

CRANFIELD UNIVERSITY

BABAFEMI OGUNSANWO

ANALYSIS OF FACTORS DRIVING FOREIGN DIRECT
INVESTMENT IN THE LIQUEFIED NATURAL GAS SECTOR:
CASE STUDY NIGERIA

SCHOOL OF WATER, ENERGY AND ENVIRONMENT
PhD in Energy and Power

PhD
Academic Year: 2020 - 2023

Supervisor: Prof Phil Longhurst
Associate Supervisor: Dr Da Huo
February 2024

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the degree of PhD.

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ABSTRACT

The empirical data revealed facts about factors driving foreign direct investment in the Nigerian LNG sector. This research uses the primary data gathered to contribute uniquely to empirical findings and knowledge. Some factors are deemed adequate when attracting foreign direct investment. The sufficient factors identified are political stability having a considerable impact on investor decisions, and long-term investment commitments in the LNG sector. The second significant factor identified is government efficiency, and the last factor is corruption with different components classified into two broad categories: attractors and deterrents. In this context, sufficiency is defined as the condition where FDI is likely to occur when a sufficient amount of the three factors listed are in place. Previous research has failed to understand and explain all three factors adequately. This is a new insight and contribution to knowledge. This study explains how factors driving foreign direct investment in Nigeria's liquefied natural gas sector have an impact. The research utilises the successful Bonny NLNG projects as an example to investigate the reasons behind the failure of the Olokola and Brass LNG projects, which were unable to reach a final investment decision. Distinct empirical analysis and research design show key factors driving foreign direct investment in the Nigerian LNG sector. Foreign direct investment is a type of cross-border investment that occurs when an investor from one country develops a long-term stake in and a considerable degree of control over an enterprise located in another country. Additionally, in green-field investment, foreign direct investment is in the form of a parent company establishing a subsidiary in another country and commencing operations from the ground up. The goal of foreign direct investment is the priority of gaining benefits from the investment, maximising return on investment, and seeking to control assets. It offers capital funding in exchange for an equity stake. LNG projects are capital-intensive, it requires sizable up-front financing. LNG project financing can be difficult due to their long-term nature, high costs, and associated risks. Securing funds from foreign lenders, equity investors, and project sponsors can be herculean, only the major exploration and production companies can achieve it. Thus, the research will focus on factors driving FDI in the LNG sector. Key

stakeholders, policymakers, and investors will be interviewed. This thesis compiles feedback from stakeholders to identify the key factors driving foreign direct investment in Nigerian liquefied natural gas. The study presents evidence on the factors driving the inflow of foreign direct investment into the Nigerian LNG sector to policymakers, lawmakers, government executives, investors, community leaders, and financial institutions to test the effectiveness and efficiency of the research.

The research design incorporates a mixed-method approach. Data collected through a questionnaire-based survey, semi-structured interviews, and focus group discussions, provide solid insight into the factors driving foreign direct investment in the Nigerian LNG sector. The questionnaire-based survey was used to gather data from 118 respondents. Data was gathered from 12 top gas stakeholders through semi-structured interviews, and an additional 4 executive participants participated in the focus group discussion. The study employs purposive sampling to identify the participants and interviewees. The fundamental value of the research comes from the real-world data it collects and the conclusions by looking at factors driving FDI in the LNG sector. Stakeholder theories were chosen as the theoretical framework for the research, emphasising the study's focus and applying the researcher's terminology to address the research questions. The literature review guided this decision. Nigeria's abundance of natural resources, particularly its substantial natural gas reserves, attracts foreign investors. The Nigerian gas sector presents opportunities for economic development, energy diversification, and environmental sustainability in the future. Nigeria has about nine hundred times more gas assets than the country's oil deposits, and its reputation as an oil producer overshadowed the gas sector's potential, even though the country's gas reserves are greater than oil. Gas asset is a necessary factor, but it is not sufficient enough to attract foreign direct investment.

Keywords: Assets, Economic, FDI, Gas Reserves, GDP, Legal Framework, Legislation, LNG, Macroeconomic, Political Stability, Regulations. Social Stability

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LIST OF ABBREVIATIONS

BCF	Billion Cubic Feet
BIT	Bilateral Investment Treaties
BLNG	Brass Liquefied Natural Gas
CBN	Central Bank of Nigeria
CRA	Credit Rating Agencies
DGD	Domestic Gas Delivery
DGSO	Domestic Gas Supply Obligation
DISCO	Distribution Companies
EFCC	Economic and Financial Crime Commission
EIA	Energy Information Administration
E&P	Exploration and Production
EPC	Engineering Procurement and Construction
ESS	Express-Scribe Software
FDI	Foreign Direct Investment
FDIE	Foreign Direct Investment (Energy Sector)
FGD	Focus Group Discussion
FID	Final Investment Decision
FTZ	Free Trade Zone
GBP	British Pounds Sterling
GDP	Gross Domestic Product
GENCO	Generating Companies
GHG	Green House Gas
GIF	Gas Infrastructure Fund
GNP	Gross National Product
ICPC	Independent Corrupt Practices & Related Offences Commission
IEA	International Energy Agency
IOC	International Oil Companies
IPP	Independent Power Project
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MIGA	Multilateral Investment Guarantee Agency
MMBtu	Metric Million British Thermal Unit
MNC	Multinational Corporation
MOU	Memorandum of Understanding
MTPA	Metric Tonnes Per Annum
NBS	Nigeria Bureau of Statistics
NCDMB	Nigerian Content Development and Monitoring Board
NDPHC	Niger Delta Power Holding Company
NGL	Natural Gas Liquids
NIPC	Nigeria Investment Promotion Council

NLNG	Nigeria Liquefied Natural Gas
NMDPRA	Nigerian Midstream Downstream Petroleum Regulatory Authority
NNPC	Nigeria National Petroleum Corporation
NPV	Net Present Value
NUPRC	Nigerian Upstream Petroleum Regulatory Commission
OECD	Organisation for Economic Cooperation and Development
OKLNG	Olokola Liquefied Natural Gas
OPEC	Organisation of Petroleum Exporting Countries
PIA	Petroleum Industry Act
QBS	Questionnaire-Based Survey
ROI	Return on Investment
SSA	Sub-Sahara Africa
S&P	Standard & Poor
SSI	Semi-Structured Interview
SWF	Sovereign Wealth Fund
TE	Trading Economics
TCF	Trillion Cubic Feet
UNCTAD	United Nations Conference on Trade and Development
USD	United State Dollar
WTI	West Texas Intermediate

1 Introduction

1.1 Background of the Nigerian LNG Industry and Importance to Economic Growth

Between 2000 and 2005, Nigeria increased its gas utilisation capacity, but expansion has slowed since then. Although, Nigeria has huge gas reserves, political upheaval and unstable fiscal terms discourage investors' commitments to new projects (Wood 2012a). Additionally, the country boasts abundant energy resources such as wood fuel, nuclear power, solar energy, tar sands, coal, hydropower, oil, and gas (Adelegan 2018). According to the EIA (2023) report; Nigeria has recoverable gas reserves of 235 TCF and proven gas reserves of 206.5 TCF, production averaged 1.5 TCF annually, and consumption was 649 billion cubic feet between 2012 and 2021. Furthermore, Oluniyi (2017) stated that the discovery of gas has had a variety of effects on the Nigerian economy, both good and bad. Consequently, the industry faces numerous challenges such as environmental degradation, resource depletion, militancy, oil theft, and pipeline vandalization. On the upbeat side, the gas sector contributed to the country's GDP removing agriculture as the mainstay of the economy (Synnevåg & George 2018). On a more encouraging note, the gas industry contributed positively by growing government revenue, increasing export earnings, improving energy generation, crystallizing the industrial sector, creating jobs, and enhancing social and infrastructure development (Chete et al. 2016). Similarly, Oyewunmi (2020) claims that natural gas generated revenue since the start of the LNG project in Nigeria 20 years ago. In addition, Nigeria became a major player in the global LNG market due to increasing demand in the Atlantic and Pacific basins (Timitimi 2022). Additionally, Okoye et al. (2022) assert that Nigeria will generate more revenue from gas than crude oil when fully harnessed. Also, Adelegan (2018) reveals that due to socio-political, economic, and technological challenges, natural gas commercialisation took three decades to grow, and over the years, inefficiency, waste, vandalism, oil theft, and corruption have plagued the industry. Similarly, the Nigerian petroleum industry has a murky history of underreporting the nation's gas sales and income (Synnevåg & George 2018), and Oluniyi

(2017), reported that disputes over gas revenues caused insurrection by Niger Delta militants.

1.2 Problem Statement

Foreign investors in Nigeria prioritise domestic factors such as democracy, government policy, and petroleum production (Eggink & Bezuidenhout 2013). Nevertheless, this thesis emphasises how FDI is attracted and retained in the Nigerian liquefied natural gas (LNG) sector where political stability, government efficiency, and corruption are considered sufficient factors. However, research on the factors driving FDI in the LNG sector in Nigeria is limited. This study investigates the factors driving FDI. It uses the example of the successful Bonny (NLNG) project, to examine the causes of failure of the Olokola (OKLNG) and Brass LNG (BLNG) projects designed to achieve final investment decision (FID). In addition, gas flaring contributes to climate change with huge costs to the Nigerian economy (Omontuemen et al. 2022). Equally, the gas industry, with its upstream, downstream, and petrochemical sector activities, is without a doubt one of the largest environmental polluters globally, and it is becoming increasingly difficult for the industry to function sustainably (Debski 2023). Nonetheless, the Nigerian gas sector presents opportunities for economic development, energy diversification, and environmental sustainability (Olujobi et al. 2022). With about 220 TCF of natural gas, Nigeria has the largest proven gas reserves in Africa (World Bank Group 2019), about nine hundred times greater than the country's oil deposits of 36.972 billion barrels (Tumala et al. 2020). Furthermore, Nigeria's reputation as an oil producer overshadowed the gas sector's potential, even though the gas reserves are greater than oil. Oil attracted more FDI inflows, while the gas sector received less attention. The discrepancy in FDI prevents Nigeria from taking advantage of its vast gas assets (UNCTAD 2020). Since the late 1950s, oil has dominated Nigeria's economy. Oil is the primary source of government revenue, accounting for over 90% of all exports and approximately 80% of total government revenue (Donwa et al. 2015). Nigeria's oil industry paid for the foreign exchange costs associated with its growth strategy (Odularu 2008). For many years, Nigeria's economy has been based mostly on proceeds from oil, with a developed market drawing significant foreign direct investment.

Historically, oil has generated better profit margins than natural gas. The global oil market attracts more FDI due to its size and reserves, providing opportunities for swift returns on investment (Eissa and Elgammal 2020). Over the past century, human civilization has undergone remarkable technological and economic expansion, primarily due to oil exploration and production (Yakubu 2017). Oil continues to be the primary energy source with constant global demand, which propels more investment in the oil sector even as the demand for natural gas grows globally (Pirog 2005). Equally, investors are reassured by the available infrastructure in the country and its track record in the oil sector, which has been established over time (Taiwo et al. 2017). Also, the experience and knowledge in oil exploration and production provide a competitive advantage, making it a more appealing investment than the relatively new gas sector (Graham and Ovadia 2019). In addition, government policies in Nigeria have historically prioritised oil development, offering incentives and support to attract more FDI to the oil sector (Kimiagari et al. 2023). The regulatory structure for oil in Nigeria is more established than that for gas. Investors choose areas with clear legal and regulatory frameworks (Graham & Ovadia 2019). The reason for more investment and inflow of FDI in the oil sector compared to natural gas.

Likewise, Darma and Ali (2016) noted that attracting more FDI is critical to driving Nigerian gas sector growth and the utilisation of gas flare. Thus, it is imperative to highlight issues related to FDI inflow, and the research will investigate and analyse factors driving FDI inflow in the LNG sector in Nigeria. It is equally important to understand why some LNG projects conceptualised failed to achieve final investment decisions (FID) and research was conducted on the growth of the LNG sector. As a result, the research takes a more targeted approach through a case study of Nigeria, the country in Africa with the biggest natural gas resources. In 2021, Africa's natural gas reserves were more than 620 TCF. Nigeria has the continent's greatest reserves, around 203 TCF, about 33%, and equivalent to roughly 3% of the proven global natural gas reserves (Galal 2024; Casey 2023) as shown in Figure 1-1 below.

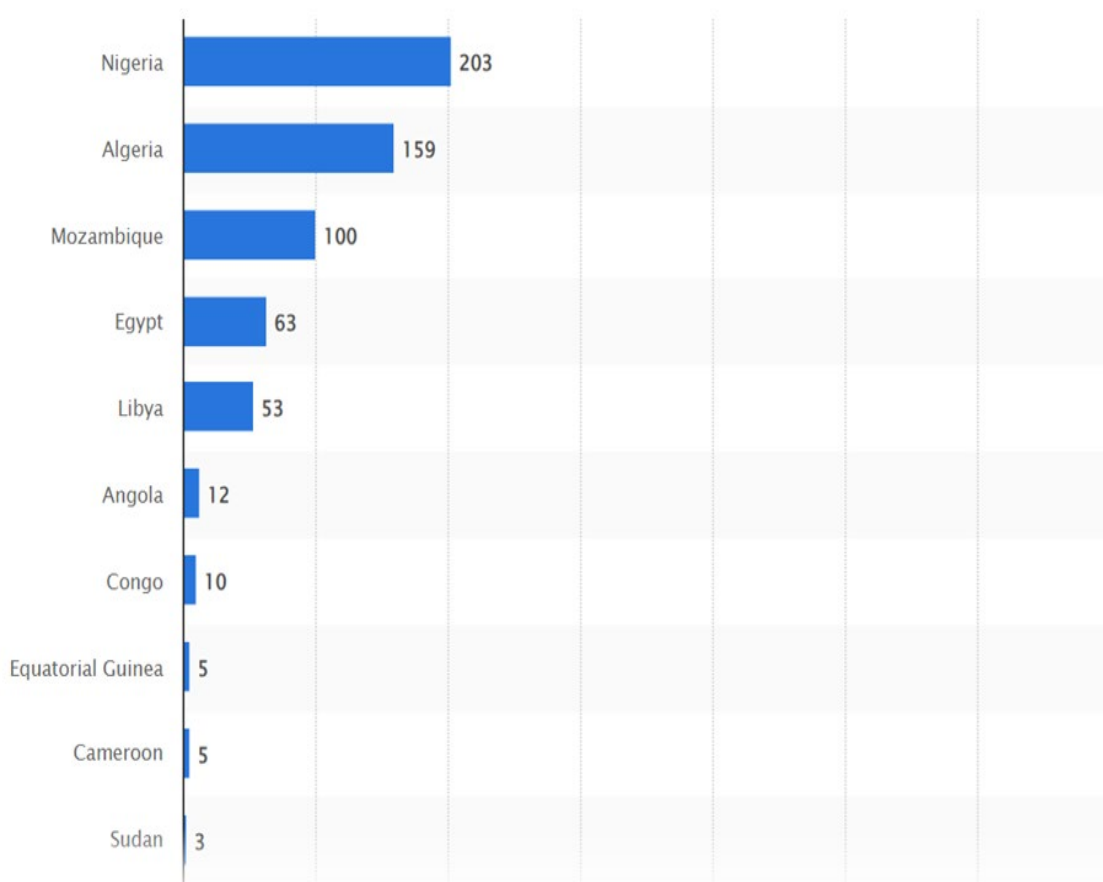


Figure 1-1 Natural gas reserves in Africa by country (Galal 2024)

The thesis demonstrated the necessity and rationale for a multistakeholder framework and analysis of factors driving FDI in the LNG sector, specifically in Nigeria.

1.3 Significance of FDI for LNG Growth Output

Natural gas is regarded as a transitional solution to global energy and climate issues because it is cleaner and emits approximately 50% and 30% less carbon than coal and oil (Solarin & Shahbaz 2015). Besides, Bugaje et al. (2022) claimed that the construction of gas-fired power plants takes less time to generate electricity than nuclear or coal-fired plants. This quicker construction period makes investment decisions easier for companies. Moreover, FDI inflow into developing nations has changed from resource-seeking to efficiency-seeking (Grace 2019; Maibetly & Idris 2022), and Jorgenson et al. (2009) revealed that industrialised nations depend largely on cheap natural resources from developing

countries. Also, FDI is resource-seeking in Qatar because most of it is in gas products (Alkhasawneh 2013). Thus, FDI inflow fuelled the growth of the gas industry through exports (Alfalih & BelHadj 2020). Likewise, FDI is significant for boosting resource-rich nation's economies during low prices of gas (De Ferranti et al. 2002). Both Udemba (2019) and Carril-Caccia et al. (2019a) have demonstrated the significant positive impact of oil prices on foreign direct investment, Subasat and Bellos (2013) assert that tight government control does not favour FDI in resource-rich host countries. Although, foreign investors investing in resource-rich countries can accept a relaxed rule of law in exchange for greater profits (Yang et al. 2018; Burger et al. 2016). However, such advantages may be diminished if there is a large risk of expropriation (Heinsz 2000), which requires the use of legal action to safeguard property rights (Asiedu & Lien 2011)

1.4 Gas Investment Global Outlook

As global demand for energy increases, natural gas now plays a critical strategic role in the energy supply (Economides & Wood 2009). A reliable energy supply is critical to national economic development and political stability (Uduma & Arciszewski 2010). The IEA (2014) report predicts a 65% increase in global energy consumption by 2030, with developing nations surpassing industrialised nations as the largest energy consumers. Furthermore, fossil fuels will account for more than 90% of the anticipated increase in demand, while oil, coal, and gas will remain the primary sources of energy (Gürsan & de Gooyert 2021; Dorian et al. 2006). The gas industry is an essential component of global business, though unstable in recent years due to the drop in prices from 2014 through 2019 when oil prices fell by as much as 70% (IEA 2020), with gas production decreasing by 3% to 5% and petroleum companies finding it difficult to maintain their balance of payments (Lu et al. 2019). Moreover and compared to the USD 474 billion invested in 2022, global upstream gas investment rose by 11% to USD 528 billion in 2023 (IEA 2023)

1.5 Research Significance

Analysing the factors driving FDI into the LNG sector is of economic significance due to its implications for development, energy security, sustainable growth, and comprehensive knowledge of the FDI markets. Nigeria's economy is heavily reliant on oil exports, which can be unpredictable due to global oil price fluctuations. Consequently, an in-depth, and critical analysis of this research can be beneficial on issues of economic diversification and non-reliance on mono exports of oil using gas as an alternative source.

This research is significant because it has the potential to aid in economic diversification. Similarly, Nigeria has the potential to improve its revenue streams, reduce its dependency on a single resource, and promote economic growth by attracting FDI into the LNG sector. In the context of energy security, the research is critical, because LNG is an important energy resource that can help improve energy security in Nigeria. Understanding FDI characteristics in the LNG sector has the potential to offer insight into how it can boost domestic energy availability. In addition, understanding what drives FDI in the LNG sector has the potential to help Nigeria market itself as a desirable investment location.

