strongly disagree**	**2 Disagree**	**3 Somewhat disagree**	**4 Somewhat agree**	**5 Agree**	**6 Strongly agree**

1.	The external environment our firm operates in has a high level of risk and uncertainty.						
2.	Tough price competition is a major challenge in our industry.						
3.	Our firm must change its marketing practices often.						
4.	A decision in our industry influences a large number of factors.						
5.	The external environment poses serious threats to our firm's survival and well-being.						
6.	Government interference is a major challenge in our industry.						
7.	The information we need about our industry we will always get.						
8.	The rate of product and service obsolesce in our industry is high.						
9.	In our firm, the modes of production and service change often and many ways.						
10.	Our firm must deal with a range of external environment influences (e.g., competitive, political, social/cultural, or technological forces).						
11.	In our industry, actions of competitors are unpredictable.						
12.	We have sufficient insight and information about who our customers are.						
13.	In our industry everything is related to everything.						
14.	Declining market for products is a major challenge in our industry.						
15.	Nothing of what happens in our industry will stay a secret for us.						
16.	Our business environment causes a great deal of threat to the survival of our firm.						
17.	It is hard in this industry to base decisions on reliable information.						
18.	In our industry, demand and customer tastes are unpredictable.						

PART 4: Demographics

Please tick (√) the following boxes that match your current status.

Employment Status with SME	Owner of SME ☐	Senior-level Manag☐

Location of SMEs	Lagos ☐	Kano ☐	Rivers ☐	Abuja ☐	Bauchi ☐	Abia ☐

Industry Type	Manufacturing ☐	Agriculture ☐	Trading ☐	Services ☐	Others - Which? ☐ _____

Number of Employees	5-50 Staff ☐	51-100 Staff ☐	101-150 Staff ☐	151-200 Staff☐	201 Staff and Above ☐

Age of Organisation	5-7 years ☐	8-10 years ☐	11-13 years ☐	>14 years ☐

Gender	Male ☐	Female ☐

Level of Education	Primary/Secondary Education ☐	OND/HND ☐	Bachelor's Degree ☐	Postgraduate ☐	Others ☐

If you are interested in receiving the initial results of this study, please provide your email address in the space below.

Yes (☐), I would like to receive the results of this study and hereby send my email address.

Email address: _____

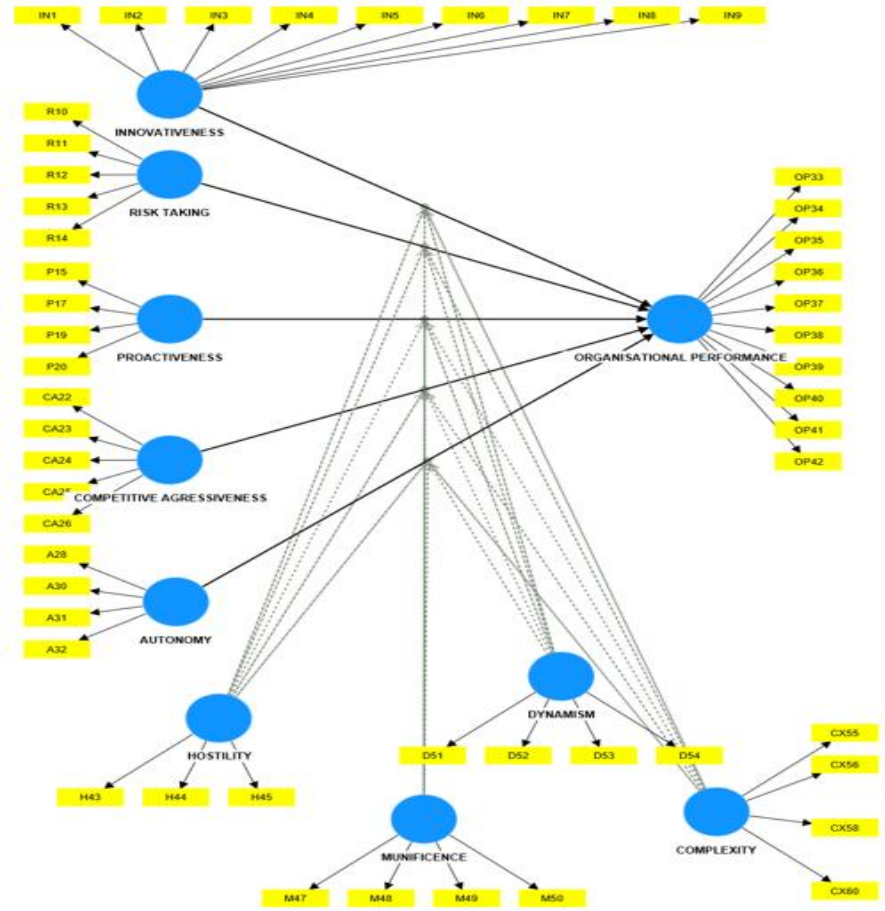
THANK YOU VERY MUCH FOR COMPLETING THIS SURVEY. WELL,

APPRECIATED.

Appendix 2: Failed Heterotrait-Monotrait ratio (HTMT) List based on Initial Data Analysis

	Heterotrait-monotrait ratio (HTMT)
Competitive Aggressiveness <-> Autonomy	0.95
Munificence ↔ Dynamism	0.982
Munificence ↔ Hostilities	1.061
Proactiveness ↔ Competitive Aggressiveness	0.977
Proactiveness ↔ Innovativeness	0.973
Risk Taking ↔ Autonomy	0.943
Risk Taking ↔ Proactiveness	0.924

Appendix 3: Path Model with all Moderating Constructs



Appendix 4: Outer loading of all constructs together

	Outer loadings
A28 → AUTONOMY	0.732
A30 → AUTONOMY	0.746
A31 → AUTONOMY	0.749
A32 → AUTONOMY	0.773
CA22 → COMPETITIVE AGRESSIVENESS	0.703
CA23 → COMPETITIVE AGRESSIVENESS	0.730
CA24 → COMPETITIVE AGRESSIVENESS	0.777
CA25 → COMPETITIVE AGRESSIVENESS	0.757
CA26 → COMPETITIVE AGRESSIVENESS	0.799
CX55 → COMPLEXITY	0.699
CX56 → COMPLEXITY	0.687
CX58 → COMPLEXITY	0.747
CX60 → COMPLEXITY	0.783
D51 → DYNAMISM	0.849
D52 → DYNAMISM	0.773
D53 → DYNAMISM	0.811
D54 → DYNAMISM	0.731
H43 HOSTILITY	0.617
H44 → HOSTILITY	0.624
H45 → HOSTILITY	0.964
IN1 → INNOVATIVENESS	0.726
IN2 → INNOVATIVENESS	0.823
IN3 → INNOVATIVENESS	0.754
IN4 → INNOVATIVENESS	0.799
IN5 → INNOVATIVENESS	0.695
IN6 → INNOVATIVENESS	0.780
IN7 → INNOVATIVENESS	0.778
IN8 → INNOVATIVENESS	0.756
IN9 → INNOVATIVENESS	0.712
M47 → MUNIFICENCE	0.766
M48 → MUNIFICENCE	0.827
M49 → MUNIFICENCE	0.567
M50 → MUNIFICENCE	0.690
OP33 → ORGANISATIONAL PERFORMANCE	0.806
OP34 → ORGANISATIONAL PERFORMANCE	0.824
OP35 → ORGANISATIONAL PERFORMANCE	0.779
OP36 → ORGANISATIONAL PERFORMANCE	0.817
OP37 → ORGANISATIONAL PERFORMANCE	0.859
OP38 → ORGANISATIONAL PERFORMANCE	0.824
OP39 → ORGANISATIONAL PERFORMANCE	0.755