Policymakers can utilise this information to incentivise and remove bottlenecks preventing FDI inflows into the LNG sector. Furthermore, the importance of research extends to the creation of critical infrastructure. Also, for the LNG industry to operate successfully, a strong infrastructure is required. Thus, the research can identify where upgrades are needed and understand the infrastructure gaps. This would help Nigeria's infrastructure development goals as well as in the LNG sector.

Critical analysis of factors driving FDI will guide government policy formulation and reform. Equally, governments need to have information on which policies attract or deter foreign investors, while also improving competitiveness and supporting the long-term growth of the economic sector. Globally, sustainable development is a top priority, therefore careful examination of factors driving FDI can lead to the promotion of sustainable practices in the LNG sector. It can help integrate economic growth with environmental and social goals by emphasizing

the importance of environmental policies, community participation, and social responsibility. Furthermore, the research is important for expanding FDI knowledge, particularly in the energy industry. Additionally, it explains how factors like government policies, infrastructure, and market conditions influence investment decisions using the LNG sector in Nigeria as a case study.

This research's conclusions may have ramifications beyond Nigeria. LNG is cleaner than oil and coal, but it still emits carbon. Therefore, investments in emission-reduction technologies can serve as benchmarks for other producers. Equally, increased LNG production in Nigeria boosts worldwide supply, influencing prices and competitiveness. Also, investments in Nigeria's LNG sector will improve global energy security by diversifying supply sources. This reduces import-dependent nation's reliance on LNG imports from a single source.

Furthermore, FDI in the LNG sector can stimulate economic growth in the Sub-Saharan Africa region, not only locally but also regionally. Moreover, increased FDI in Nigeria's LNG sector has the potential to influence geopolitical dynamics with investors in Nigeria gaining more influence in the sub-region. In addition, FDI in Nigeria's LNG sector will contribute to the global energy transition. This has broader consequences for the global fight against climate change. Currently, the global energy landscape is changing, and LNG will play a significant role in the shift to cleaner energy sources.

Analysis of factors driving FDI in Nigeria's LNG sector can provide insights into how other nations can attract investment into their LNG sectors to meet the global demand for natural gas. Besides, critical studies were undertaken to analyse the factors driving LNG projects and to underscore the factors which made NLNG Bonny project successful. In addition, the policies, strategies, and regulatory frameworks that have driven this success will enable investors, policymakers, regulators, and financial experts to choose the required strategic areas of focus, policy guidelines, improvement in regulatory quality, and effective legal framework that will lead to the growth of the LNG sector and attract much needed FDI into it.

Understanding the extent to which previous studies addressed the issue of why some LNG projects conceptualised in the country failed to come on stream and required FDI not attracted remains vague (Frynas & Buur 2020), which impeded the growth of the Nigerian gas sector. This research will indicate that a holistic view such as the one advised which analysed all the factors; political, economic, legal framework, infrastructural system, etc affecting investment will lead to better decision-making. Also, stakeholders will be able to make informed investment decisions, allowing gas projects conceptualised in the future to come onstream.

1.6 Research Aim, Objectives & Questions

1.6.1 Research Aim

This research investigates the factors that drive foreign direct investment (FDI) in Nigeria's liquefied natural gas sector. It will analyse all the factors driving FDI in this sector, using the successful Nigeria Liquefied Natural Gas (NLNG) Bonny project as an example. It will also examine the reasons behind the failure of the Olokola and Brass projects, which were conceptualised but failed to achieve final investment decisions (FID). Examining the reasons behind the conceptualisation and successful implementation of the first LNG project on Bonny Island, as opposed to the two unsuccessful LNG projects, Brass and Olokola, is crucial. Equally, policymakers, industry stakeholders, and investors can gain valuable insights from the findings.

1.6.2 Research Objectives

The research objectives categorised and identified the key factors influencing FDI in the Nigerian LNG sector, using the institutional approach. This was achieved by analysing the impact of good governance, political stability, how corruption, and efforts to improve transparency influence FDI decisions. Another approach is to assess government economic policies and liberalization reform initiatives, as well as how infrastructure, economic growth, and market size all contribute to attracting FDI. The study also assesses how economic factors like GDP growth, inflation rates, and exchange rates influence FDI in Nigeria's LNG sector. In addition, it examines the present legal and regulatory frameworks governing Nigeria's LNG sector and how these frameworks impact FDI decisions, evaluates

the effectiveness of investor protection laws and contract enforcement, and analyses regulatory barriers and measures aimed at improving the business environment.

Also, it explores the effect of cultural and social factors on FDI decisions in the LNG sector by analysing the effects of cultural norms and investor perceptions, as well as the nature of the labour market, social stability, and educational skill. Likewise, it investigates how innovation and technological advancements, affect the LNG industry's attractiveness to foreign direct investment. Furthermore, it is instructive to assess how these dynamics impact FDI in Nigeria's LNG sector by analysing global LNG market dynamics, including supply and demand trends.

Equally, investigating the impact of geopolitical factors, such as local conflicts, war, and militancy, on foreign direct investment in Nigeria's LNG sector is crucial. Also, examining the significance of infrastructure development, such as LNG terminals and transportation networks, in attracting foreign investors. It is also important to consider the impact of local content requirements and corporate social responsibility programs on LNG investment decisions.

Also, conduct a comparative analysis of other LNG-producing nations to identify specific challenges and opportunities unique to Nigeria. Additionally, investigates cutting-edge financial tools and investment methods, such as project financing or public-private partnerships, that can be leveraged to draw FDI to Nigeria's LNG sector. In addition, examines the effects of the energy transition and global shift to cleaner energy sources on FDI in the LNG sector. The research findings inform policy recommendations for stakeholders, suggesting ways to boost FDI inflow into Nigeria's LNG sector. Finally, contribute to the scholarly literature by providing insightful information on the factors affecting FDI in the LNG sector, particularly in the Nigerian context.

The research objectives are listed below, focusing on Nigeria's liquefied natural gas (LNG) potential and its impact on the economy in the form of revenue generation, job creation, and GDP growth.

- i. *Evaluating the influence of Nigeria's economic and political stability on FDI inflows into the LNG sector*
- ii. *Analysing the efficiency of Nigeria's regulatory and legal frameworks in attracting FDI into the LNG sector*
- iii. *Comparing Nigeria's LNG sector FDI determinants to that of other countries that are also LNG producers*
- iv. *Evaluating the role of Nigeria's natural resource abundance and infrastructure in attracting FDI into the LNG sector*
- v. *Identifying and evaluating Nigeria's investment incentives and their efficacy in attracting FDI into the LNG sector*
- vi. *Investigating the FDI hurdles in Nigeria's LNG sector and offering mitigation solutions.*
- vii. *Assessing the economic and social benefits of FDI in Nigeria's LNG sector, as well as its contribution to long-term development.*
- viii. *To evaluate and use theoretical models pertinent to FDI factors in the context of Nigeria's LNG industry.*
- ix. *This study seeks to understand and report a review of current research on the factors driving FDI in the Nigerian LNG sector, for example why one project conceptualised was developed and succeeded and yet the other two failed to come on stream.*
- x. *Interviews the key stakeholders, policymakers, and investors seeking to understand why one project was developed and succeeded and yet the other two failed. Analysis of the factors that impact investment decisions in the Nigerian LNG sector will be undertaken to understand the influence of the factors on FDI inflow in the LNG sector.*
- xi. *Compares feedback from stakeholders with current research and reports a summary of the key issues influencing FDI and its impact within the Nigerian LNG sector by analysing data gathered through questionnaires, interviews, and case studies.*
- xii. *Presents evidence on factors driving the inflow of FDI into the Nigerian LNG sector to policymakers, lawmakers, government executives,*

investors, community leaders, financial institutions and engages them to test the effectiveness and efficiency of the research undertaken.

1.6.3 Research Questions

- i. What are the key factors influencing foreign direct investment in the Nigerian LNG sector?
- ii. What are the challenges and risks associated with foreign direct investment in the Nigerian LNG sector?
- iii. How can Nigeria enhance its attractiveness for foreign direct investment in the LNG sector?
- iv. How does the political and economic stability of Nigeria impact foreign direct investment in the LNG sector?
- v. What role do government policies, legislation, and regulations play in attracting or deterring foreign direct investment in the Nigerian LNG sector?
- vi. How does infrastructural development in Nigeria affect foreign direct investment in the LNG sector?
- vii. In what way do environmental, social, and corporate governance issues impact FDI decisions in the LNG sector in Nigeria?

1.6.4 Nigeria's LNG Project Overview

November 1995 will go down in the Nigerian LNG Bonny project's company history. The final investment decision (FID) and engineering, procurement, and construction (EPC) contracts were signed. The Bonny project started in 1999 as a joint venture to produce LNG and natural gas liquids for export. It was the first LNG project in Nigeria. Along with NNPC (49%), Total (15%), and ENI (10.4%), Shell owns a 25.6% share. Train 1 and 2 projects cost USD 3.6 billion. The NLNG shareholders paid the cost. Train 3 came at USD 1.8 billion. The Base Project's financing plan was comparable to this one. Trains 4 and 5 were worth USD 2.2 billion, excluding ship acquisitions. The project has expanded to Train 7 with a cost of \$4.3 billion, which is currently 67% complete (Uzoho and Aborisade 2024). The project's total capacity is now 30 MTPA expanding from its initial capacity of 22 MTPA.

The Brass LNG project was conceptualised in October 2003 by a consortium of project partners Eni, Chevron, ConocoPhillips, and the Nigerian National Petroleum Corporation (NNPC). In November 2004, Bechtel secured the contract to build a two-train, 10 MTPA LNG terminal, initially estimated to cost \$8.5 billion but later revised to USD 20 billion (Global Energy Monitor 2022). A lack of final investment decisions has caused the project to fail since its re-announcement in 2017. NNPC, Chevron, ConocoPhillips, and Eni Group were supposed to construct the project; then again, ConocoPhillips and Chevron have since pulled out (Asu 2019). The Nigerian government stated in April 2022 that it intended to bring the project back to life (Esau 2022).

Olokola LNG project and terminal were started in 2005. The project is meant to have a 12.6 MTPA overall capacity. The initial cost came to \$9.8 billion. 49.5% of the company was owned by NNPC, 18.5% each by Shell and Chevron, and 13.5% by the UK's BG Group, which Shell acquired in 2016. The initial plan was to launch in 2011 (Reuters 2007). The investors inked a 2005 Memorandum of Understanding and a 2007 Investor Agreement (Eboh 2013). Although NNPC declared its commitment to the project as late as December 2016, with the government investing USD 600 million in the project (NNPC 2016), there has been widespread speculation in Nigerian media that it is dead. There have been no development updates since 2013, and it is assumed to be discontinued (Alike 2017; Eboh 2017).

1.7 Theoretical Framework

Precise research goals and theories or models that are already in use in the fields of international business, economics, and investment will determine the theoretical framework that will be used for the research. The following elements make up the theoretical framework for this PhD research: The influence of formal and informal institutions on organisational behaviour where the importance of formal and informal institutions in influencing business strategy is becoming more widely acknowledged (North 2016). This framework can be used to investigate the impact of Nigeria's institutional environment, specifically its regulatory and governance frameworks, on foreign direct investment (FDI) in the LNG sector.

Similarly, the "Resource-Based View" (RBV) framework asserts that companies possessing unique and valuable resources enjoy a competitive edge (Khamwon 2012), and industry conditions significantly shape firm strategy and performance (Peng et al. 2008). The framework examines how resource endowments; including assets, technological capabilities, and infrastructure, influence their choice to participate in Nigeria's LNG market. Additionally, evaluating how political stability and risk perception affect FDI in Nigeria, as well as investigating theories connected to political risk in foreign investment, is critical.

Since the LNG industry frequently uses cutting-edge technologies, theories relating to innovation and technological transformation in FDI decision-making will also be examined. In addition, resource dependency theory can be used to examine how businesses in the LNG sector rely on partnerships, collaborations, and external resources to reduce risks and improve their FDI strategy. Likewise, sustainability and environmental considerations affect FDI decisions in the LNG sector. In line with the global transition to cleaner energy sources, this theory is relevant. The thesis's theoretical anchoring is based on institutional theory and resource-based view frameworks.

1.8 Thesis Structure

Below in Figure 1-2 is the pictorial outline of the thesis structure. Chapter 1 introduces the aim, objectives, and research questions, describes the setting for the case study, and provides the background on the Nigerian LNG sector and its importance to economic growth. Also, explain the significance of foreign direct investment for LNG output growth and the overall structure of the thesis.

Chapter 2 contextualises this research within the existing literature, where the catalysts, mechanisms, and framework for the attraction of FDI are also discussed as factors driving it in the LNG sector. Also, how do political stability and government policies affect the sector? Plus, how infrastructural development, sustainability practices, environmental regulations, labour relations, and community participation impact FDI inflow into the Nigeria LNG sector. Previous

studies on FDI in the Nigerian LNG Industry will be undertaken, outlining the success factors and challenges for LNG projects.

Chapter 3 outlines the research methodology, a mixed methods approach like qualitative and quantitative research approaches undertaken for analysing the factors driving foreign direct investment in Nigeria's LNG projects. All the necessary data were gathered through semi-structured interviews, survey-based questionnaires, and group discussions, and the data were analysed to identify factors driving FDI in the Nigerian LNG sector. This chapter will outline the philosophical reasoning and conceptualisation method overview and how the data are gathered, as well as provide insight into the results and findings of the data collected through analysis. It also provides an overview of the questionnaire-based survey results, interview transcripts, and focus group discussion analysis.

Chapter 4 highlights the results from questionnaire-based surveys presented to different participants directly involved in FDI inflow into the Nigerian LNG sector. This chapter aims to provide an analysis of factors driving FDI in the LNG sector based on the results of a questionnaire-based survey. The responses from the questionnaire serve as the study's quantitative primary data. Chapter 5 presents findings from semi-structured interviews, This chapter describes the distribution, collection, and responses gathered from respondents based on their willingness to participate in data collection for the research topic through interviews. The interview questions were formulated using archived study data. Additionally, information gathered from participants' interviews will be used to complete and evaluate data to understand factors driving FDI in the LNG sector.

Chapter 6 discloses focus group discussion results, and the chapter presents implications for policymakers, stakeholders, and investors, key contributions to knowledge, future research paths, and areas of further investigation. This chapter uses the focus group method to explore a wide range of ideas and opinions, which is particularly beneficial for understanding different viewpoints on the same subject. Additionally, focus groups provide insights that other methods may find challenging to obtain. Furthermore, if focus groups are used, they can generate enormous amounts of data from a large number of participants in a relatively short

time. Chapter 7 is the discussion part that addresses the research impact, its implications, limitations, and contribution to the industry. In this chapter, the theoretical frameworks and literature used for the study are considered as the discussion section summaries and combine discussions between the quantitative and qualitative findings. Chapter 8 is the concluding part, where recommendations are made and key contributions to knowledge are shown, on how FDI inflow into Nigeria's LNG sector can translate to output growth. Moreover, future research areas on natural gas being a transition fuel that can be converted to hydrogen to satisfy the global policy on zero carbonisation are highlighted in this chapter.

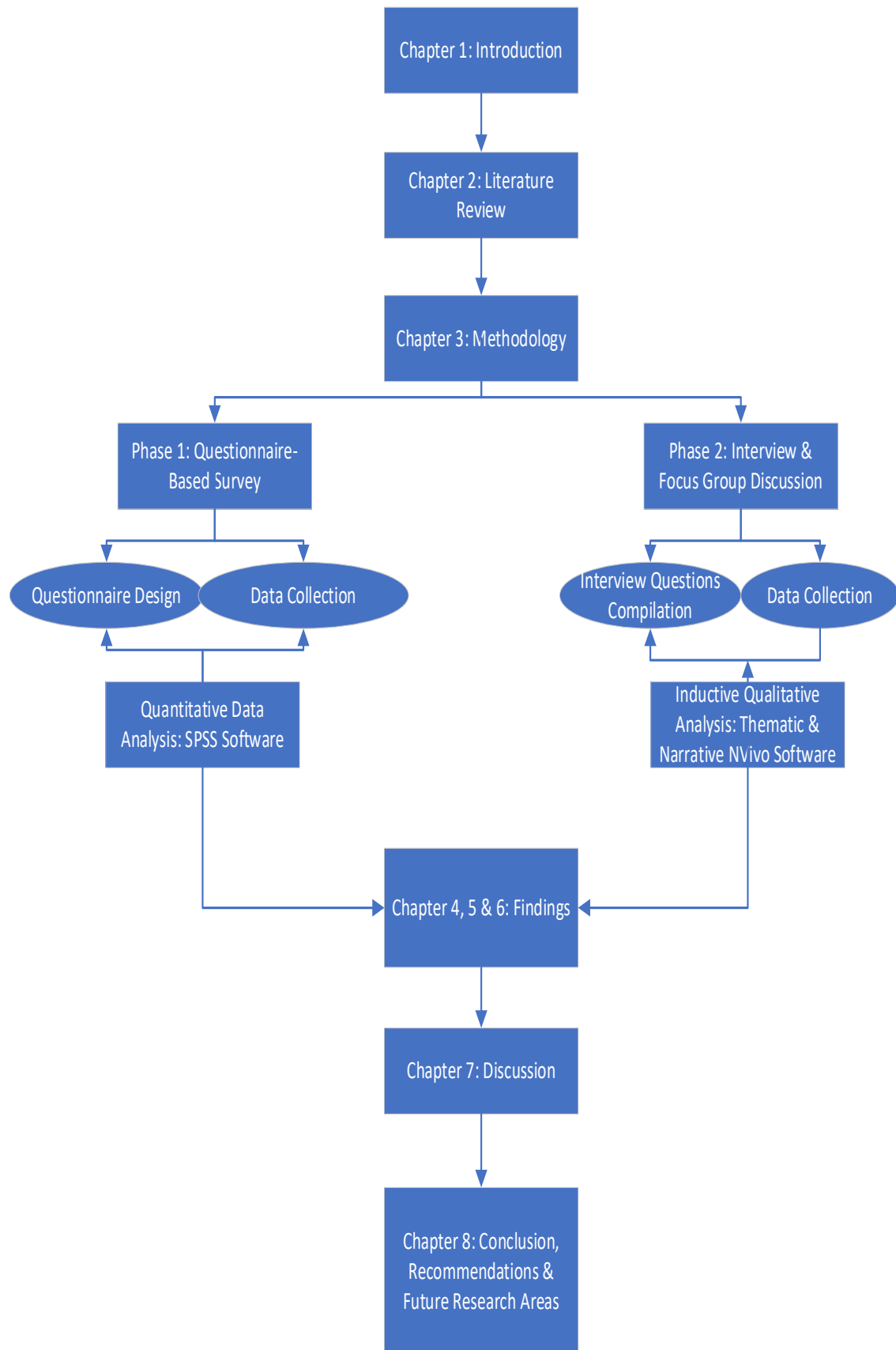


Figure 1-2 Pictorial Outline of the Thesis Structure

2 LITERATURE REVIEW

When we use the term "literature review," we often refer to the systematic process of collecting and synthesising previous research (Baumeister & Leary 1997). According to Snyder (2019), a literature review can address research problems with the power that no single study has by integrating findings and viewpoints from multiple empirical studies. A good literature review is also critical to the continued development, informed practice, soundness, and maturity of research fields (Lincoln & Lynham 2011). According to Popper (2005), the argument why scientific research rarely establishes an elaborate and logically well-constructed system of theory is that those theories are perpetually changing. Similarly, a research program is an evolving entity that can only succeed if its body of formal theories, which serves as a representation of its prediction abilities, continues to improve (Godfrey-Smith 2003). Before conducting substantive, extensive, and intelligent research, one must first conduct a comprehensive literature review (Boote & Beile 2005). To increase the collective understanding of all, a researcher must comprehend previous studies, their advantages and disadvantages plus their impact (Snyder 2019). Also, a well-conducted and efficient literature review supports a solid framework for the advancement of knowledge and the facilitation of theory development (Watson & Webster 2020). As a contribution to filling the gap, this PhD research is a theory-based study conducted to understand more about the effect of FDI on Nigeria's LNG sector and the major factors driving foreign direct investment into the industry. The literature review sheds light on the topics that inform the understanding of global gas trade and why some jurisdictions are regarded as successful investment destinations, while others have failed to attract needed FDI into their abundant natural resources sector. The review will also highlight the influence of market size, economic stability, taxation, regulatory framework, production capacity, and natural reserves influence on FDI decisions in the LNG sector. Additionally, how political and socioeconomic conditions affect gas investment will also be reviewed. Moreover, the literature on the effect of foreign direct investment in Nigeria's liquefied natural gas sector transcends different fields and involves different factors.

Understanding the effect of FDI in the LNG sector will allow policymakers and investors to gain valuable information about the LNG industry. Additionally, the findings can help in understanding relationships influencing FDI, and resource allocation maximisation, which will eventually help to support the long-term sustainability of the LNG sector, and such issues as progress to net zero and greenhouse gas emissions becoming major considerations in the future. Figure 2-1 shows the interaction between factors driving FDI, research interest, and LNG sector growth.

A systematic literature review aims to achieve a few objectives. Additionally, achieving these three goals provides evidence to explain the research procedures. How certain key factors in the country are the drivers of FDI into the LNG sector and their influence determines whether a project conceptualised will come on stream or fail to achieve a final investment decision.

- i. Discover the influence of the key driving factors for foreign direct investment in the country and their overall impact on the LNG sector growth.*
- ii. Conduct research findings and obtain perspectives from top-level employees about factors, processes, and major activities that attract FDI into the LNG sector. Additionally, it is crucial to understand how industry perspectives and academic research interact with each other*
- iii. Identify gaps in current literature to help guide and adapt the research methodology towards facilitating qualitative contributions to the existing body of knowledge in this area of research interest, which includes the influence of FDI inflow on the growth of the LNG sectors.*

2.1 Literature Review Methods

A systematic literature review is a rigorous strategy for reviewing the literature, extracting, and synthesising data in an open and reproducible manner (Kraus et al. 2020). Systematic literature reviews primarily use published journal articles that have undergone peer review, serving as a quality check and ensuring conceptual and methodological precision (Okoli & Schabram 2015). It evaluates the materials to support gaps in the literature, reduces bias and error, through the implementation of standard protocol, and also provides an audit trail that reassures academics and practitioners that the methods used for data analysis,

and the conclusions are supported by current research (Stark et al. 2022). In academic research, a systematic literature review approach is used to manage knowledge diversity, allowing the researcher to map and evaluate the existing intellectual area and identify research questions to expand the existing body of knowledge (Xiao & Watson 2019). Finally, in undertaking this study, there was awareness about the significance of analysing unpublished company and industry information as a crucial and secondary data source.

2.1.1 Literature Review Keyword Identification

The first step in a systematic review is the identification of keywords to search databases and academic journals, that may be relevant to a certain area of research interest. Structured and semi-formal discussions with peers and deciding on the pertinent keywords can be done. This helped to map the research fields and identify the important terms and structures. Then, to reduce sensitivity and increase accuracy, keywords were transformed into search strings, and methods using a series of iterations that progressed from the simplest to complicated strings. Listed below are the electronic databases searched for relevant literature:

- i. SCOPUS
- ii. Google Scholar
- iii. Elsevier
- iv. IEEJ Journal
- v. Science Direct
- vi. Sage Journals
- vii. JSTOR
- vi. EBSCOhost
- ix. Emerald
- x. Web of Science
- xi Wiley

The searched items were FDI, natural gas reserves, and local content. Also, specific search terms such as infrastructure, policies, political stability, economic

performance, environmental sustainability, taxation, and climate change issues to find relevant literature. Moreover, FDI is a global phenomenon, it applies to every sector of the economy, and it is not industry-specific.

However, while using the gas industry and Nigeria as case studies to demonstrate how FDI inflow influences the growth of the LNG sector in any jurisdiction, this research is an inductive evaluation of the trends. Moreover, concepts and hypotheses from existing academic literature on the topic of interest were synthesised using a literature review. The keywords and search strategy were not limited to the gas industry, avoiding the use of sector-specific keywords and search terms including gas reserves, and investment. This was done to avoid prematurely confining the conclusions of such a review to the gas sector only, hence diminishing the possibility of generalising research findings. Rather, the literature review employed keywords and search queries that addressed more general concerns about foreign direct investment and the growth of the LNG sector in general. This was a critical factor for an exploratory study of this type.

Furthermore, the deliberate omission of industry-specific keywords from the search strategy of relevant literature should be noted, as any contrary procedure may have led to limitations in findings relevant to the gas sector only. This assists in establishing a distinct research subject whose search, ideally, goes beyond the gas sector domain and yields findings that may be more applicable to other industries. Finally, it should be noted that in literature review conducted this way, reveals the dragnet for the search results and includes publications in the natural gas sector, key FDI drivers, environmental, social, and corporate governance issues, stakeholders, and FDI spheres of influence through the list of references highlighted herein (Ajayi 2020; Chih et al. 2022; Debski 2022; Evans 2023; Hao 2023; Jeremiah et al. 2023; Ofori et al. 2023; Udoudo et al. 2023)

2.1.2 Evaluation, Screening, and Search Processes

Using the filtering criteria and search terms (Jenkins 2004) resulted in the retrieval of 2,184 journal articles. Subsequently, the search terms were condensed to "foreign direct investment AND factors, AND liquefied natural gas".

Table 2-1 Literature Review Evaluation and Screening Criteria (Colquitt & Ireland 2009)

No.	Theme	Criteria	Motivation for inclusion
1	Source of Data	Journal Articles	Have undergone a quality review process that allows for conceptual and methodological thoroughness (R. J. David and Han, 2004)
2	Title	Must include the keywords	Demonstrates relevance to the research fields and constructs
3	Abstract	Findings should be relevant to the research areas as summarized in the abstract.	Relevance to the research interest on “Factors driving FDI in the LNG sector”
4	Publication date	From 1990, but more focus on the last ten years between 2013 and 2023	Research is interested in current patterns of factors driving FDI into the LNG sector.
5	Language	English	The entire process and training were conducted in English.

The main purpose was to discover journal papers that support the core research aim (Hennink & Kaiser 2022). This led to the shortlisting of 482 articles for a more thorough review. The 482 articles were evaluated by reviewing their contents, in particular their introduction, methods, and conclusions, further reducing the number of journal articles to 208. Then, each of the 208 articles that were filtered was quality-checked against additional quality criteria (Mills & Inouye, 2021) listed

in Table 2-1 above, modified from the Academy of Management Journal reviewer evaluation form; please see (Colquitt & Ireland 2009) which also matched the standards for Science Direct journals, and the quality criteria were formed by combining these as shown in Table 2-2 below.

Table 2-2 Systematic Literature Review: Quality Criteria

No.	Criterion	Definition
1	Contribution	<p>Change or increase our understanding of concepts, relationships, models, or theories.</p> <p>Stimulate thinking about a phenomenon in a way that would not be expected from extrapolations of previous work.</p>
2	Novelty	Investigates novel theories, occurrences, or relationships.
3	Impact	Findings increase the body of knowledge in the relevant fields by introducing new evidence and data.
4	Methodological Accuracy	<p>The internal and statistical conclusion validity of the findings is sufficient.</p> <p>It is inductive because the data is obtained, coded, and analysed with accepted norms.</p>

Finally, seventy-six (76) papers met the assessment and quality criteria. Fifteen (15) additional papers were added based on references from the first two hundred and eight (208) publications, bringing the number of journal articles used for the systematic literature review to ninety-one (91). Additionally, snowballing is a literature review method that involves using references to identify other works (Jalali & Wohlin 2012). Therefore, seventy-six academic journal articles and fifteen academic articles were cited. The extraction and synthesis of pertinent data excluded one hundred and thirty-seven (137) articles. Fifty (50) articles were evaluated, but none of them met the quality standards.

Table 2-3 Sources of Core Literature Article

S/N	Journals	Papers
1	SCOPUS	19 articles
2	Google Scholar	15 articles
3	Wiley Online	12 Articles
4	Elsevier	9 Articles
5	JSTOR	7 Articles
6	Science Direct	7 Articles
7	Sage Journal	8 Articles
8	Emerald	4 articles
9	ABI inform/ProQuest	5 articles
10	EBSCOhost	2 articles
11	Web of Science	2 articles
12	Academy of Management	1 article
Total		91 Articles

After assessing the findings, and methods of ninety-four (94) papers, it was discovered that they did not address the research topic "factors driving FDI in the LNG sector." Two (2) articles featured recommendations with little influence and vague conclusions. Another three (3) essays offered no theoretical or empirical contributions and just recounted the findings. Eighteen (18) articles that covered topics by publications in higher-ranking journals were filtered and produced similar conclusions. Based on results from electronic databases and websites, a total of ninety-one (91) articles are shown in Table 2-3 above.

2.1.3 Mitigation of Literature Review Biases

This section of the research describes how unintentional bias was prevented from causing inaccuracies or misrepresentations of evidence using the quality criteria above to choose relevant literature during the systematic literature review process. For example, in terms of contribution, the aim is to determine that an article elicits thought that is unexpected from extrapolations of current work. Particularly, how does an article's contribution to the research increase knowledge of concepts, relationships, models, or theories in a novel way? In-depth searches of academic databases from academic journals were conducted,

cross-referencing them with other published documents, to minimize the risk of missing relevant studies. Additionally, investigated additional journal sources to avoid the bias of eliminating insignificant results. The referenced documents came from academic journals, as this constituted a crucial indicator of academic methodological thoroughness. Additionally, to demonstrate relevance to the research areas, the title of the source should include one keyword from each of the search strings, such as factors, FDI, and LNG. The abstract of the documents referenced reflects and indicates to the extent the facts in the research question, it also contributes to current knowledge by extending to what exists or adding something new. Additionally, the research focuses on the Nigerian LNG sector, allowing for the analysis, consideration, and exploration of its facts. The entire research process was conducted in the English language. Finally, reviewed academic and journal papers to ensure the reliability of the conclusions. In addition, a systematic literature review minimises subjective judgment and guarantees that the procedure is reproducible and as broad as possible.

2.1.4 Literature Review Mapping

Below in Figure 2-1 is the overall mapping of the literature review and the factors driving FDI in specific environments and the general understanding of FDI.



Figure 2-3 FDI Driving Factors

2.2 FDI Policy Analysis

Stable and low-risk nations attract more FDI in their LNG sector (Chih et al. 2022). Moreover, political stability encourages long-term investment because it ensures continuity and reduces volatility (Abu et al. 2015). Research by Chen (2017) revealed that, despite the risk of investing in an unstable environment, foreign companies still invest and profit. Chowdhury & Mavrotas (2005), assert that countries with stable economies and large markets, where return on investment (ROI) is high, attract FDI to the LNG sector. However, Junxia (2019) argued that foreign investment will usually face risks in some environments where the benefits outweigh the risks, whether the risks are perceived or calculated. Both Sabir et al. (2019); and Buchanan et al. (2012) claimed that FDI is attracted by a supportive regulatory environment that is streamlined, transparent, and investor-friendly. Such an environment gives investors' confidence and lowers the risks related to industry investment. Moreover, the OECD (2002) report emphasised how crucial a supportive institutional environment maximise FDI benefits.

Additionally, countries with abundant gas reserves and significant production capacity attract FDI because the availability of natural gas supplies is an important consideration for investors in LNG projects (Ugwuoke & Okwanya 2017). Equally, cannot overemphasize the importance of gas reserves and production capacity in the growth of LNG output. FDI is regarded as a tool for economic development and a crucial source of funding in developing nations (Adeleke et al. 2014). Both developed and developing nations aim to attract FDI because it is crucial to growth (Vitalis & Callistus 2022). In addition, the relationship between foreign direct investment and fiscal growth is interlinked (Cheng & Kwan 2000; Jackson & Markowski 1996). Moreover, political, institutional, and legal climates influence FDI inflow and economic performance (Bekana 2023; Globerman & Shapiro 2002). Similarly, FDI from developed countries increases a nation's foreign reserves through grants, investments, and trade (Oyegoke & Aras 2021). Additionally, Kazeem & Oyero (2019) argue that foreign direct investment helps a nation develop significantly, supplementing forex earnings and savings. It also increases GDP and generates a steady stream of income (Hossain et al. 2022). Additionally, empirical research on the impact of FDI on economic growth resulted in debate, some analyses discovered a negative relationship between FDI and economic growth (Ayanwale 2007), while others believe increased FDI brought investment, improved technologies, and managerial expertise to host nations (Pegkas 2015).

Neumayer & Spess (2005) claimed that FDI is an investment between nations, helping global growth and guaranteeing cost reduction. So also Wijoyo & Cahyono (2020) described it as a long-term investment with 10% voting stock and a minimum of 10% equity in an entity operating in a territory other than the investor's home country (Mariloman 2003). Equally, reports have shown that the inflow of FDI is influenced by political stability, fiscal policy, trade liberalisation, a sizable domestic market, human capital development, labour costs, proximity to trading partners, and openness to global trade (Rafat & Farahani 2019).

Nations want to attract investment to support their economic growth (Vitalis & Callistus 2022). Also, FDI is important for nations because it increases the funds available for investments (Pegkas 2015). It involves capital inflow, reinvested

earnings, and an obligation from the parent company and affiliates (Adeleke et al. 2014). Similarly, FDI inflow is stimulated by stable government balances, low inflation, and real exchange rates (Mawutor et al. 2023). These indices are lacking in underdeveloped countries, while developed countries have been successful with positive indices (Oyegoke & Aras 2021).

2.2.1 Catalysts, Mechanism, and Framework

2.2.1.1 Catalyst

Globally, the attraction of FDI is a key criterion of industrial policy. Perceptions, image, and brand awareness have a big impact on the location of FDI (Loewendahl 2001). Similarly, it is necessary to understand why businesses choose to invest abroad and why they choose one location over another (Loewendahl et al. 2000). Accordingly, asset-seeking FDI, market, efficiency, and resource are the categories identified for global investment (Dunning 1998). It has been demonstrated that FDI flows, and market size are related. Empirical studies have suggested the significance of market-seeking foreign direct investment (UNCTAD 1998). In addition, Brenton et al. (1999) suggested that foreign direct investment reflects a trade-off between market proximity and economies of scale. Moreover, commitments agreed upon and executed on time for investment promotion will attract FDI (Odumosu-Ayanu 2012). Also, governments that embraced economic liberalisation encouraged investment in their economies, and investors have also taken advantage of favourable fiscal and political regimes to invest in new countries (Saunders et al. 2020). Plus, a stable economy with less risk and lower inflation attracts investment (Loewendahl et al. 2000). Furthermore, FDI inflow into Sub-Sahara Africa is accelerated by legislation that protects and promotes investments (Odumosu-Ayanu 2012), and clever investors are attracted to favourable economic and political jurisdictions (Saunders et al. 2020). In addition, Contractor et al. (2020) stated that FDI flows to countries where the economy is liberalised and deregulated. It is also influenced by the effectiveness of each nation's legal system and regulatory framework (Perry 2000; Sauvart 2016). Correspondingly, Nigeria attracted foreign investment when it repealed its indigenisation policy and fostered trade

liberalisation (Chete et al. 2016; UNCTAD 2009). These initiatives enhanced FDI inflows during the past 30 years in Sub-Saharan Africa.

2.2.1.2 Mechanisms

According to Chowdhury & Mavrotas (2005) FDI contributes to development and acts as a catalyst for industrial growth. For Duval & Dabla-Norris (2016), reducing trade barriers encourages foreign direct investment. The more open an economy is, the better it contributes to a nation's growth (Roser 2021). As mentioned earlier, denationalisation and liberalisation are the all-encompassing philosophies driving Sub-Saharan Africa's economic reform (Dewenter & Malatesta 1994), and FDI inflow will increase in any private sector-driven economy (Odumosu-Ayanu 2012). Also, jurisdictions with subsisting legally binding agreements attract foreign investors (Franck 2007). Furthermore, the government's statutory investment protection encourages FDI inflow (Odumosu-Ayanu 2012). In conclusion, the World Bank encouraged developing nations to implement the above policies to attract investments.

2.2.1.3 Framework

The government formulates policies to uphold justice, fairness, and equity (Reiter & Steensma 2010), utilizing its regulatory powers to harness FDI for economic development (Ofoeda et al. 2022). Also Ugwuja et al. (2019) discovered that a self-sufficient, independent state with virile political leadership and strong institutions attracts investment. Additionally, FDI inflow may lead to a conflict of interest between the government and investors, as international companies' investments may face nationalisation and expropriation (Rueschmeyer & Evans 1998; Jensen et al. 2020). Before 1970, expropriation posed a significant threat to international investment (Bergsten et al. 1978). Therefore, the absence of government supervisory and monitoring processes discourages capital flow.

2.2.1.4 FDI Treaties

The inflow of FDI into an economy is increased or decreased because of government policies (Sabir et al. 2019). Through favourable legal instruments and bilateral investment treaties signed, FDI is attracted by nations (Odumosu-Ayanu 2012). Since the 80s after a period of non-remittance of FDI, less

developed countries welcomed foreign capital flows (UNCTAD 1998). From the early 1960s, more than 2,300 bilateral treaties have been signed, most of them in the 1990s (UNCTAD 2004). According to Barthel et al. (2010), FDI transactions increased due to treaties between nations. Also, bilateral investment treaties (BITs) signed by less developed nations rose from 200 to 2000 from 1990 to 2009 (UNCTAD 2012). Additionally, BITs are global mechanisms for monitoring and the machinery for governing foreign direct investment (Blonigen & Davies 2002; Elkins et al. 2008). So, FDI inflow is lured by incentives and is enhanced by government policies, which makes a majority of developing nations have a welcoming attitude toward foreign investors (Nagesh 2005). Furthermore, multinational companies invest in any jurisdiction due to the unchanging macroeconomic structure and signed treaties (Globerman & Shapiro 1999). However, Egger & Merlo (2012) claimed that treaties do hurt the outward flow of OECD stocks. It can be concluded that in any jurisdiction where foreign investors are treated fairly with signed bilateral investment treaties (BITs) implemented to protect them, FDI will be easily attracted.