OP40 → ORGANISATIONAL PERFORMANCE	0.631
OP41 → ORGANISATIONAL PERFORMANCE	0.778
OP42 → ORGANISATIONAL PERFORMANCE	0.801
P15 → PROACTIVENESS	0.735
P17 → PROACTIVENESS	0.756
P19 → PROACTIVENESS	0.739
P20 → PROACTIVENESS	0.764
R10 → RISK TAKING	0.715
R11 → RISK TAKING	0.702
R12 → RISK TAKING	0.714
R13 → RISK TAKING	0.784
R14 → RISK TAKING	0.791
DYNAMISM x RISK TAKING → DYNAMISM x RISK TAKING	1.000
DYNAMISM x AUTONOMY → DYNAMISM x AUTONOMY	1.000
MUNIFICENCE x AUTONOMY → MUNIFICENCE x AUTONOMY	1.000
MUNIFICENCE x PROACTIVENESS → MUNIFICENCE x PROACTIVENESS	1.000
HOSTILITY x COMPETITIVE AGRESSIVENESS → HOSTILITY x COMPETITIVE AGRESSIVENESS	1.000
HOSTILITY x INNOVATIVENESS → HOSTILITY x INNOVATIVENESS	1.000
COMPLEXITY x RISK TAKING → COMPLEXITY x RISK TAKING	1.000
COMPLEXITY x AUTONOMY → COMPLEXITY x AUTONOMY	1.000
COMPLEXITY x PROACTIVENESS → COMPLEXITY x PROACTIVENESS	1.000
DYNAMISM x PROACTIVENESS -> DYNAMISM x PROACTIVENESS	1.000
COMPLEXITY x COMPETITIVE AGRESSIVENESS → COMPLEXITY x COMPETITIVE AGRESSIVENESS	1.000
COMPLEXITY x INNOVATIVENESS → COMPLEXITY x INNOVATIVENESS	1.000
MUNIFICENCE x COMPETITIVE AGRESSIVENESS → MUNIFICENCE x COMPETITIVE AGRESSIVENESS	1.000
DYNAMISM x COMPETITIVE AGRESSIVENESS → DYNAMISM x COMPETITIVE AGRESSIVENESS	1.000
MUNIFICENCE x INNOVATIVENESS → MUNIFICENCE x INNOVATIVENESS	1.000
DYNAMISM x INNOVATIVENESS → DYNAMISM x INNOVATIVENESS	1.000
HOSTILITY x PROACTIVENESS → HOSTILITY x PROACTIVENESS	1.000
HOSTILITY x AUTONOMY → HOSTILITY x AUTONOMY	1.000
HOSTILITY x RISK TAKING → HOSTILITY x RISK TAKING	1.000

Appendix 5: Outer model Collinearity statistics (VIF) of all constructs together

	VIF
A28	1.296
A30	1.476
A31	1.638
A32	1.586
CA22	1.375
CA23	1.743

CA24	1.884
CA25	1.686
CA26	1.780
CX55	1.360
CX56	1.339
CX58	1.369
CX60	1.339
D51	1.790
D52	1.532
D53	1.795
D54	1.599
H43	1.686
H44	1.765
H45	1.296
IN1	1.809
IN2	2.533
IN3	2.181
IN4	2.522
IN5	1.679
IN6	2.163
IN7	2.319
IN8	2.848
IN9	1.795
M47	1.402
M48	1.352
M49	1.511
M50	1.403
OP33	2.788
OP34	3.271
OP35	2.965
OP36	3.138
OP37	3.980
OP38	3.576
OP39	2.134
OP40	1.944
OP41	2.658
OP42	2.600
P15	1.459
P17	1.343
P19	1.446
P20	1.399
R10	1.421
R11	1.439

R12	1.348
R13	1.877
R14	2.037
DYNAMISM x RISK TAKING	1.000
DYNAMISM x AUTONOMY	1.000
MUNIFICENCE x AUTONOMY	1.000
MUNIFICENCE x PROACTIVENESS	1.000
HOSTILITY x COMPETITIVE AGRESSIVENESS	1.000
HOSTILITY x INNOVATIVENESS	1.000
COMPLEXITY x RISK TAKING	1.000
COMPLEXITY x AUTONOMY	1.000
COMPLEXITY x PROACTIVENESS	1.000
DYNAMISM x PROACTIVENESS	1.000
COMPLEXITY x COMPETITIVE AGRESSIVENESS	1.000
COMPLEXITY x INNOVATIVENESS	1.000
MUNIFICENCE x COMPETITIVE AGRESSIVENESS	1.000
DYNAMISM x COMPETITIVE AGRESSIVENESS	1.000
MUNIFICENCE x INNOVATIVENESS	1.000
DYNAMISM x INNOVATIVENESS	1.000
HOSTILITY x PROACTIVENESS	1.000
HOSTILITY x AUTONOMY	1.000
HOSTILITY x RISK TAKING	1.000