2.2.1.5 FDI Inflow

Tax policy and local market conditions are the issues that determine FDI inflow (Gray 2002). Similarly, FDI inflow into the Sub-Saharan Africa (SSA) region grew significantly due to trade liberalisation and globalization (Akadiri et al. 2020). Furthermore, Oladapo & Adaeze (2016) claimed that resource-rich nations with growing populations will benefit from increased foreign direct investment. Similarly, capital investment inflow supports natural resource exploration and production activities (Asiedu 2006), and countries' trade liberalisation policies and favourable investment climate influence FDI inflow (Kandiero & Chitiga 2016; Neumayer & De Soysa 2005). According to Sanderson & Kentor (2008), foreign investment impacted economic growth, human rights issues, and immigration. Additionally, Acquah & Ibrahim (2020) rank Africa as the region that receives the least amount of foreign direct investment globally. Similarly, Mahamet (2006) showed that 34 nations in the SSA are ranked globally as risk-prone for investment due to corruption. Globally and in the last seven years, FDI grew from \$20.3- \$33.5 trillion, but in Africa, it increased only from \$598 to \$867 billion

(UNTAD 2018). The failure of Africa to attract FDI is concerning as FDI plays a vital role in the African continent. FDI is necessary since it supplies the required capital for investment (Asiedu 2002). According to Pedersen & Jacob (2017), Africa's extractive sector is the most likely to attract FDI from investors, while Akadiri et al. (2020), stated that France, Germany, UAE, the UK, and USA are the foremost nations with FDI inflow to Africa.

2.2.1.6 Local Content Effect on FDI

The impact of FDI in less developed nations is more than just job creation (Killen & Ghimire 2016). Equally, FDI has a greater impact on economic development in a host nation than domestic industry (Martinez et al. 2009). Also, the inflow of investment leads to a nation's productivity absorbing the unemployed (De Gregorio 1992). According to Bwalya (2006), foreign investment made local companies to be technologically advanced, leading to higher employee productivity. Similarly, Blomstrom & Sjöholm (1998) found that labour productivity is higher in foreign investment-friendly environments with spillover effects on the local economy. Additionally, exposure to FDI and global organisations helps local businesses develop their management skills (Caves 1996). However, if the proper measures are not put in place, the impact can be dire for the citizens and economy (Odumosu-Ayanu 2012). Correspondingly, Basedow & Kauffmann (2016), indicated that foreign direct investment is affected by inadequate oversight and guided by satisfactory legislation and regulations in any environment. Also, Melega (2022) further argued that strict policies discourage the inflow of FDI, while more relaxed rules tend to attract it. Nevertheless, FDI influence on host economies ultimately depends on the specific legislation, cultural factors, and norms present in each country (Blomstrom & Kokko 2001)

2.3 Factors Affecting FDI in LNG Sector

Nations with stable governance frameworks and low political risk attract FDI (Rafat & Farahani 2019). Equally, political risk, on the other hand, is defined as the specific events that will have a negative or positive impact on the economic outcomes of companies involved in energy projects (Xiaopeng & Pheng 2013). Although the energy sector attracts the majority of foreign direct investment (FDI)

in less developed nations, political uncertainty is more prevalent in developing nations compared to developed countries (Keeley & Ikeda 2017). Typical examples include political instability, unforeseen policy changes, conflicts, and corruption (Pueyo 2018; Steckel & Jakob 2018). Additionally, due to their longer operational lifespans and higher capital intensity compared to general FDI, energy projects are more susceptible to political risk (Christensen & Hain 2017; Liu & Zeng 2017). Also, Jiménez (2011) posits that the synergistic interaction between the internal characteristics of energy projects and external environmental elements such as macroeconomic conditions causes the effect of political risk on FDI. Politics drives economics, and what causes changes in economic institutions is extractive institutions which promote highly unequal distributions of wealth and pockets of rent (Acemoglu & Robinson 2019). Other environmental factors might also have an impact on how political risk affects FDI in energy projects with considerable impact (McCauley 2018; Sergi et al. 2018), the effects can be mitigated or amplified by market and social factors (Angelopoulos et al. 2017; Keeley & Ikeda 2017; X. Liu & Zeng 2017; Strantzali & Aravossis 2016). Conversely, political stability creates a favourable climate for long-term investment and reduces risks in energy projects (Bielecki 2002). One interesting finding from empirical data indicates that political risk and FDI in the energy industry are negatively correlated (Danjuma, 2022). Thus, FDI in the LNG sector is highly impacted by political stability and risk.

A nation's economic progress appears to be significantly influenced by investment, and the main driver of economic growth in emerging nations is specifically foreign direct investment (Latief & Lefen 2019). Equally, FDI is beneficial to developing countries, by creating jobs, transferring technology, conducting research and development, and increasing productivity (Latief & Lefen 2018; Eissa & Elgammal 2020). Secondly, it encourages local investors to invest in the country. According to Safari et al. (2019), the LNG industry has seen tremendous growth in recent years due to rising global energy demand, and the transition to cleaner fuels, and natural gas supplies. Therefore, policymakers and industry stakeholders need to recognise the factors that attract and affect foreign direct investment in the LNG sector.

According to the World Bank (2017) report, foreign direct investment has long been touted as a powerful tool for economic growth and development. Indeed, Shahnawaz (2022) asserted that an environment characterised by investor-friendly legislation and transparent policies attracts FDI. Moreover, political stability, macroeconomic stability, ease of doing business, liberalization policies, energy access, and growing domestic markets encourage FDI (Mottaleb & Kalirajan, 2010). Likewise, FDI has the potential to contribute favourably to economic growth, which is why governments strive to improve their investment climate to attract needed resources for development (Adams 2009; Alfaro et al. 2004). Therefore, countries that provide a stable and predictable investment climate lower foreign investors' perceived risk (Eifert & Eifert 2009). Furthermore, Njuguna & Nnadozie (2022) submitted that a good business climate is important for attracting investment and promoting economic growth, and the country's appeal as a host to investors is influenced by its investment climate and competitive advantage in global production (Boohene & Darkwah 2023). Moreover, host governments are more likely to attract investment if they aggressively promote and support FDI in the energy sector through incentives and clear regulations (Soumalevris 2023). The research indicates a positive correlation between the regulatory and political environment and the FDI inflow in the energy sector.

For foreign investors, nations with stable economies and sizable markets are more attractive (Sabir et al. 2019). Additionally, stable economies offer favourable investment conditions, such as dependable regulatory frameworks, transparent policies, and investor legal protections (Mabuza 2022). Besides, larger markets provide more potential for returns on investment (Sabir et al. 2019). Similarly, existing economic conditions, labour and transportation costs, government laws, and institutions influence foreign investors' decisions to invest in the host country (Dunning 1988). Indeed, economic institutions are crucial because they influence how economic actors and stakeholders behave in any environment (Sabir & Zahid 2012). Furthermore, countries with secure and well-protected property rights encourage people to make both domestic and foreign investments, thereby fostering economic growth (Sabir et al. 2019). Also, inclusive economic

institutions ensure the protection of property rights, law and order, and permit the relatively unrestricted entry of new businesses (Acemoglu & Robinson 2011). However, Buchanan et al. (2012b) submitted that ineffective institutions deter FDI, which operates like a tax and raises costs. Also, Daude & Stein (2007) proposed that poor institutional quality might operate as a tax and thus be an additional cost to FDI. It can also heighten the uncertainty surrounding all sorts of investments. For example, corruption may hinder investment by raising the cost of doing business. Furthermore, it may increase uncertainty, which may discourage investment. According to Shleifer & Vishny (1993), corruption is significantly more distorting than taxes because of its secrecy. Therefore, investors avoid investing in nations where institutions support corruption, nepotism, and red tape (Mengistu & Adhikary 2011). On the contrary, FDI flows to nations where investors can expect to make a profit on their investments (La Porta et al. 1998), and countries with effective regulations to safeguard an investor's property rights attract FDI easily (Li & Filer 2007).

Natural gas is considered a clean energy source and the fuel of the twenty-first century. As demand increases, the natural gas sector is expanding. It is about 23.9% of the entire global energy mix (Rawat & Garg 2021). It is expected that countries with large reserves and significant production capacity will attract FDI more (Eissa & Elgammal, 2020). Furthermore, Steuer (2019) believed that investors focus on regions with proven reserves and dependable sources for long-term LNG projects. Moreover, a country's infrastructure for gas extraction, liquefaction, and regasification, as well as its production capacity, are critical in attracting FDI (Toscano et al. 2016). Also, studies have shown a correlation between FDI, natural gas reserves, and production capacity in the LNG sector (Litvinenko 2020)

Efficient infrastructure enables LNG production, storage, and transportation, thereby reducing costs and risks for investors (Olmez & Flamand 2023). According to the International Gas Union (2019) report, \$360 billion was invested in natural gas infrastructure globally in 2018. Furthermore, El-Anis (2021) claimed that infrastructural development encourages FDI, fosters international trade, and

helps to broaden national economic growth. Also, connecting excluded populations to established hubs of economic activity can lessen poverty (Bhattacharyay 2010). So also, infrastructure supports welfare by distributing resources, capital, opportunities, and services plus broadening the national economic growth (De 2006), while a poor infrastructure system acts as a barrier to trade and investment (El-Anis 2021).

In addition, Brooks (2008) reported that infrastructure supports investment by lowering transaction costs and is linked to economic growth, trade expansion, and regional integration. According to World Bank (2002) empirical data, infrastructure investment boosts long-term economic growth in a statistically significant way. As earlier stated De (2006) confirmed the significance of infrastructure development in fostering growth, lowering poverty, and Bhattacharyay (2010) claimed that a well-developed infrastructure system encourages trade across different economic sectors, both nationally and internationally, and offers greater access to essential factors including resources, technology, and knowledge. It also helps to improve socioeconomic conditions and facilitate the movement of goods and services. Also, reports have shown that countries with well-developed infrastructure and logistical networks are more likely to attract FDI (Tarzi 2005). Likewise, previous studies done by Plazinić et al. (2015) have emphasised the importance of infrastructure in attracting FDI in LNG projects, such as building LNG terminals and regasification plants. Therefore, for the LNG industry to attract FDI, infrastructural development is essential, including ports, pipelines, storage facilities, and transportation networks.

Investors are drawn to nations with cutting-edge technology and expertise in LNG technologies (Al-Haidous et al. 2022). According to Bresciani et al. (2020), modern technology boosts operational effectiveness, lowers production costs, and gives investors a competitive edge. So, to attract FDI in the LNG sector, collaboration for technology transfer between host nations and foreign investors is essential (Ekperiware & Adepoju 2013). According to Kabir (2012), FDI stimulates technology transfer for economic growth and development in underdeveloped countries and each FDI inflow has a technology transfer

component, management skills, marketing expertise, and job creation (Osano & Koine 2015). Also, Bodman & Le (2013) stated that FDI is a medium for industrial processes, new technologies, and materials, the reason it is regarded as a key conduit of technology transfer across borders. Likewise, Ekperiware & Adepoju (2013), claimed that technology transfers contribute favourably to economic growth in any nation. Consequently, enhanced technological capabilities in the extraction, liquefaction, and regasification processes in the LNG sector influence FDI.

Investors favour projects in nations with strong environmental regulations and legislation (Contractor et al. 2020). According to Bertheau & Lindner (2022), FDI flows more into nations committed to sustainable development, emission reduction, and climate change mitigation. Also, compliance with international environmental standards will have a favourable impact on investment decisions in LNG projects (Ford et al. 2014). Thus, environmental regulations and sustainability practices play an increasingly important role in attracting FDI in the LNG sector.

2.4 Political and Institutional Stability

Political risks have an overwhelming impact on foreign gas companies (Somers-Cox 2014). Because gas is a globally traded commodity, its local price is affected by global influences and factors (Ramos & Veiga 2011). The natural gas market plays a major role in international energy trade (Economides & Wood 2009). It emerged and grew to meet the expanding global demand (Asif & Muneer 2007). According to van Ruijven & van Vuuren (2009), natural gas is the preferred feedstock for electricity generation because it emits 50% less carbon than coal-fired power plants. Gas-fired power plants, on the other hand, have lower capital costs (Hirth & Steckel 2016). Also, LNG supplies about 24% of global energy needs today and presently accounts for almost 25% of global electricity generation (Litvinenko 2020)

2.4.1.1 Political Factors Overview

Demand-supply imbalance, as well as global geopolitical and macroeconomic conditions, has a significant impact on the volatility of gas prices (Demirbas et al.

2017). In addition, an energy crisis occurs when there is an interruption in supply that results in rising energy prices, endangering a country's national security and economic prosperity (Williams & Alhajji 2003). "Energy crisis" could be equated to a gas supply crisis". In recent times, the gas supply chain has been subjected to rapid and significant shocks (Jaradat 2018). Additionally, gas production disruptions and price shocks have occurred because of political events and geopolitical threats (Cunado et al. 2020; Kiwan & Al-Gharibeh 2020).

2.4.1.2 Global Effects

Producing gas through fracking in Canada and the United States resulted in a substantial increase in global production, representing the largest positive supply variation in recent decades (Kilian 2016). The fracking method creates rock formation fissures that encourage natural gas flow, thereby increasing the amount of retrieved gas (Wang et al. 2014). With advanced fracking methods from 2008, gas production from the United States exceeded that of Russia and Saudi Arabia, making the USA export a significant amount (Rodhan 2023). As a result of this development, the dominance of OPEC member nations in the market began to decline (Zhang & Hascakir 2021). Also, the consistent rise in gas production from 2008 was halted only by the COVID-19 pandemic, when local production dropped 8% from the 2019 level (Dobbs 2021).

United States was a net importer of gas. That position shifted in 2019/20 to a small net exporter (EIA 2022), but it is unclear which side of the line the long-term position will settle on (Reid 2021). The use of horizontal drilling methods and modern technology today raises questions about the financial viability of funding the enormous, multi-decade conventional projects that were the foundation of production in the past (Scheyder & Bousso 2018). Furthermore, fracking technology has shifted the United States' trajectory from one of the energy-dependent nations to one of the unchallenged leaders in gas production worldwide (Ragaban 2016). Due to improvements in horizontal drilling and fracking technology, annual natural gas production increased by 39% (Rodhan 2023). Unlike conventional production, fracking offers more flexibility; within a year of investing, natural resources can be produced compared to the conventional process, which takes an average of 5-10 years before production

begins (Miller & Sorrell 2014). Also, price shocks in the gas industry can be technology-led and not just affected by political effects. Because the underlying reason differs and not every increase in the price is the same (Newell & Simms 2021).

2.4.1.3 Political Stability

Political stability significantly impacts investments in gas projects. The political environment in any country has a significant impact on the choices made by investors (Farooq et al. 2023). Also, a stable political climate reduces risks, including policy changes, regulatory ambiguity, and government involvement (Kovacic & Di Felice 2019). According to Chuwa & Perfect-Mrema (2023), a consistent and well-defined regulatory framework for the gas industry exists in a politically stable environment. Also, investors are inclined to make long-term investments in nations with stable regulatory conditions (Kariuki 2015). They want their investments to be safe and to be treated fairly by the legal system in any jurisdiction (Jones 2022). Also, the preservation of property rights and the rule of law correlate with political stability (Sabir et al. 2019), in contrast, political instability will deter investors and weaken these protections (Carril-Caccia et al. 2019b). Furthermore, a nation's political stability affects its ability to attract gas project investments (Eissa & Elgammal 2020). Moreover, foreign lenders and financial institutions prefer investing in politically stable environments with low risks of political unrest and reversals in government policy (Matima & Gossel 2022). According to Rafat & Farahani (2019), countries with favourable investment climates and are politically stable are rated highly by investors. However, political instability will dwindle investor confidence, tarnish the country's image, and reduce investment (Pillai & Al-Malkawi 2018). Also, in a stable political environment, coordination is seamless between host communities, the government, and project developers, resulting in smoother project implementation (Ovadia 2014a), and political stability also reduces potential social unrest, riots, and interruptions brought on by political instability (Alesi & Perotti 1995).

2.5 Economic Factors Overview

Every business needs economic factor analysis because it enables logical conclusions about market potential, industry performance, market prediction, and the evaluation of key variables necessary for future growth (Perera, 2017; Lyneis, 2000). Power generation uses natural gas, followed by industrial usage (Jacobs 2011; Wood 2012). Furthermore, LNG is a product that facilitates global trading of natural gas (Al-Yafei et al. 2021; Nwaoha & Wood 2014), and its growth in recent years has established it as a major energy source (Wood 2012b). Additionally, global resource markets are connecting an increasing number of the world's economies, as interdependence grows, and regional supply shocks from geopolitical crises may have global implications (Growitsch et al., 2014).

The petroleum industry was impacted by COVID-19, reducing revenues for producing countries (Ma et al. 2021). The pandemic, which started in February 2020, had a significant effect on the energy market, causing the fastest drops in gas prices (BP Statistical Review 2021). Globally, energy demand decreased by 6% while production fell by 4.5%, marking the largest drop since 1945. It was the most turbulent year for global energy utilisation (Dale 2021); global energy consumption decreased by 9.3 %, or 9.1 million barrels per day, the lowest level since 2011 (Newell et al. 2021). Similarly, the demand in the United States decreased by 2.3 million barrels per day (Carlson 2023), 1.5 million barrels per day fell in the EU (Hosoi & Johnson 2022), and 480,000 barrels per day fell in India (Bagchi et al. 2020). As the economy grows, demand for gas will rise (Wilson 2022).

2.5.1 Import & Export

In 2020, the global LNG trade reached a new high of 17.09 TCF (Al-Kuwari & Schönfisch 2022). The trade is influenced by assets already owned by trading partners and energy infrastructure (Bridge & Bradshaw 2017). Therefore, developing a strategic policy around LNG trade is crucial for nations seeking energy security (Zhang et al. 2018). In 2020, the global LNG trade reached a new high of 17.09 TCF (Al-Kuwari & Schönfisch 2022). The trade is influenced by assets already owned by trading partners and energy infrastructure (Bridge &

Bradshaw 2017). Therefore, developing a strategic policy around LNG trade is crucial for nations seeking energy security (Zhang et al. 2018). Moreover, natural gas has grown to become a major source of energy and feedstock for the petrochemical industry (Kapsalyamova & Paltsev 2020). Similarly, the IEA (2022) report claimed that natural gas enhances air quality, serves as a global energy staple, and replaces pollutants. Also, it is the preferred feedstock for electricity generation because it emits 50% less carbon than coal-fired power plants (Sirola 2021). According to a report from the EIA (2016), energy demand will increase by about 48% in 2040, and natural gas share in the global energy mix will surpass 25% (Geng et al. 2017). The global growth of LNG as an energy source came about from the ease of shipping and natural gas abundance (Ruszel 2021).