Appendix 6: Inner model (VIF) of all constructs together

	VIF
AUTONOMY → ORGANISATIONAL PERFORMANCE	2.788
COMPETITIVE AGGRESSIVENESS → ORGANISATIONAL PERFORMANCE	3.172
COMPLEXITY → ORGANISATIONAL PERFORMANCE	2.394
DYNAMISM → ORGANISATIONAL PERFORMANCE	2.451
HOSTILITY → ORGANISATIONAL PERFORMANCE	2.023
INNOVATIVENESS → ORGANISATIONAL PERFORMANCE	3.509
MUNIFICENCE → ORGANISATIONAL PERFORMANCE	2.392
PROACTIVENESS → ORGANISATIONAL PERFORMANCE	3.350
RISK TAKING → ORGANISATIONAL PERFORMANCE	3.126
MUNIFICENCE x COMPETITIVE AGGRESSIVENESS → ORGANISATIONAL PERFORMANCE	7.907
HOSTILITY x PROACTIVENESS → ORGANISATIONAL PERFORMANCE	11.855
DYNAMISM x INNOVATIVENESS → ORGANISATIONAL PERFORMANCE	17.221
MUNIFICENCE x INNOVATIVENESS → ORGANISATIONAL PERFORMANCE	11.058
COMPLEXITY x AUTONOMY → ORGANISATIONAL PERFORMANCE	10.045
HOSTILITY x AUTONOMY → ORGANISATIONAL PERFORMANCE	7.132
DYNAMISM x AUTONOMY → ORGANISATIONAL PERFORMANCE	8.364

COMPLEXITY x PROACTIVENESS → ORGANISATIONAL PERFORMANCE	12.629
DYNAMISM x PROACTIVENESS → ORGANISATIONAL PERFORMANCE	8.043
MUNIFICENCE x PROACTIVENESS → ORGANISATIONAL PERFORMANCE	8.142
DYNAMISM x COMPETITIVE AGGRESSIVENESS → ORGANISATIONAL PERFORMANCE	6.716
COMPLEXITY x RISK TAKING → ORGANISATIONAL PERFORMANCE	11.897
COMPLEXITY x INNOVATIVENESS → ORGANISATIONAL PERFORMANCE	15.403
DYNAMISM x RISK TAKING → ORGANISATIONAL PERFORMANCE	6.528
HOSTILITY x COMPETITIVE AGGRESSIVENESS → ORGANISATIONAL PERFORMANCE	5.036
HOSTILITY x INNOVATIVENESS → ORGANISATIONAL PERFORMANCE	13.328
COMPLEXITY x COMPETITIVE AGGRESSIVENESS → ORGANISATIONAL PERFORMANCE	6.565
HOSTILITY x RISK TAKING → ORGANISATIONAL PERFORMANCE	11.263
MUNIFICENCE x AUTONOMY → ORGANISATIONAL PERFORMANCE	8.086