2.5.2 Demand

Natural gas consumption has increased annually in the last three decades. The total annual demand doubled from 69 TCF in 1990 to 139 TCF in 2019, with a growth rate of 2.4% (Sonnichsen 2021). Likewise, global LNG trade volume currently accounts for 12% of global gas consumption (Zhang et al. 2018). Furthermore, in 2020, global LNG shipments totalled 356 million metric tonnes, with Qatar, and Australia accounting for 43.4% of all the exports (Sonnichsen 2020; Zou et al. 2022; Evans 2022), followed by the United States, Malaysia, Nigeria, and Indonesia. However, the United States of America exported the largest amount in 2021 (Lindroth & Livanov 2021). In addition, the Asia-Pacific region imported 254 MMTPA of LNG in 2021, accounting for 71.4% of all global LNG imports. China, India, Japan, and South Korea were the top four LNG importers, having 72.3% of all Asia-Pacific imports (Stirling 2020). Similarly, Australia exported 30.5% of its LNG volume into the Asia-Pacific region, followed by Qatar (20.6%), Malaysia (9.4%), and the United States-7.6% (BP Statistical Review 2021). According to the record by Wilson (2022), the European Union imported 82 MMTPA of LNG, accounting for about 22.9% of global gas imports with Qatar accounting for 26.8%, the United States for 22.7%, and Russia for 15.4%. Furthermore, seventy-five percent of the total amount of gas imported into the EU via pipeline came from Russia (41.5%), Norway (20.5%), Algeria (8%),

and Qatar- 5% (Slav 2022). As for the Americas, LNG imports were quite low, accounting for only 3.7% of total global imports (Zou et al. 2022b).

2.5.3 Trade

The Asia-Pacific region plays a major role in global natural gas trade with its volume of trade (Rogers 2016), while China and India are the two largest LNG consumers in Asia. With a projected 70% market share by 2030, the region will continue to lead in the natural gas trade (Rogers 2016). Since demand, rather than supply, drives investments, Asia-Pacific countries will receive more capital inflow (Egging & Holz 2016). In 2021, demand for natural gas increased by about 4.5% as trade volumes rebounded, from the contraction of 2020 caused by COVID-19 restrictions (Meza et al. 2021). Furthermore, LNG trade is a quick and dynamically traded commodity, unlike traditional trade built on long-term contract agreements (Meza & Koç 2021). In the last ten years, LNG trade rose from 223.8 to 356.1 MTPA (IGU 2021), liquefaction capacity increased from 270.9 to 452.9 MTPA, and regasification capacity increased from 572 to 850.1 MTPA (Meza et al. 2021).

2.5.4 Production Cost

According to the IEA (2014) statement, the remaining recoverable gas assets in the world are sufficient for another 230 years at present production levels, and lowered gas prices and flexible long-term contracts from new gas field discoveries will benefit end users (Economides & Wood 2009). Furthermore, gas exporters with low production and transportation costs will invariably be the most competitive, thereby boosting the competition between LNG and pipeline transportation (Bresciani et al. 2020; Gomes 2020; King 2022). Besides, gas producers using technologically driven innovations and producing from unconventional sources like shale pose significant competition to conventional producers. This new trend will reshape the global gas trade (Mistre 2017). In the United States, shale gas development rose exponentially, with enormous resource capacity (Melikoglu 2014). With rising global energy demand and dwindling conventional output, shale gas gained prominence (Yuan et al. 2015).

In 2020, 33.5 TCF of gas was added to global natural gas at a rate of more than +2.2% annually (Reid 2021).

2.5.5 Economic Benefits

Countries with abundant natural resources must promote energy policies that support LNG projects. In addition, the implementation of such initiatives will yield economic and social benefits (Simbakalia 2016; Chuwa & Perfect-Mrema 2023). In addition, sustainable economic growth is critical for countries seeking to improve people's living standards (Shah et al. 2021). Additionally, natural gas production is carried out by private companies investing in publicly held assets (Gunton et al. 2021), with income generated for the investor and economic benefits for the region or country in which the project is located (Adamu & Darma 2018). Furthermore, revenue accruals to a nation justify the production and depletion of its natural resources (Gunton et al. 2021). According to Litvinenko & Sergeev (2019), natural resources are state assets managed by the government to generate revenue. Similarly, gas investment benefits economies with the creation of jobs, royalties, and tax payments (Pibowei & Marei 2021). According to Neethling (2021), three LNG projects backed by significant investments from IOCs are in Mozambique, and the discovery of abundant gas assets was a game-changer for the government's economic and development goals (Climate Action Tracker 2022), which presented an opportunity for a country ranked as the least developed to reap economic benefits (Neethling 2021) with an estimated growth rate of 5.5% from 2022 to 2025 (Roe 2018).

2.5.6 Supply Strategy

According to Wood (2012), the LNG business will grow significantly in the next few decades. The average spot price for Asian LNG in 2021 was \$17.9 per MMBtu, a 435% increase from \$4.1 per MMBTU in 2020 (Boccaro et al. 2022), and increasing LNG spot prices will result in economic development for producing countries (Forbes 2022). Also, nations' economies are strongly influenced by their energy demand and supply strategies (Liu et al. 2022; Shi et al. 2019). According to the IEEJ (2019) report, energy demand in Asian countries increased due to a growing population and rapid urbanization. This has transformed them into

emerging economies with high economic growth rates (Thai-Ha et al. 2019). As a result, energy supply is very important in a nation, and its interruption affects the price of goods and essential commodities (Malik et al. 2020).

2.5.7 Globalisation

Energy security is described as a constant supply of energy at a reasonable cost (Bielecki 2002), shaped by legislation, laws, political, legal, geopolitical, and economic policies (Thai-Ha et al. 2019). In the globalisation debate, climate change, market liberalisation, energy security, demand, and supply are critical (Jakob 2022). Equally, economic globalisation is affected by energy market issues (Bridge & Bradshaw 2017), and the positive effects of LNG exports on the global economy were observed by policymakers and economists (Shah et al. 2021). Moreover, global LNG growth is supported by rapid expansion in liquefaction capacity (Romsom & McPhail 2020), particularly from Australia, with impending new LNG plants coming on stream from Mozambique and Senegal (Baba et al. 2020).

2.5.8 Economic Growth

Global energy demand is increasing because of industrial and technological advancements (Jie et al. 2023). Similarly, Sima et al. (2020) argue that increased productivity through investments and technological advancements justifies economic growth. In the expanding global energy market, countries yearn to increase their economic capability (Ussene 2021). According to Qiang et al. (2020), natural gas, and other low-carbon energy sources are important for industrialised nations. Same way, Adegboye et al. (2020) posited that the economic growth of nations is linked to their natural resources' endowment for the inflow of investment, particularly in the gas industry. Plus, economic development depends heavily on natural resource exports through a focused industrialisation drive (Adegboye et al. 2020; Appiah et al. 2022).

2.5.9 Taxation

Imposing taxes on energy consumption and production affects the environment (Liu et al. 2023). In the same way, environmental and green taxes minimise

ecological deterioration (Esen et al. 2021; Bitencourt et al. 2020). However, the advantage can be gained under an efficient regulatory and institutional framework (Mahmood et al. 2022), because the introduction of taxes may have negative economic repercussions on the industry, while an efficient tax structure shifts power generated from high to lower carbon emission sources (IEA 2022), and new tax policies must be implemented to boost electricity generated through LNG and decrease that of coal-powered plants (Cho & Kim 2020). Likewise, the tax imposed on electricity usage reduces consumption (Freire-González & Puig-Ventosa 2019). Nonetheless, energy taxes do not correlate with their environmental impact (Heine et al. 2012). According to Ghazouani et al. (2020), the primary energy source tax is more effective than the final energy source tax because it primarily influences consumer behaviour without having a significant impact on producers. Therefore, imposing a higher carbon tax on producers will make them pay for CO₂ emissions (McLaughlin et al. 2019). It will send signals to producers to switch to less polluting feedstocks.

2.6 Regulatory & Legal Frameworks

2.6.1 Regulatory Quality

An effective regulatory framework provides clear guidelines for operations, good investment planning, and streamlining of project approvals (Schumacher, 2019); it cuts out red tape, speeds up approvals, ensures easier project implementation, and easily attracts (Zhao et al. 2022). Similarly, investors benefit immensely in a stable environment with high regulatory quality (Yu & Li 2020). Also, well-defined regulations eliminate uncertainty, lower arbitrary decision-making, and provide a predictable investment environment for investors (Berg 1998). When investors know the regulatory requirements and procedures, they can invest confidently and make informed decisions (Rivera & Oh 2013). In addition, investors are more likely to be attracted to nations with strong regulatory standards (Corcoran & Gillanders 2015). They invest in countries with good regulatory standards because the risk is reduced, and it offers them confidence (Emako et al. 2022). Likewise, investors are encouraged by strong regulatory institutions in any jurisdiction to resolve disputes in a fair and timely manner, have contractual

agreements upheld, and have recourse to dispute resolution (Jasanoff 1995; Neumayer & Spess 2005). Similarly, gas projects generally adhere to environmental and safety standards. So, through high regulatory quality, the environment, public health, and safety are all protected (Litvinenko et al. 2022). Also, investors place a premium on countries with well-established environmental and safety rules (Kher et al. 2021) The viability and social acceptance of projects depend on adherence to these standards (Cotula 2008).

2.6.2 Legal Frameworks

Common law traditions will apply to former British colonies in Africa. This means that trade treaties, free market rules, capital requirements, the judiciary, and other concerns related to foreign companies' entry will have their origins in common law (Bokpin et al., 2017). Also, common law nations are recognised for having better legal systems and maintaining accounting standards than their civil law counterparts (La Porta et al.1998). This implies that foreign companies operating in nations with civil law may experience delays in implementing court decisions that are favourable to them compared to common-law countries (Ruggie 2011). Moreover, La Porta et al. (1998) stated that a strong legal framework safeguards shareholders against expropriation, promotes accountability and transparency, and allows finance providers to exchange funds for bonds and stocks. Additionally, research indicates that a firm's or investors' legal systems have a significant impact on business and financial outcomes (Bokpin et al. 2017). Equally, legal regimes influence financial intermediation, development, and economic progress (Levine and Demirguc-Kunt 2003; Harper and McNulty 2008). In addition, Hake (2016) asserts that a key factor influencing a company's performance is the foreign owner's legal system connection.

2.6.3 Environmental Legislation

Environmental and sustainability laws impact FDI in Nigeria's LNG sector (Odumosu-Ayanu 2012; Emodi & Boo 2015). Furthermore, by establishing favourable regulatory environments, Nigeria could attract environmentally conscious investors, enhance its reputation, mitigate risks, and gain access to global markets (Eweje 2006). This would ultimately promote long-term

sustainable development in the LNG sector. Also, environmental legislation shapes the reputation of companies operating in the LNG sector (Vafeas & Vasoulla 2001). Also, concerns about environmental sustainability and ethical business practices are growing among foreign investors (Bardy et al. 2012; Kolk 2016). Moreover, effective sustainable practices and environmental regulations show a commitment to complying with international standards and minimising environmental impact (Epstein & Buhovac 2014). Therefore, any jurisdictions that adhere to these rules and procedures are more likely to attract international investors whose priorities are responsible resource management and sustainable investments.

2.6.4 Risk Mitigation

For foreign investors, environmental laws and sustainable practices serve as risk mitigation measures (Aman et al. 2023). Additionally, stringent regulations also minimise risks such as pollution, environmental mishaps, and associated liabilities (Bergkamp 2021). Similarly, companies can reduce environmental risks and safeguard their investments from reputational and financial damage by adhering to these guidelines (Miles & Covin 2000). Furthermore, Hooghiemstra (2000) stated that people's perception of a company's reputation is both internal and external, and publicly traded companies strive to appease stakeholder groups' need to maintain their legal right to do business (Donaldson & Preston 1995; Quinn & Jones 1995). In addition, a strong corporate reputation enhances the company's long-term capacity to create value (Lusch & Harvey 1994). Therefore, to avoid the legal and financial issues associated with inadequate environmental standards, foreign investors frequently place higher importance on investing in nations with strong environmental rules and sustainable practices.

2.6.5 International Markets Accessibility

Conditions for entering global markets are environmental regulations and sustainable business practices (Rugman & Verbeke 1998). Truly, the awareness of how energy production and usage affect the environment by nations and consumers is increasing (Bilgen 2014). Additionally, unsustainable consumption and pollution caused by fossil fuels are the primary drivers of global

environmental degradation (Sarkodie 2018). Given the recent rise in petroleum costs and the finite lifespan of fossil fuels, we must use energy consumption productively for sustainable development (Bilgen & Kaygusuz 2008). Moreover, Lawrence et al. (2013) asserted a link between the global issue of energy inequality and concerns about overall energy usage and carbon emissions. Additionally, to export LNG to environmentally conscious markets, investors in Nigeria's LNG sector must adhere to strict environmental rules (Andeobu et al. 2015). Therefore, following these rules and adopting sustainable practices will improve market access, diversify the client base, and boost Nigerian LNG's competitiveness in the global market.

2.6.6 Community Acceptance

Community acceptance of LNG projects is influenced by environmental regulations and sustainability practices (Loutit et al. 2016). Likewise, community development agreements allow affected communities to benefit from large-scale investment projects (Bocoum et al. 2012). Additionally, concerns about the environmental impact of energy projects can spark unrest in the community (Scheidel et al. 2020). Some authors, Kenney-Lazar et al. (2018); Villamayor-Tomas & García-López (2018) claimed that society groups shaped the politics and practices of resource use for the betterment of society, and these environmental movements are a promising force for long-term sustainability and resource use (Harini 2018; Temper et al. 2018). Likewise, companies do demonstrate their commitment to environmental protection by following environmental regulations (Liu et al. 2018), which builds beneficial relationships with the local community, reduces tensions, and enhances their social license to operate, which is essential for attracting investors.

2.6.7 Innovation and Technological Developments

Environmental regulations and sustainability promote innovation and technological breakthroughs in the LNG sector (Ford et al. 2014). According to Wagner (2003) and Wang et al. (2022) innovation is spurred by environmental regulations, and this innovation has the potential to outweigh the costs of compliance and offer benefits (Porter 1991). Moreover, there is no proof that

regulations hampered local enterprises' capacity to compete globally (Lall 2001; Triebswetter & Hitchens 2005). Also, research has shown that improved productivity is associated with increased regulation, which technology adoption explains (Berman & Bui 2001). Yet some concluded that environmental legislation only has a minor impact on overall productivity reductions (Christainsen & Haveman 1981). Also, compliance with environmental regulations necessitates the use of cleaner and more efficient technologies, which reduce emissions and improve energy efficiency (Ouyang et al. 2020). Furthermore, foreign investors prioritize environmental legislation in their investment decisions, drawing their attention to jurisdictions that foster innovation and technological leadership (Adams et al. 2016). Therefore, these requirements encourage research and development, which results in the creation of new technologies that can raise the competitiveness of the Nigerian LNG market. However, companies in the Nigerian LNG sector may face difficulties because of the implementation of environmental rules and sustainability practices (Eweje 2006). Thus, compliance with stringent regulations may require substantial investments in environmental technologies, monitoring systems, and capacity building. Equally, the Nigerian government needs to strike a balance between ensuring environmental protection and promoting investment attractiveness by providing adequate support, incentives, and clear guidelines for compliance.

2.7 Infrastructural Development

The most important factor in FDI inflows is a well-established and high-quality infrastructure (Denisia 2010). In addition, excellent infrastructure boosts investment productivity, which in turn supports FDI (Asiedu et al. 2002). So, for a country to attract FDI, it must have sufficient infrastructure, ports, transportation networks, power sources, and communication systems (Ewubare & Onyema 2022). Also, to ensure seamless operations and prompt product delivery, investors need effective logistics and dependable infrastructure (Pieterse et al. 2016). According to Wekesa et al. (2016), excellent infrastructure reduces the cost of doing business and attracts foreign direct investment. Though the budgetary funding for the infrastructure sector has increased over time, there is

inadequate infrastructure in Nigeria (Ewubare & Onyema 2022). Similarly, a lack of infrastructure development in any country is a development problem and a barrier to investment (Ogunjimi & Amune 2017). The most significant infrastructure deficit is always in the areas of power, transportation, and communication networks (Barrett et al. 2010). Therefore, a well-developed infrastructure increases the Nigerian LNG sector's investment attractiveness, leading to lower operating costs and operational efficiency.

2.7.1 Project Implementation

Infrastructure development is critical to the effective deployment of projects (Gritsenko 2018). Moreover, governments and state-owned enterprises traditionally provided the energy infrastructure. Although changes in the political economy favoured privatisation, they affected not just who owns the infrastructure but also how it is managed (Solomon 2009). A wide range of stakeholders participate in infrastructure planning, but the political level establishes the financial procurement tools for energy policy (Ottinger et al. 2014). Furthermore, large-scale LNG projects require infrastructures such as terminals, pipelines, and storage facilities (Hindmarsh & Matthews 2008) which transport natural gas to processing facilities and export terminals (Hafner & Luciani 2022). Moreover, good infrastructural systems enable LNG loading, shipping, and storage for global markets (Sesini et al. 2020). Without sufficient infrastructure, projects are difficult to accomplish, and investors may be discouraged (OECD 2015) by the additional expenses incurred in building the necessary infrastructure themselves (Atkins et al. 2017).

2.7.2 Operational Risks Mitigation

For instance, improved port infrastructure lowers shipping bottlenecks and guarantees efficient gas export operations (Mangan et al. 2008). Also, LNG facility operational stability is improved by reliable power supply infrastructure (Mishra & Tilak 2023). Consequently, the LNG industry's growth is significantly reliant on a sustainable supply chain infrastructure (Al-Kuwari & Schönfisch 2022; Wood 2012a). Moreover, infrastructure development reduces risks, creating an environment that encourages investors and gives them confidence in their

investment decisions (Leete et al. 2013). Additionally, efficient transportation networks enable timely equipment delivery and increase project efficiency (Tavasszy et al. 2003). Therefore, infrastructure development will assist in reducing operational risks related to the LNG industry in Nigeria.

2.7.3 Market Access

Infrastructure development, particularly in transportation networks, facilitates market access for LNG exporters (Timitimi 2022). One factor in accelerating national growth and propelling the economy is infrastructure development (Wibawa et al. 2021). Similarly, Gaal et al. (2017) claimed that regions with excellent infrastructure systems experience higher economic growth than areas with inadequate infrastructure. A network of accessible, inexpensive, and dependable infrastructure is critical for development. It is required for running businesses, cutting transaction costs, and enhancing market access (Luo & Xu 2018). Additionally, Seethepalli et al. (2008) found that energy, roads, sanitation, telecommunications, and water all have favourable impacts on economic growth. Straub & Terada-Hagiwara (2010) stated that in most nations, the development rate of these infrastructures fosters economic growth. Also, infrastructure development can reduce transaction costs by lowering time, communication, and information exchange costs (Simon 1997). However, Limão & Venables (2001) claimed that poor infrastructure contributes to more than 40% of transportation costs, while Lakshmanan (2011) showed that time and cost savings from improved transport infrastructure can promote interregional trade. Furthermore, El-Anis (2021) stated that well-connected infrastructure provides efficient transport of LNG to international markets. So, this connectivity increases market competitiveness and investment appeal by creating possibilities for greater export volumes and expanded market penetration.