Appendix 7: Model-Implied Estimated Correlation Matrix

	CX55	CX56	CX58	CX60	D51	D52	D53	D54	H43	H44	H45	M47	M48	M49	M50
A28	0.255	0.251	0.273	0.286	0.271	0.247	0.259	0.234	0.134	0.135	0.209	0.206	0.223	0.153	0.186
A30	0.261	0.257	0.279	0.292	0.277	0.252	0.264	0.238	0.136	0.138	0.213	0.210	0.227	0.156	0.189
A31	0.261	0.257	0.279	0.293	0.278	0.253	0.265	0.239	0.137	0.138	0.213	0.211	0.228	0.156	0.190
A32	0.270	0.266	0.289	0.303	0.287	0.261	0.274	0.247	0.141	0.143	0.220	0.218	0.235	0.161	0.196
CA22	0.269	0.265	0.287	0.301	0.217	0.197	0.207	0.186	0.089	0.090	0.139	0.158	0.171	0.117	0.143
CA23	0.279	0.275	0.299	0.313	0.225	0.205	0.215	0.194	0.093	0.094	0.145	0.165	0.178	0.122	0.148
CA24	0.297	0.292	0.318	0.333	0.239	0.218	0.229	0.206	0.099	0.100	0.154	0.175	0.189	0.130	0.158
CA25	0.290	0.285	0.309	0.324	0.233	0.212	0.223	0.201	0.096	0.097	0.150	0.171	0.184	0.126	0.154
CA26	0.306	0.301	0.327	0.342	0.246	0.224	0.235	0.212	0.101	0.102	0.158	0.180	0.194	0.133	0.162
CX55	1.000	0.480	0.522	0.547	0.311	0.283	0.297	0.268	0.188	0.190	0.293	0.249	0.268	0.184	0.224
CX56	0.480	1.000	0.513	0.538	0.306	0.279	0.293	0.264	0.185	0.187	0.289	0.245	0.264	0.181	0.220
CX58	0.522	0.513	1.000	0.585	0.333	0.303	0.318	0.286	0.201	0.203	0.314	0.266	0.287	0.197	0.239
CX60	0.547	0.538	0.585	1.000	0.349	0.318	0.333	0.300	0.211	0.213	0.329	0.279	0.301	0.206	0.251
D51	0.311	0.306	0.333	0.349	1.000	0.656	0.688	0.620	0.262	0.265	0.409	0.395	0.426	0.292	0.356
D52	0.283	0.279	0.303	0.318	0.656	1.000	0.627	0.565	0.239	0.241	0.373	0.360	0.388	0.266	0.324
D53	0.297	0.293	0.318	0.333	0.688	0.627	1.000	0.593	0.250	0.253	0.391	0.377	0.407	0.279	0.340
D54	0.268	0.264	0.286	0.300	0.620	0.565	0.593	1.000	0.225	0.228	0.352	0.340	0.367	0.252	0.306
H43	0.188	0.185	0.201	0.211	0.262	0.239	0.250	0.225	1.000	0.385	0.595	0.271	0.293	0.201	0.244
H44	0.190	0.187	0.203	0.213	0.265	0.241	0.253	0.228	0.385	1.000	0.602	0.274	0.296	0.203	0.247
H45	0.293	0.289	0.314	0.329	0.409	0.373	0.391	0.352	0.595	0.602	1.000	0.423	0.457	0.313	0.381
IN1	0.229	0.226	0.245	0.257	0.220	0.201	0.211	0.190	0.140	0.142	0.219	0.132	0.143	0.098	0.119
IN2	0.260	0.256	0.278	0.291	0.250	0.228	0.239	0.215	0.159	0.161	0.249	0.150	0.162	0.111	0.135
IN3	0.238	0.234	0.255	0.267	0.229	0.208	0.219	0.197	0.146	0.147	0.228	0.137	0.148	0.101	0.123
IN4	0.253	0.248	0.270	0.283	0.243	0.221	0.232	0.209	0.154	0.156	0.241	0.145	0.157	0.108	0.131
IN5	0.220	0.216	0.235	0.246	0.211	0.192	0.202	0.182	0.134	0.136	0.210	0.126	0.136	0.094	0.114
IN6	0.246	0.242	0.263	0.276	0.237	0.216	0.226	0.204	0.151	0.152	0.235	0.142	0.153	0.105	0.128

IN7	0.246	0.242	0.263	0.275	0.236	0.215	0.226	0.203	0.150	0.152	0.235	0.141	0.153	0.105	0.127
IN8	0.239	0.235	0.255	0.268	0.229	0.209	0.219	0.197	0.146	0.148	0.228	0.137	0.148	0.102	0.124
IN9	0.225	0.221	0.240	0.252	0.216	0.197	0.206	0.186	0.138	0.139	0.215	0.129	0.140	0.096	0.117
M47	0.249	0.245	0.266	0.279	0.395	0.360	0.377	0.340	0.271	0.274	0.423	1.000	0.633	0.434	0.528
M48	0.268	0.264	0.287	0.301	0.426	0.388	0.407	0.367	0.293	0.296	0.457	0.633	1.000	0.469	0.570
M49	0.184	0.181	0.197	0.206	0.292	0.266	0.279	0.252	0.201	0.203	0.313	0.434	0.469	1.000	0.391
M50	0.224	0.220	0.239	0.251	0.356	0.324	0.340	0.306	0.244	0.247	0.381	0.528	0.570	0.391	1.000

Appendix 8: Empirical Covariance Matrix

	CX55	CX56	CX58	CX60	D51	D52	D53	D54	H43	H44	H45	M47	M48	M49	M50
A28	0.333	0.252	0.273	0.353	0.377	0.253	0.231	0.219	0.130	0.091	0.228	0.177	0.147	0.059	0.251
A30	0.355	0.313	0.197	0.285	0.323	0.316	0.284	0.196	0.214	0.166	0.240	0.203	0.209	0.128	0.228
A31	0.324	0.298	0.203	0.214	0.309	0.232	0.222	0.219	0.210	0.272	0.204	0.190	0.267	0.218	0.283
A32	0.297	0.297	0.212	0.219	0.313	0.200	0.161	0.203	0.102	0.139	0.141	0.229	0.169	0.134	0.245
CA22	0.284	0.343	0.363	0.378	0.218	0.223	0.209	0.104	0.006	0.039	0.211	0.203	0.137	0.113	0.133
CA23	0.280	0.344	0.253	0.305	0.299	0.269	0.294	0.244	0.154	0.181	0.184	0.205	0.259	0.235	0.260
CA24	0.360	0.379	0.323	0.303	0.375	0.293	0.265	0.191	0.035	0.094	0.219	0.202	0.237	0.187	0.289
CA25	0.214	0.200	0.244	0.319	0.171	0.141	0.119	0.099	-0.058	0.036	0.137	0.053	0.117	-0.015	0.098
CA26	0.239	0.217	0.273	0.371	0.240	0.202	0.183	0.159	0.019	0.032	0.107	0.106	0.149	0.004	0.163
CX55	1.000	0.441	0.365	0.350	0.345	0.339	0.300	0.290	0.194	0.288	0.306	0.270	0.274	0.197	0.320
CX56	0.441	1.000	0.355	0.332	0.418	0.558	0.401	0.296	0.371	0.400	0.349	0.483	0.432	0.395	0.281
CX58	0.365	0.355	1.000	0.445	0.309	0.285	0.290	0.212	0.086	0.050	0.167	0.162	0.210	0.127	0.256
CX60	0.350	0.332	0.445	1.000	0.234	0.298	0.265	0.132	0.225	0.162	0.377	0.246	0.201	0.095	0.124
D51	0.345	0.418	0.309	0.234	1.000	0.552	0.555	0.489	0.262	0.287	0.359	0.369	0.293	0.326	0.491
D52	0.339	0.558	0.285	0.298	0.552	1.000	0.464	0.400	0.298	0.353	0.366	0.492	0.277	0.369	0.367
D53	0.300	0.401	0.290	0.265	0.555	0.464	1.000	0.571	0.295	0.367	0.442	0.444	0.319	0.402	0.414
D54	0.290	0.296	0.212	0.132	0.489	0.400	0.571	1.000	0.260	0.300	0.266	0.341	0.266	0.350	0.443
H43	0.194	0.371	0.086	0.225	0.262	0.298	0.295	0.260	1.000	0.622	0.407	0.500	0.417	0.450	0.313
H44	0.288	0.400	0.050	0.162	0.287	0.353	0.367	0.300	0.622	1.000	0.450	0.483	0.467	0.595	0.405
H45	0.306	0.349	0.167	0.377	0.359	0.366	0.442	0.266	0.407	0.450	1.000	0.389	0.423	0.284	0.243
IN1	0.370	0.305	0.249	0.257	0.367	0.286	0.327	0.266	0.137	0.220	0.313	0.212	0.273	0.201	0.286
IN2	0.219	0.255	0.228	0.262	0.203	0.220	0.178	0.098	0.035	0.061	0.258	0.138	0.101	0.065	0.082
IN3	0.313	0.288	0.235	0.341	0.311	0.244	0.271	0.163	0.119	0.066	0.281	0.124	0.146	0.063	0.097
IN4	0.208	0.179	0.253	0.275	0.201	0.228	0.195	0.146	0.085	0.055	0.266	0.177	0.133	0.022	0.031
IN5	0.171	0.319	0.191	0.201	0.237	0.262	0.222	0.136	0.153	0.137	0.210	0.110	0.213	0.092	0.179
IN6	0.319	0.306	0.355	0.312	0.418	0.324	0.350	0.307	0.019	0.082	0.270	0.160	0.132	0.146	0.223
IN7	0.176	0.203	0.204	0.256	0.111	0.160	0.090	0.045	0.039	0.017	0.199	0.073	0.085	-0.009	-0.026
IN8	0.162	0.178	0.212	0.239	0.123	0.228	0.085	0.028	0.107	0.111	0.243	0.171	0.081	0.005	0.006
IN9	0.148	0.235	0.278	0.231	0.113	0.239	0.143	0.123	0.098	0.094	0.215	0.184	0.190	0.091	0.094
M47	0.270	0.483	0.162	0.246	0.369	0.492	0.444	0.341	0.500	0.483	0.389	1.000	0.453	0.423	0.321
M48	0.274	0.432	0.210	0.201	0.293	0.277	0.319	0.266	0.417	0.467	0.423	0.453	1.000	0.358	0.346