2.7.4 Local Economic Development

Local economies benefit from the infrastructure development in the LNG sector (Gritsenko 2018). The construction period and ongoing operations create jobs, thereby promoting economic growth and lowering poverty. Additionally, Quium (2019) suggested that infrastructure developments boost the local economy and

the growth of the construction and logistics sectors. Similarly, Emodi & Boo (2015a) claimed that the general climate for investment and the attractiveness of the Nigerian LNG sector is enhanced by these favourable economic effects. However, Ikpefan & Ailemen (2010) claimed that despite the importance of the LNG sector, infrastructure development faces obstacles that limit FDI inflow into it. These challenges include bureaucratic bottlenecks, corruption, limited technical capability, and inadequate funding (Arowolo & Perez 2020). In addition, insufficient investment in infrastructure results in unreliable services and substandard facilities, which can deter foreign investors (Simuyemba 2000). In conclusion, the Nigerian government must prioritise infrastructure projects, boost funding channels, streamline approval procedures, increase transparency, and encourage public-private partnerships to maximise the impact of infrastructure development on FDI. Nigeria may improve the attractiveness of its LNG sector, attract more FDI, and support sustainable economic growth by addressing these issues and maintaining a supportive infrastructure framework.

2.8 Governance and Corruption

2.8.1 Government Efficiency

Because FDI is sensitive to political risk, countries with sensible laws, regulations, and institutional efficiencies to safeguard investors' civil and property rights would be better able to attract FDI, and vice versa (Li & Filer 2007). Additionally, the transaction cost of investments influences FDI, attracting foreign capital to countries where investors can anticipate satisfactory returns on their investments (La Porta et al. 1998). In addition, transparency and accountability, contract enforcement, and ease of doing business are key governance factors that lower investment transaction costs (Mengistu & Adhikary, 2011). Equally, investor trust and confidence in a country's fiscal and monetary policies, along with its macroeconomic stability, also influence FDI (Brewer 1993). Additionally, investing in a nation with institutional gaps that promote corruption, excessive red tape that raises transaction costs, and the ability of the government to expropriate assets piques the interest of no investor (Mengistu & Adhikary 2011)

2.8.2 Corrupt Practices

Corruption is defined as the misuse of entrusted power for personal gain (Transparency International 2022); it is one of the biggest obstacles to effective planning and project completion (Locatelli et al. 2017; Loosemore & Lim 2015). Also, Damoah et al. (2018) revealed that corruption leads to delays, increases costs, diminishes benefits, and limits the social and economic impacts of projects. Likewise, Locatelli et al. (2017) indicated it includes fraud, extortion, embezzlement, conflict of interests, bribery, and abuse of power. The costs of permits, licenses, and approvals can drastically increase through bribes, kickbacks, and other illegal payments, which are components of corruption (Lehtinen et al. 2022). When investors pay bribes to secure government contracts, it leads to financial losses and reduced profits (Damoah & Kumi 2018; Loosemore & Lim 2015). However, Arif et al. (2020) demonstrated that corruption significantly and favourably impacts the investment climate of the BRICS countries and facilitates foreign direct investments in Africa (Quazi et al. 2014). On their part, Bowen et al. (2012) noted that these extra expenses may undermine the possibility of investing in projects under such conditions. Similarly, Damoah & Kumi (2018) pointed out that corruption can distort market conditions by favouring certain entities that use unethical tactics to gain an advantage over their competitors (Castro et al. 2020). For instance, Rose-Ackerman & Truex (2012) found that corruption can compromise legal integrity and regulatory procedures. Also, Gillies (2020) asserted that the infiltration of corruption into regulatory processes can lead to the issuance of permits and licenses based on personal connections rather than merit and adherence to legislation. Additionally, regulatory agencies' integrity is undermined, leading to a loss of trust among investors (Damoah et al. 2018). Moreover, Asante et al. (2022) submitted that investors prefer partnering with governments and companies that uphold high standards and transparency. In addition, regulatory quality also includes anti-corruption measures (Lehtinen et al. 2022), and Asante et al. (2022) believe that nations with effective anti-corruption policies and transparent governance systems draw investors because in such environments, level playing fields are offered and it lowers the likelihood of corrupt activities (Castro et al. 2020).

2.9 Labour Relations and Community Participation

In the Nigerian LNG sector, labour relations are crucial in attracting FDI (Odumosu-Ayanu, 2012). FDI inflows not only aid in raising capital stock but also help to increase the host country's income and labour productivity (Donwa et al. 2015). Furthermore, investors desire labour relations stability to ensure uninterrupted operations that reduce the risk of labour conflicts and interruptions (Piore & Safford 2006). Additionally, a favourable labour environment, characterised by sensible labour laws, robust worker rights, and successful labour-management relations, increases investor confidence (Taylor et al. 2017). So also, a favourable labour environment, defined by fair labour laws, strong worker rights, and effective labour-management relations, inspires investor confidence (Akkas et al. 2015). According to empirical studies, productivity and the quality of the working environment are interrelated (Buchanan & Huczynski 2019; Cascio 1995). According to Akkas et al. (2015), cooperation between employees and management aims to boost output and prevent conflict. As a result, stable labour relations foster a positive environment and attract investors to the industry.

2.9.1 Skilled Labour Availability

For LNG projects to be successful, qualified, and competent labour must be available (Behboud et al. 2023). Also, investors want a workforce with experience in engineering, operations, maintenance, and project management (Mateus et al. 2014). So also, a trained and educated workforce increases the sector's attractiveness and lowers operational risks (McIlwraith 2022). However, international trends indicate that a global skills deficit exists (Lutz et al. 2020). In addition, countries, employers, and organisations voice their dissatisfaction with a lack of skilled professionals (Mateus et al. 2014). Moreover, Richardson (2007) added that skill shortages frustrate businesses, and when severe, they are likely to impede the quality and quantity of industrial outputs. Nevertheless, Alpert & Auyer (2003) stated that there are no empirical indications or direct assessments of skill shortages, while Richardson (2007) reckoned that a skill shortage is when the labour supply is insufficient to fulfill the demand at current pay rates.

Therefore, effective labour relations, as well as excellent training and development programs, promote the development of a skilled labour force, which will make Nigeria an appealing investment destination for LNG projects.

2.9.2 Societal Acceptance

Involving local stakeholders and communities helps to create a sense of ownership (Lumpkin et al. 2019). Likewise, igniting social change and achieving societal impact are crucial motivations for socially conscious companies, large corporations, and governments at all levels (Chliova & Ringov 2016; Lawrence & Weber 2017). Similarly, the effectiveness of societal change programs depends on the participation of stakeholders (Lichterhan & Eliasoph 2014; Renn 2015). Also, extensive research has shown that the influence of external supporters like corporations and the government is transient and one-sided unless people are involved in projects (Lumpkin et al. 2019). And, to catalyse projects for societal change, companies, governments, and donor agencies offer financial, technical, and political backing (Andriamahery & Qamruzzaman 2022). Lastly, social and environmental entrepreneurship catalyses long-lasting social transformation in any community (Montgomery et al. 2012). Societal acceptance advances sustainable development and reduces social and environmental hazards (Sachs et al. 2019). Also, investors value positive community engagement because it supports social license to operate (Vanclay & Hanna 2019; Verrier et al. 2022). However, when companies engage in activities that their host communities do not support, they may respond in a variety of ways (Langdon et al. 2016), including taking both passive and active measures against the project and/or firm (Vanclay et al. 2016). Therefore, a socially responsible strategy that considers the fears and interests of local communities contributes to a favourable environment and lessens conflict, which ultimately attracts foreign investment. Stakeholder engagement and conflict resolution processes are facilitated by positive labour relations and community involvement (Kujala et al. 2022). Furthermore, prior research undertaken provided insight into the significance of stakeholder engagement in critical organisational activities like value creation, decision-making, and strategic planning (Castelló et al. 2016; Freudenreich et al. 2020; Kujala et al. 2022). Also, the participation of labour unions, and community

groups in decision-making promotes mutual understanding, trust, and cooperation (Freudenreich et al. 2020). As a result, constructive engagement and effective conflict resolution procedures can help prevent labour disputes and community grievances (Castelló et al. 2016). Similarly, Webler & Tuler (2021) confirmed that foreign investors value a stable environment that effectively manages conflicts through communication and negotiation. So, to overcome these obstacles and create an enabling climate for FDI, industry stakeholders should cultivate good labour relations, advance skill development programs, implement efficient community engagement methods, and set up mechanisms for conflict resolution.

2.9.3 Local Content Requirements

Labour relations and community involvement closely relate to local content requirements (Hilson & Ovadia 2020). Additionally, local content as a development strategy in the extractive industries is a manifestation of resource nationalism in the twenty-first century (Arbatli 2018). According to Domjan & Stone (2010), resource nationalism is the outright exclusion of foreign participation, depriving the nation of foreign investment benefits. Moreover, Victor (2013) pointed out that each nationalisation's information varies; in some cases, local leaders rallied the public against foreigners who, it was claimed, were not fairly sharing the rents of gas production. Nevertheless, local content requirements are now common in extractive industries and are promoted as a remedy to the resource curse that still affects some nations, including the likes of Nigeria, Angola, Ghana, and Venezuela (Graham & Ovadia 2019). Furthermore, these countries, endowed with abundant resources, have allowed multinational companies to remit billions of dollars to their governments (Hilson & Ovadia 2020). The concern, however, is that despite being substantial, the funds retained in the form of taxes and royalties have failed to stimulate the growth of local companies or promote economic development (Hilson et al. 2019; Ovadia 2016). Moreover, to mitigate the risk of volatile commodity prices, resource-dependent economies have implemented protective measures to encourage the diversification of their productive sectors (Lebdioui 2020). Correspondingly, Acheampong et al. (2016) affirmed that nations have put laws into place to

encourage local participation, with the hope of generating employment, transferring technology, and enhancing local capabilities. Equally, positive labour relations and community engagement support relationships between investors and stakeholders, which helps local content policies' successful implementation (Papagiannakis et al. 2019). Consequently, to gain entry to the market and secure contracts, investors in the Nigerian LNG sector must meet these requirements and maintain compliance.

2.10 Success Factors and Challenges for LNG Projects

For LNG projects, strong market demand and supply are crucial success factors (Lezak et al. 2019). Equally, substantial global demand for liquefied natural gas, particularly in energy-consuming countries, presents opportunities for revenue generation and market penetration (Hafner & Tagliapietra 2020). Additionally, securing long-term supply contracts with reputable buyers boosts the attractiveness and bankability of LNG projects (Botão et al. 2023; Martinsuo & Geraldi 2020). Also, the success of any LNG project can be attributed to establishing strategic partnerships with important consumers, diversifying markets, and forming business alliances (Kozhanov 2021). Conversely, the global LNG market is very competitive, making it difficult to attract buyers and secure long-term contracts (Cornot-Gandolphe 2005; Wood 2012a). Additionally, Hafezi et al. (2020) claimed that the commissioning of new LNG projects is competing with established suppliers and renewable energy sources for market share, while Tambare et al. (2022) stated that to overcome market challenges, it is essential to maintain competitiveness through cost-effectiveness, adaptable contract terms, and adherence to quality standards. In conclusion, the Nigerian LNG industry can establish a favourable environment for investment, attract foreign direct investment, and fulfill its full potential for long-term growth and development by considering these success factors and addressing the challenges.

Additionally, LNG projects require strong government backing and stability to succeed (Ajibike et al. 2022). Beyond this, Wijoyo & Cahyono (2020) stated that favourable policies, regulatory frameworks, and a stable political environment

promote project development and attract foreign investors. Furthermore, the success of LNG projects depends on transparent licensing processes, financial incentives, and regulatory certainty (De Silva et al. 2016a), and the success of LNG projects requires abundant and proven availability of natural gas reserves (Odumugbo 2010; Wood 2012b). Likewise, investors require secure access to natural gas supplies to support long-term operations (Economides & Wood 2009; Litvinenko 2020). Available empirical evidence indicates that Nigeria has substantial natural gas reserves, placing it well suited for LNG development (Adelegan 2018; Tapang et al. 2020). Hence, developing these resources effectively will increase the Nigerian LNG industry's attractiveness for FDI. Also, the success of LNG projects depends on having adequate infrastructure, including LNG terminals, pipelines, storage facilities, and transportation networks (Hirschhausen 2008; Mishra & Tilak 2023). Moreover, well-developed infrastructure transports natural gas to liquefaction plants and export terminals. Additionally, access to ports, dependable power supply, and robust logistics are essential (Berle et al. 2013; Boile et al. 2016). In conclusion, all the aforementioned factors enhance the efficient and economical operation of LNG projects, both within the project itself and the broader energy sector.

2.10.1 Challenges

LNG projects are capital-intensive, and they demand sizable up-front financing (Chrisopoulou 2018). Similarly, Ehlers (2014) believed that financing such projects can be difficult due to their long-term nature, high costs, and associated risks. Therefore, it can be extremely challenging to secure funds from foreign lenders, equity investors, and project sponsors (Baker 2020). Furthermore, securing finance for conceptualized LNG projects is a challenging task that only major exploration and production companies can accomplish (Chuwa & Perfect-Mrema 2023b). In addition, LNG project development, including both liquefaction and regasification, utilises project financing (Ruester 2015). Equally, recourse project finance has supported the LNG sector since 1990 (Large & Teymouri 2023), financing about 40% of the sum capital for the major liquefaction and regasification projects (Baker et al. 2010). Project finance, for a variety of reasons, is a desirable funding option for LNG projects (Salt 2019); It involves

capital-intensive upfront investments of USD 1 billion for import projects and USD 20 billion for export projects (Ruester 2015); Several project sponsors, including international oil companies (IOCs), natural gas importers, and supply companies, are involved in ensuring the supply of the project feedstock (Nwaoha & Wood 2014). As a result, cost optimization, efficient project management, economic viability, and cost reduction are all critical to overcoming these challenges and attracting foreign investment.

2.10.1.1 Complexities and Uncertainties

For LNG projects, evolving policies, regulatory complexities, shifting regulations, and political uncertainties might be the obstacles (Austvik 2016). Additionally, regular changes in rules, tax systems, and fiscal terms can lead to uncertainty and increase investment risks (Eddassi 2020). Furthermore, Benghida (2017) claimed that resource-rich countries face issues such as price volatility and revenue vulnerability, while Kaznacheev (2017) believed the endowed nations face reserve uncertainty, lack of accountability, and low-quality institutions. Furthermore, due to the extreme volatility of oil prices, exporting countries suffer low per capita income and massive growth failures (Arezki & van der Ploeg 2011). Unfortunately, even in resource-rich countries with abundant financial income from natural resources, the poverty status remains staggering (Sachs & Warner 1997). However, in nations with high-quality institutions, this curse can be turned into a blessing (Boschini et al. 2007; Mehlum et al. 2006). Also, Wright & Czelusta (2004) believed that the major puzzle is the existence of a negative correlation between economic growth and resource availability, while Sachs & Warner (1997) found a similar negative relationship between resource abundance and growth for countries. Therefore, political instability, corruption, and bureaucracies can stymie project development and undermine investor confidence. To solve these problems, clear and stable regulatory frameworks, as well as transparency, are required.

2.10.1.2 Environmental Regulations Challenge

LNG projects must meet high environmental and social standards (Kerbache & Ashkanani 2023). According to Olaniran et al. (2016), LNG projects are critical

because they have high environmental importance, huge economic value, and boost the development of services, processes, and products. So also, compliance with environmental regulations, mitigation of greenhouse gas emissions, and addressing social impacts are significant challenges (Stepanov & Makarov 2022). Moreover, global GDP has climbed by 41.2% in real terms since the turn of the century, and emissions have risen by 30.7% (Graham et al. 2021). Despite strengthening regulations on climate change globally, economic growth is still accompanied by an increase in GHG emissions (Stepanov & Makarov 2022). Furthermore, Caramizaru (2020) observed that project success depends on handling social disputes, respecting the rights of local communities, and balancing environmental sustainability. Ultimately, to overcome these obstacles, it is crucial to adopt best practices, carry out comprehensive environmental evaluations, and put in place powerful community engagement methods.

2.10.1.3 Infrastructure Constraints

Infrastructure is required to support economic and social objectives in government operations (Roseland 2000). Similarly, Olaseni & Alade (2012) claimed that infrastructure development is a crucial element for accelerating national and strategic growth and propelling the economy. Likewise, the availability of infrastructure as the foundation of economic development influences the economic growth of a nation (Ogunjobi et al. 2021). However, LNG projects may encounter challenges because of inadequate infrastructure like transportation networks, ports, and power supplies (Wibawa et al. 2021). Correspondingly, Ng & Loosemore (2007) stated that a lack of access to dependable infrastructure can raise costs, delay projects, and reduce operational effectiveness. Therefore, infrastructure constraints must be addressed through government support, strategic investments, and collaboration with relevant stakeholders to mitigate these challenges.

2.11 LNG Project Overview

It is significant to highlight that uncertainties and risks may affect the outcomes and expenditures of conceptualised LNG projects (Olaniran et al. 2016). Correspondingly, Thamhain (2013) highlighted that the risk of overruns,

breakdowns, and accidents is exacerbated by complex commercial and contracting arrangements, growing technical obstacles, and shifting economic and regulatory conditions. Likewise, Chapman & Ward (2003) believe that for most projects, uncertainty is both a reality and a significant challenge.

2.11.1 Expenditures and Results

Additionally, both Loch et al. (2008) and Thieme et al. (2003) claimed that throughout the project life cycle, risk affects everything from technical feasibility to cost, market timing, financial performance, and strategic objectives. Nevertheless, despite these challenges, companies must manage these risks to succeed (Patil et al. 2012; Shenhar 2007). Furthermore, returns on investment (ROI) and financial results are considerably affected by factors like changing global energy prices, shifting market demand, geopolitical dynamics, regulatory hurdles, and project-specific risks (Simmonds & Donnelly 2022). So, for planned LNG projects in Nigeria to get the most benefits and have the fewest problems, these factors need to be carefully studied and evaluated, along with good project management, financial planning, and risk-reduction strategies.

2.11.2 Estimated LNG Project Expenditures

LNG projects often entail large capital expenditures (Agarwal et al. 2020). Also, Toledano (2018) report reveals that three factors determine LNG capital expenditures: the ratio of LNG storage volumes to gas send-out, the capital expenditure per MTPA, and the optimal regasification technologies. In addition, the costs include infrastructure development, liquefaction plant construction, pipelines, storage facilities, and export terminals (Wood 2012). Likewise, Habibi et al. (2019) declared that LNG projects require financial resources to support procurement, project management, and costs. Because LNG projects are capital-intensive, financial planning, funding access, and cost-effective execution are required to ensure their financial viability. Before revenue generation can commence, LNG projects frequently necessitate large upfront development costs (De Silva et al. 2016). Additionally, to initiate project development, costs for exploration, evaluation, feasibility studies, environmental assessment, and regulatory compliance are required (Agboola et al. 2020). Moreover, these up-

front costs are important and need careful management during the project's early stages (Williams et al. 2019). In the same way, Hafner & Luciani (2022) stated that LNG projects continually incur operating and maintenance costs after becoming operational, which include infrastructure maintenance, labour, energy consumption, monitoring systems, and regulatory compliance (Kerbache & Ashkanani 2023). Therefore, effective management of these costs is crucial for the profitability and sustainability of LNG projects.

2.11.3 Local Value Chain

Additionally, payments to industries indirectly linked to the LNG project, along with the payment of salaries and wages to workers, positively impacted the economy (Roe 2016). Correspondingly, Pulsford & Goel (2017) claim that when a project is profitable for the developer, the more tax it will generate for the government, which makes the interests of the two parties align. Additionally, Weijermars (2015) asserted that the developer's primary project metrics include safety and environmental performance, NPV, and ROI, while the government focuses on revenue generation through taxation, employment, industrial development, and GDP growth (Chete et al. 2016). In the same way, employment opportunities are created directly and indirectly, in sectors like manufacturing, logistics, construction, manufacturing, and financial services (Ovadia 2014). Similarly, the development of supporting industries such as shipbuilding, transportation, and technology can enhance economic growth and diversification. Consequently, successful LNG projects can promote local value chains, economic growth, and eradication of poverty.

2.11.4 Sustainability

LNG projects that have been conceptualised can improve diversification strategy and energy security for the host nation and international markets (Vivoda 2019). According to the BP (2018) report, an increasingly significant source of energy is natural gas. Its utilisation rose to 24%, and now it supplies 23% of the world's major energy needs. The fact that natural gas has a lower carbon footprint than coal and oil makes it particularly attractive (Stevens 2010). Moreover, countries can reduce reliance on a single energy source, diversify their energy mix, and

improve energy resilience by building LNG infrastructure and boosting production capacity (Halser & Paraschiv 2022). Hence, access to LNG promotes sustainable energy transition, energy security, and emission reduction.

2.11.5 Technical Capabilities

Successful execution and implementation of LNG projects encourage innovation and knowledge transfer (Kerbache & Ashkanani 2023). Equally, collaboration between local and international stakeholders results in enhanced knowledge sharing, technology transfer, and best practices (Chuwa & Perfect-Mrema 2023a). Likewise, utilising cutting-edge technologies can boost productivity, lower costs, and improve environmental performance in LNG operations (Al-Haidous et al. 2022). Thus, proposed LNG projects can improve technology and bolster host nations' technical capabilities.

2.12 Research Gap: Lack of Comprehensive Analysis of FDI Factors Specific to The Nigerian LNG Industry

Addressing these research gaps will allow for a more comprehensive knowledge of the dynamics driving FDI in Nigeria's LNG sector. Also, future research should focus on sector-specific evaluations, assess the impact of recent regulatory reforms, and investigate the LNG industry's particular infrastructure, technological, economic, environmental, and risk problems. Existing research on FDI in the LNG industry highlighted global trends, and there is a dearth of comprehensive research that focuses on analysing the factors driving FDI into the Nigerian LNG sector. By addressing these research gaps, this research will provide valuable insights into the factors driving FDI in the Nigerian LNG sector. The findings will contribute to the existing literature by offering a comprehensive understanding of the unique dynamics and challenges of attracting foreign investment in the Nigerian context. The research outcomes can inform policymakers, industry practitioners, and investors in Nigeria and other similar environments, enabling them to make informed decisions and develop strategies to enhance FDI in the LNG sector. Some of the identified factors are sufficient, while others are necessary but not sufficient to attract FDI.

A larger portion of research concentrates on the gas sector as a whole, rather than focusing specifically on the LNG sector. There is a need for thorough research that identifies the specific characteristics driving FDI in the LNG sector versus the oil sector. Additionally, research often fails to provide comparison analyses between Nigeria's LNG sector and those of other prominent LNG producers such as Australia, Qatar, and the United States, despite the potential for these studies to provide insightful benchmarks.

2.12.1 Market and Economic Influence

Studies frequently overlook the global market dynamics unique to the LNG sector, such as supply-demand trends, pricing mechanisms, and competition from other LNG-producing countries. There is a need for further research into the economic impact of FDI in the Nigerian LNG sector, including job creation, GDP contribution, and energy security.

2.12.2 Political and Institutional Stability

The expansion of energy systems across the continent commences with the establishment of political stability and the organization of the governance structure in Nigeria, which in turn extends to the LNG sector in Sub-Saharan Africa. Furthermore, the energy industry in Sub-Saharan Africa is not attracting sufficient foreign private investment due to a combination of political, commercial, and country risks, as well as inadequate energy infrastructure (Schub, 2015). Equally, as a nation's political climate changes over time, this risk may also alter, acting as an investment insurance mechanism (Busse & Hefeker 2011). In addition, current research focuses on the effect of political stability as a factor driving FDI in the LNG sector. However, the growing chorus of voices demanding more action on the impact of political stability on FDI in the LNG sector persists and evolves.

2.12.3 Government Efficiency

The research will concentrate on exploring innovative financial tools and investment strategies, such as sovereign wealth funds, public-private partnerships, or project financing, to entice FDI to the LNG sector. Also, conducting a comparative analysis of other LNG-producing nations to determine

whether Nigeria is a desirable location for FDI, can reveal opportunities and difficulties in the Nigerian context. Additionally, it is crucial to investigate the influence of innovative investment strategies on FDI in Nigeria's LNG sector. This research will also discuss the impact of global energy market changes, fluctuations in LNG demand, and competition from other LNG-producing countries on FDI in Nigeria's LNG sector. Also, how changes in global energy markets, fluctuations in LNG demand, and competition from other LNG-producing countries affect FDI in Nigeria's LNG sector will be discussed in this research. Additionally, a global analysis of market dynamics could provide insight into the LNG sector's attractiveness. In addition, examines how market dynamic forces and competition from other LNG producers affect FDI in Nigeria's LNG sector.

2.12.4 Social and Environmental Factors

Research on the impact of environmental and social governance (ESG) factors on FDI decisions in the LNG sector is lacking. More research is needed to meet the growing consideration of sustainability and community effects by investors. More research is necessary to fully understand the social effects of the LNG project on nearby communities, including concerns about land use, relocation, and local economic advantages.

2.12.5 Corruption

The impact of corruption on foreign direct investment in the Nigerian LNG sector is a major issue. Correspondingly, FDI inflow and the operations of foreign companies are governed by policies that are complicated and disrupted by corruption. It also creates a hostile environment for investors. Moreover, the corrupt inclinations of decision-makers influence gas investment projects, and the level of corruption in any organization impacts its overall growth. Few scholars stated that corruption has a statistically significant and comparatively big negative impact on FDI (Barassi & Zhou 2012). More significantly, corruption has a greater detrimental effect on FDI than it does on other forms of capital inflows. Furthermore, investment security positively impacts FDI, but expropriation risks and corruption levels negatively impact it, creating a risky business climate. Additionally, foreign investors constantly seek investment opportunities where the

institutional climate is supportive and conducive, and they choose to invest in host nations with transparent institutional frameworks and well-defined policies. Thus, it is imperative to further analyse the effect of corruption on the inflow of FDI in the Nigerian LNG sector.

2.12.6 Regulations

While previous research focuses on regulatory and economic aspects, it is important to investigate how climate change issues affect FDI in the LNG sector. Also, there are more issues to be worried about regarding natural gas that question its supporters' optimism, these include the environmental costs associated with its extraction (Lazarus & van Asselt 2018). Consequently, this thesis will investigate how global climate goals and environmental regulations influence investment decisions in the LNG industry, which emits considerable greenhouse gases. In addition, investigating how the global move towards decarbonisation affects FDI inflow in the LNG sector and examining investor perspectives and strategies about the importance of LNG in a decarbonising environment and how climate change issues influence FDI in the Nigerian LNG sector need to be explored.

2.12.7 Security and Risk Concerns

Although the oil industry is well aware of the security concerns in the Niger Delta region, further research is necessary to fully understand the unique security challenges and risk mitigation tactics facing the LNG industry. Equally, research on risk management strategies specific to the LNG industry, particularly those addressing financial, operational, and geopolitical risks, is lacking.

2.12.8 Innovation & Technological Advancement

The LNG industry is evolving, with new technologies for liquefaction, storage, and transportation (Khan et al. 2017). Additionally, large-capacity projects require early field and facility development as well as technological complexity, which necessitate longer project implementation times and budgeted costs; hence, new LNG project implementation methodologies are required in the current circumstances (Bondarenko et al. 2022). As a result, this study will investigate how technological advancement and innovation influence FDI decisions in

Nigeria's LNG sector, including the evaluation of Nigeria's LNG projects. The issue of how advancements in technology and innovation influence foreign direct investment in the Nigerian LNG industry has not been investigated.

2.13 Literature Review Summary

Successful LNG projects can generate substantial earnings for investors and stakeholders (Cherepovitsyn & Evseeva 2021). Furthermore, Asheim et al. (2011) believe LNG project implementation will enable the introduction of novel procedures targeted at testing new technical solutions and building organisational and project management tools. Also, LNG project development goals are socioeconomic growth and efficient utilisation of mineral resources (Cherepovitsyn & Evseeva 2021). Similarly, ensuring a nation's energy security and preserving the sustainability of natural ecosystems are important priorities (Krivovichev 2019). Equally important, long-term LNG contracts sales to international buyers generate revenue streams (Bridge & Bradshaw 2017). Additionally, long-term sale and purchase agreements are the linchpins that connect the LNG upstream gas supply to liquefaction, shipping, and regasification (Farmer & Sullivan 2006), while the project's size, favourable market conditions, and pricing mechanisms impacted the revenue potential (Rogers 2015). Therefore, successful execution and implementation of LNG projects can increase the host nation's export revenue, foreign exchange reserves, and economic growth. Also, LNG projects can have a favourable multiplier effect on the economy (Vopilovskiy 2022). According to Eardley-Taylor et al. (2019), the LNG project's direct effect is the creation of jobs for the workforce, and supply chain effects are the impact of the project on the inputs of project suppliers.

This research lays the groundwork for an examination of the factors driving FDI in the Nigerian LNG sector, as well as its economic impact, challenges, risks, government policies, regulations, environmental and social considerations, also providing valuable insights for policymakers, investors, and industry stakeholders. Equally, natural gas reserves endowment, government policies and incentives, market potential and access to international markets, political stability,

infrastructure development, labour force availability & skills, and proximity to key markets are the drivers of FDI in the Nigerian LNG sector. So, understanding these factors is critical for attracting and maintaining FDI inflows. Additionally, FDI in Nigeria's LNG sector impacted the economy positively. Also, research demonstrates that FDI contributes to the creation of jobs, the transfer of technology and knowledge, the development of infrastructure, and the generation of export revenues. The government has also linked FDI to increased tax revenues and enhanced revenue diversification. In addition, FDI inflow into the LNG industry economic benefits extend beyond the sector, it also promotes broader economic growth and development. Contrarywise, numerous risks and challenges are associated with FDI in the Nigerian LNG sectors, such as corruption, social conflicts, political and regulatory uncertainty, security issues, insufficient infrastructure, environmental dangers, and the possibility of resource curse. These challenges can impact overall attractiveness, investor confidence, and project viability. Equally, the role of government regulations and policies in attracting and facilitating FDI in the Nigerian LNG sector was analysed. Also, policy factors such as a transparent licensing process, stable regulatory frameworks, industry-specific regulations, and fiscal incentives are crucial in attracting FDI inflows. However, the research has also emphasized the need for policy reforms to address issues such as corruption, regulatory inefficiencies, and the overall effectiveness of the investment climate. Furthermore, the importance of environmental and social considerations in the Nigerian LNG sector was highlighted also. The literature review underlined the need for sustainable development practices, environmental impact assessments, community engagement, and corporate social responsibility. These studies have highlighted the importance of addressing social and environmental concerns to ensure FDI acceptance in the LNG sector and its sustainability. Previous research has focused particularly on specific aspects of FDI in the Nigerian LNG sector. Moreover, issues of governance, local content policies, technology transfer, impact on host communities, and foreign companies' activities were pointed out. These sector-specific findings, which are listed below, contribute to a thorough

understanding of the topic by providing deeper insights into specific FDI trends in the Nigerian LNG sector.

Ensuing Chapters 3-6 provide the theoretical underpinnings of this research as well as the mixed-methodology like questionnaire-based survey, semi-structured interview, and focus group discussion used in analysing the factors driving foreign direct investment in the liquefied natural gas sector in Nigeria.

3 METHODOLOGIES

3.1 Overview

After undertaking an extensive literature review of the topic, both quantitative analysis methods (questionnaire-based survey) and qualitative methods (semi-structured interview and focus group discussion) were used to analyse the data gathered, which connects to the information gathered from the literature review. The questionnaire-based survey is the first method used to collect data, highlighting how responses from 150 respondents were collected as part of the research methodology. Also, to assist in generalising the findings and obtain an objective viewpoint on the research questions. In addition, the survey was presented to a cross-section of respondents in Nigeria's economic sector, with their roles ranging from entry positions to executive roles, and all are directly impacted by energy investment. The respondents were from different industries involved in FDI-related issues in the country's LNG sector. The inputs from them aided the data collection in the second stage, and the broader findings indicate how energy investment impacts the larger population in a jurisdiction. Moving further, qualitative data collection was undertaken through semi-structured interviews with twelve (12) industry stakeholders with enough experience in energy investment to participate actively. Also, semi-structured interviews provided additional flexibility, richness, and depth of research by allowing the interviewees or the researcher to bring up unexpected topics. The data collected through this process sheds more light on the factors driving foreign direct investment in the LNG sector and highlights the importance of FDI inflow into the gas industry. Finally, Six (6) executive respondents, directly involved in energy investment decision-making and with extensive experience in their respective organisations, were invited to participate in the final qualitative method - the focus group discussions. The senior executives who participated at this stage were involved in project management and investment decision-making in the energy sector, and their contributions provided valuable findings.

This chapter will provide an overview of the methodological approach used for the research as well as the reasons for the method used. The research

methodology is described as the process by which data are shaped and transformed into a meaningful and clear picture, utilising a systematic framework and a specific approach (Gale et al. 2013). Therefore, the researcher's assumptions in conducting the research and using logic to solve the research problem determine the adoption of the research methodology (Zou et al. 2014). The rest of the chapter is divided into various sections, including research questions, philosophical stance, strategy, data collection, anticipated challenges, ethical considerations, analytical procedure, data analysis methods, research design, and approach.

3.2 Research Questions and Analysis Overview

This research seeks to address the following research questions below to achieve its goals.

- i. What are the key factors influencing foreign direct investment in the Nigerian LNG sector? (RQ1)*
- ii. What are the challenges and risks associated with foreign direct investment in the Nigerian LNG sector? (RQ2)*
- iii. How can Nigeria enhance its attractiveness for foreign direct investment in the LNG sector? (RQ3)*
- iv. How does the political and economic stability of Nigeria impact foreign direct investment in the LNG sector? (RQ4)*
- v. What role do government policies, legislation, and regulations play in attracting or deterring foreign direct investment in the Nigerian LNG sector? (RQ5)*
- vi. How does infrastructural development in Nigeria affect foreign direct investment in the LNG sector? (RQ6)*
- vii. In what way do environmental, social, and corporate governance issues impact FDI decisions in the LNG sector in Nigeria? (RQ7)*

This study utilizes a mixed-methods research approach. One research method, either quantitative or qualitative, is inadequate for researchers because of the increasing difficulties of research problems. Thus, the researcher initially employed the quantitative research method to gather fundamental data for

addressing the research questions in this study, using a questionnaire-based survey (Aithal & Aithal 2020). Furthermore, the questionnaire survey assists the researcher in collecting quantitative data on the factors driving FDI into the Nigerian LNG sector. Moreover, the purpose of using questionnaire-based surveys in this research is to get an unbiased perspective on the research questions and help generalize the findings (Belafi et al. 2018). Subsequently, the quantitative data gathered is summarised, patterns are designed, linkages and interconnections are examined with SPSS (Statistical Package for Social Science) software. In addition, SPSS is a digital software tool that readily performs complicated data operations and has the capability of gathering data from a variety of file kinds, including text, images, and audio, among others, and using the data to generate tabulated reports, charts, descriptive statistics, and other output (Schwarz et al. 2014). Due to recent advances in computing and statistical data analysis for research purposes, it was discovered, that SPSS is deemed to be more accurate, reduces the likelihood of errors, and is time-efficient in generating tests (non-parametric tests).

Furthermore, this research employs semi-structured interviews and focus group discussions as the two methods for qualitative research. Explanatory, exploratory, descriptive, and interpretative purposes are part of the qualitative research approach (Conboy et al. 2012). Using semi-structured interviews to gain exploratory knowledge about the factors driving FDI into the Nigerian LNG sector, which aligns with the exploratory and interpretive goals of this research. In addition, the data from semi-structured interviews was evaluated using NVivo qualitative data analysis software. Similarly, the researcher first considers the research paradigm, approach, design, tactics, and data collection before attempting to address the research questions.

3.3 Research Paradigm

The research paradigm is the philosophical framework that defines a researcher's perspective (Kamal 2019). Additionally, the research paradigm discusses the shared ideals, principles, and assumptions of a given community or group concerning the nature of knowledge and society (Kaushik & Walsh 2019).

Similarly, the research paradigm mirrors the researcher's worldview, influencing their perception, analysis, and interaction with the world (Shah & Al-Bargi 2013). Taking everything into account, this study's research paradigm provides a set of guiding assumptions for conducting the research, evaluating the findings, and drawing conclusions. By way of explanation, the research paradigm is employed as a conceptual and empirical tool to answer research questions.

Four perspectives divide the research paradigm: pragmatism, positivism, constructivism, and critical theory (Rahi 2017). According to the pragmatic paradigm, there is a non-singular method for conducting research. It utilises a pluralistic and practical approach to understanding the truth using mixed methodologies (Kivunja & Kuyini 2017). Also, advocates of the positivist paradigm define research as a scientific approach to inquiry, acquiring objective knowledge through empirical procedures and hypothesis testing (Antwi & Hamza 2015). On the other hand, the constructivist paradigm focuses on acquiring knowledge by establishing a connection with the studied phenomenon. To gather data, constructivist researchers interact with the respondents or participants (Kivunja & Kuyini 2017). Additionally, proponents of critical theory recognize social actors and address social, economic, and political issues that contribute to social conflict, oppression, and conflicts, regardless of their severity (Delanty 2020).

The researcher deems the pragmatic paradigm to be the most appropriate. In addition, supporters of the pragmatic paradigm use mixed methods to analyse phenomena rather than just one (Shannon-Baker 2016). So, to answer the research questions about what drives FDI in the Nigerian LNG sector, this research used a mix of methods, including questionnaire surveys (for quantitative analysis), semi-structured interviews, and focus group discussions (for qualitative analysis). The reason is that one method provides a narrow perspective and poses a larger threat to the research objective.

The four underlying presuppositions of the research paradigm are ontology, epistemology, methodology, and axiology (Khatri 2020). Concisely, ontology refers to the reality under study, while epistemology refers to the interaction

between the researcher and reality. A researcher employs methodology, the best approach to gaining knowledge, to explore the phenomenon or reality, while axiology refers to the morals and values of research.