M49	0.197	0.395	0.127	0.095	0.326	0.369	0.402	0.350	0.450	0.595	0.284	0.423	0.358	1.000	0.502
M50	0.320	0.281	0.256	0.124	0.491	0.367	0.414	0.443	0.313	0.405	0.243	0.321	0.346	0.502	1.000
OP33	0.216	0.176	0.281	0.307	0.233	0.174	0.175	0.089	0.055	0.050	0.249	0.053	0.143	-0.027	0.086
OP34	0.230	0.303	0.286	0.309	0.298	0.243	0.250	0.203	0.066	0.037	0.206	0.125	0.156	0.078	0.164
OP35	0.240	0.243	0.324	0.291	0.266	0.168	0.202	0.145	0.003	0.018	0.202	0.140	0.199	0.028	0.184
OP36	0.205	0.161	0.276	0.305	0.302	0.155	0.252	0.149	-0.009	-0.013	0.262	0.087	0.155	-0.038	0.103
OP37	0.232	0.245	0.270	0.354	0.255	0.289	0.234	0.222	0.038	0.020	0.240	0.197	0.142	-0.021	0.086
OP38	0.249	0.256	0.248	0.302	0.283	0.280	0.253	0.210	0.017	-0.011	0.225	0.146	0.137	-0.037	0.103
OP39	0.229	0.269	0.269	0.369	0.256	0.234	0.194	0.082	0.063	0.016	0.247	0.150	0.184	-0.005	0.113
OP40	0.235	0.202	0.221	0.347	0.142	0.180	0.094	0.148	0.131	0.117	0.291	0.119	0.161	0.024	0.081
OP41	0.265	0.189	0.261	0.402	0.218	0.165	0.180	0.151	0.111	0.064	0.260	0.106	0.187	0.028	0.097
OP42	0.232	0.272	0.296	0.426	0.253	0.229	0.240	0.152	0.122	0.080	0.255	0.183	0.176	0.056	0.175
P15	0.298	0.264	0.246	0.271	0.316	0.192	0.233	0.166	0.153	0.171	0.229	0.223	0.260	0.157	0.231
P17	0.266	0.191	0.287	0.344	0.177	0.180	0.202	0.126	0.124	0.123	0.318	0.204	0.164	0.043	0.076
P19	0.274	0.342	0.304	0.277	0.301	0.335	0.346	0.267	0.155	0.217	0.284	0.244	0.239	0.291	0.251
P20	0.270	0.278	0.366	0.315	0.272	0.263	0.248	0.144	0.066	0.186	0.213	0.225	0.230	0.096	0.219
R10	0.276	0.219	0.329	0.314	0.180	0.202	0.109	0.023	0.072	0.134	0.230	0.135	0.204	0.014	0.018
R11	0.251	0.237	0.340	0.300	0.232	0.190	0.226	0.133	0.161	0.145	0.154	0.167	0.236	0.150	0.209
R12	0.196	0.299	0.320	0.302	0.300	0.248	0.249	0.139	0.151	0.134	0.224	0.177	0.141	0.099	0.182
R13	0.355	0.348	0.301	0.366	0.331	0.305	0.233	0.158	0.169	0.227	0.236	0.181	0.266	0.126	0.249
R14	0.335	0.307	0.331	0.310	0.367	0.320	0.267	0.199	0.173	0.217	0.228	0.139	0.250	0.161	0.223