The epistemological theme refers to what constitutes genuine knowledge in a research study (Lawani 2020). In addition, the researcher is anticipated to be autonomous in his research paradigm given the nature of epistemology research, which investigates the relationships between the researcher and the research study (Kivunja & Kuyini 2017; Scotland 2012). Therefore, the quantitative methodology's questionnaire-based survey strives to reduce bias by upholding objectivity during the data-gathering and analysis phases of the research process. However, the interpretivist orthodoxy limits the distance between the researcher and the subject being studied (Kaushik & Walsh 2019). Thus, the qualitative method allows for more in-depth involvement with the research topic within the social setting as well as the observation of social phenomena across time. As a result, the interpretive paradigm suggests conducting interviews that facilitate interaction between the researcher and the interviewees in this study.

Thirdly, the axiology hypothesis highlights the importance of morality and values in research (Subedi 2016). Similarly, axiological abilities demonstrate the researcher's ability to articulate values as the basis for decision-making regarding the research topic and how the research is organized (Pillai & Kaushal 2020). Although some researchers did not believe their research activities would have an impact on the research subject after the research was concluded, some results that were different may emerge eventually (Peterson 2019). Also, some researchers believe that moral and ethical standards are important in research (Hammersley 2015). As a result, a qualitative researcher is more concerned with value and ethics than a quantitative researcher (Mandal 2018). Thus, these research findings result in statistical and descriptive evaluations of questionnaires, interviews, and focus group discussions, respectively, combining the three methods to gather data for the research.

The primary goal of this research is to analyse the factors driving FDI in Nigeria's LNG sector. Therefore, key stakeholder's perceptions are required to understand

the factors driving FDI. A questionnaire-based survey, representing the quantitative method, serves as the statistical platform for analysing the factors driving FDI. On the other hand, the qualitative method supplements the questionnaire results by analyzing the factors driving FDI in Nigeria's LNG sector through semi-structured interviews and focus group discussions. As a result, the two methods combine diverse realities on the topic of the research undertaken.

3.4 Research Approach

After discussing the philosophical viewpoint adopted for this research, defining the relationship between theory and research is critical to a researcher. Thus, the extent to which research is concerned with theory building or theory testing presents a critical inquiry about the direction of a research design (Al-Ababneh 2020). In addition to defining the relationship between theory and research, there are two crucial factors to consider. First, to decide on the type of theory to use. Secondly, whether data are gathered to develop a theory or test one (Dawadi et al. 2021a). Consequently, Al-Ababneh (2020) classifies these concerns as research methodologies, distinguishing between deductive and inductive approaches. Additionally, due to the limitations of both inductive and deductive approaches, the third approach which is abductive was identified (Proudfoot 2023). Conversely, the deductive approach involves testing theories by formulating and designing a research method to support them (Dzwigol 2022). So, the deductive method is theory-driven, and deduction starts with building connections between ideas with the backing of a theory. In addition, the hypotheses were tested, and the data gathered were tested with the hypothesis provided (Åsvoll 2014). Therefore, before inferences and implications are drawn, the findings from the data confirm whether the inferred hypotheses are verified or rejected (Cox 2019).

Regarding the selection theory to be tested through the formation of hypotheses, the deductive approach is criticised for being unclear. Also, critics point out that the inductive approach fails to provide sufficient empirical data to support theory development (Woiceshyn & Daellenbach 2018). Therefore, to integrate theory and research, researchers adopt the abductive approach, which links the

strengths of both inductive and deductive approaches (Mukumbang 2023). Moreover, the goal of using the abductive approach is to close any gaps that the deductive approach might leave, as well as the inductive approach (Brandt & Timmermans 2021). As a result, the research approach adopted was abductive, combining both the deductive and inductive approaches. This research employs a deductive approach to the quantitative method, applying the guiding principles of "Political Risk and Investment Theories" (PRIT) perspectives to test the proposed study's hypothesis. The study employs two theories: the institutional and eclectic paradigm models. Through their impact on the cost of exchange and production, institutions influence the performance of the economy (North 1990). The institutional theory focuses on how institutions influence economic behaviour and investment decisions, while the eclectic paradigm model suggests that strong, stable institutions attract greater FDI by ensuring a dependable legal and regulatory framework (Bhasin and Garg 2020). The eclectic paradigm (OLI) model, according to Dunning (2003) suggests that three types of benefits motivate FDI. Ownership (O) allows companies to leverage their unique assets or competencies globally (Narula & Dunning, 2000). In addition, location (L) makes the host country's specific characteristics, such as resources, market size, and labour prices, an attractive investment destination (Narula & Dunning, 2010). Finally, internalisation (I) is the benefit of controlling manufacturing processes rather than licensing or outsourcing (Casson & Wadeson, 2018). Equally, political risk and investment theories offer a comprehensive framework for analysing the dynamics of foreign direct investment (Mohamad et al. 2023). It also emphasizes the importance of stable environments for attracting investment, and investment theories shed light on the many variables that motivate companies to invest in foreign markets (Makoni, 2015). The two theories highlight the intricate interplay of political stability, institutional excellence, and economic incentives in creating global investment patterns (Stoian, 2013). Hence, the key components of PRIT are government stability, corruption, expropriation, regulatory changes, and conflicts. Figure 3-1 below represents the research's deductive approach procedure.

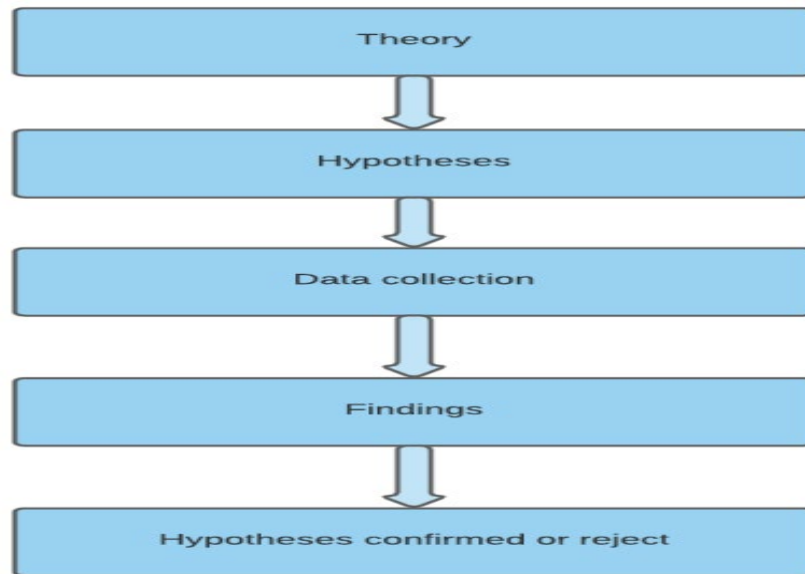


Figure 3-4 Research Deductive Approach Procedure

An inductive approach, on the other hand, is a little more participant or data-driven. Consequently, researchers gather and scrutinize data to understand the phenomena under study and formulate theories (Toyon 2023). Moreover, the inductive approach is based on observations to detect patterns, and the discoveries are fed back into the theory's stock and research findings associated with specific inquiry domains (Groenland & Dana 2020). Consequently, the qualitative analysis method of research employs an inductive approach. In response, data was evaluated from interview transcripts and reports to identify themes and significant narrative patterns that directly emerged from the data sets through inductive coding (Cassell & Bishop 2019). Therefore, the ability to explore theme information particular to the specific questions was enabled by inductive analysis (Guest et al. 2020), which helps in researching the topic.

In addition, inductive thematic analysis extracts detailed and nuanced information from qualitative data that quantitative datasets were unable to identify (Braun & Clarke 2021). Consequently, the inductive thematic analysis advances the researcher's objective of identifying the factors propelling foreign direct investment in the Nigeria LNG sector. By contrast, the deductive part of this research advocated developing a hypothesis and following a strict theory-testing logic, which improves the research's validity and offers reliability. Figure 3-2 illustrates the research's inductive methodology.

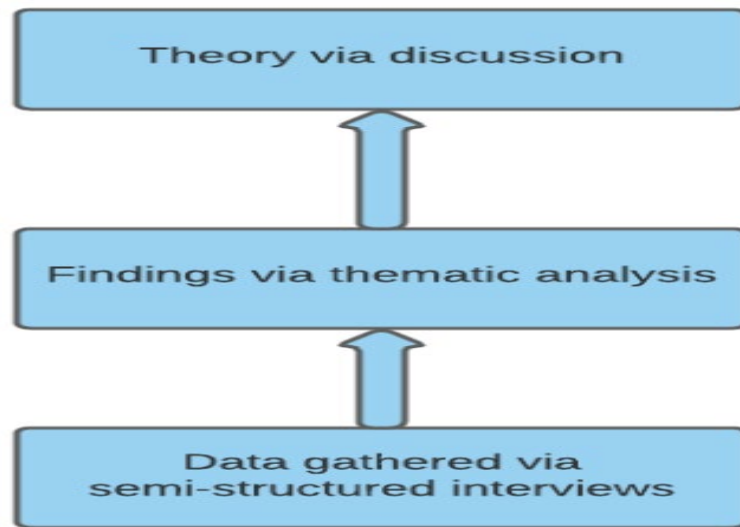


Figure 3-5 Research's Inductive Methodology

3.5 Research Design

Asenahabi (2019) claimed that research is considered valid when the results are precise, and the research design clearly outlines the conceptual framework. Moreover, the proposed research's design is an explanation of the researchers' strategy and is not associated with the data collection method (Abutabenjeh & Jaradat 2018). Also, Shannon-Baker (2016) claimed that research design helps the researcher identify the evidence required to meaningfully respond to the research questions. Furthermore, the current research was divided into three phases according to the objectives and research questions. Table 3-1 summarises the research design, which connects research questions, data collection, and data analysis.

In the first stage, a narrative literature review was conducted on factors influencing FDI in Nigeria's LNG sector. Similarly, the literature review dictates how the interview procedure is established, who the study participants should be, and what to expect from them (Solarino & Aguinis 2021). It also tells the researcher about mapping out the responses from the interviews, which influence the efficacy, applicability, and efficiency of the research topic (Jahan et al. 2016). Similarly, Whiting et al. (2016) outline available options for economic improvement in the literature review, partially responding to the research question.

Additionally, the literature review offers proposals as responses to the research question, and the research design also guides the creation and testing of the study's hypothesis (Baškarada 2014).

Table 3-4 Research Design- Linking Data Analysis, Collection & Research Questions

	Phase	Research Questions the Phases Addressed	Data Collection	Data Analysis
1	Literature Review	Research Questions I-VII	Peer-reviewed journal articles, reports, conferences, gazettes	Systematic literature review
2	Questionnaire-Based Survey	Research Questions II, III, IV, V, & VII	The questionnaire was sent to selected groups related to energy investment	Descriptive statistics and nonparametric tests of Mann-Whitney using SPSS
3	Semi-structured interviews	Research Questions I-VII	Face-to-face interviews with key stakeholder groups	Thematic analysis through NVivo software
4	Focus Group Discussion	Research Questions I, II, IV, V, VI	Interview of selected senior and executive-level stakeholders	Thematic analysis through NVivo

The third phase of the research involves conducting focus groups and semi-structured interviews (Harrell & Bradley 2009). Additionally, the researcher use focus group discussions and semi-structured interviews as an explanatory method to gain a deeper understanding of the factors driving foreign direct investment (FDI) in the Nigerian LNG sector. The NLNG Bonny plant served as the case study for the research on "factors driving FDI into the Nigerian LNG sector". The flowchart diagram in Figure 3-3 below illustrates the process of gathering the data. Preliminary data was collected using a questionnaire, followed by semi-structured interviews, and concluded with a focus group discussion. Focus group discussion was the final process. An archival study was conducted using business reports, official publications, and official gazettes to gain a deeper understanding of the research. Still, we did not conduct a site visit during this study.

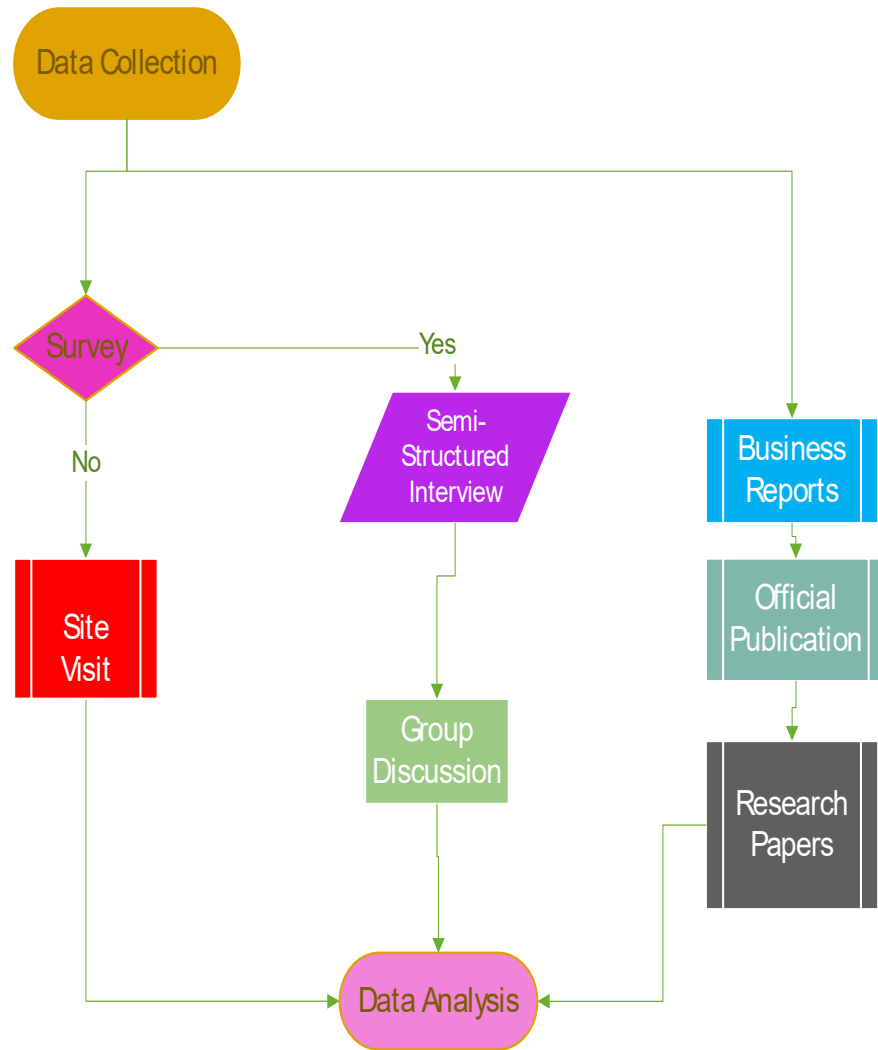


Figure 3-6 Data Collection Methods

3.6 Research Methods: Archival Study, Questionnaire-Based Survey, Semi-Structured Interviews, Focus Group Discussion.

This PhD research used a mixed-methods approach, including questionnaire surveys, interviews, and focus group discussions. For gathering and analysing primary data, the methods incorporated the theoretical components of inductive (interview data) and deductive (survey data) reasoning (Swain 2018). The secondary data in this study was the collection of relevant literature from papers, official publications, and business reports, which are archival studies on the factors driving FDI in the LNG sector.

3.6.1 Archival Studies

One method of gathering data involved a systematic review of publicly available documentation on factors driving foreign direct investment into the Nigerian LNG sector through an archival study. The research examined materials that supplemented the academic peer-reviewed data from the literature review discussed in Chapter 2. Additionally, the reviewed material includes business reports, official publications, presentations, policies, and review papers on factors that affect FDI inflow in the LNG sector. Additionally, it comprised a review of the website and ESG reports of the Nigerian Liquefied Natural Gas (NLNG) Bonny the only successful LNG project in the country from 1999 until date, which was the relevant period for this research because the NLNG Bonny project came on stream in 1999. Additionally, other data were gathered from the Nigeria Investment Promotion Commission (NIPC), the Central Bank of Nigeria (CBN), and the Nigeria Bureau of Statistics (NBS).

Another justification for selecting this period for archival study is the relevance of secondary data. For the archival study, information about how political factors, ESG issues, regulatory compliance, legislation, macroeconomic conditions, security, and infrastructure development, affect the flow of FDI into the Nigerian LNG sector is required. Also, research entails reviewing literature from primarily non-academic sources on factors influencing FDI inflow and changes that have occurred in these relevant research fields over time. To support literature review results, which focus on peer-reviewed literature, archival study entails the sourcing and evaluation of information produced outside of conventional publishing and distribution channels. This includes business reports, policy literature, working papers, newsletters, government documents, speeches, and white papers.

One of Nigeria's most significant economic projects is the Nigeria Liquefied Natural Gas Limited (NLNG), Bonny project. Since it started operating in 1999 and shipped its first LNG cargo, NLNG has significantly boosted Nigeria's economy. It has also paid out over USD18 billion in dividends over the years to the Nigerian government through NNPC, the national oil company. Since its

establishment, it has paid about \$32 billion to joint venture feed gas suppliers. In addition, the Federal Government of Nigeria receives between 55 and 60 percent of such payments, through its ownership of shares in NNPC. Moreover, FDI inflow into Nigeria through the NLNG project is about \$17.5 billion, with 51% equity share for the project partners and 49% for Nigeria through the NNPC. Since 2008, the company has provided 4% of Nigeria's annual Gross domestic product (GDP). In addition, NLNG also uses gas as feedstock that upstream companies would otherwise flare. About 7.70 TCF of associated gas was converted by NLNG Bonny into LNG and natural gas liquids (NGL), significantly boosting the country's revenue. By doing this, NLNG has helped to lower gas flaring from 65% in 2001 to less than 20% now. Also, by promoting the use of cleaner energy through the liquefied petroleum gas (LPG) supply scheme, the NLNG project has further contributed to a healthier nation. Furthermore, NLNG has been supplying LPG to the domestic market for over a decade. This intervention ensured supply, availability, and affordability, which has sparked the growth of the country's value chain. Overall, the NLNG plant provided over 12,000 jobs for each of its six plants during construction and indirect jobs of about 18,000. Additionally, the Train 7 construction phase currently ongoing will result in the creation of almost 13,000 direct jobs.

From Table 3-2 below, the NLNG project started with Trains 1 and 2, which came in at USD 3.6 billion. It was funded by NLNG project partners; Nigerian National Petroleum Company Limited (NNPC) owns 49% of the company, followed by Shell Gas B.V. (25.6%), TotalEnergies Gaz & Electricité Holdings (15%), and Eni International N.A. N.V. S.à r. l (10.4%). The Train 3 expansion project came in at \$1.8 billion, with shareholders injecting funds. Trains 4 and 5 projects cost USD 2.2 billion, excluding ship acquisition. Then, internally generated revenue and third-party financing combined to pay for this. In July 2004, the Train 6 final investment decision (FID) for \$1.75 billion was made, primarily funding it with internally generated funds. Furthermore, the NLNG Train 7 project, when completed, will boost the terminal's production capacity by 35%, from 22 mtpa to 30 mtpa. The anticipated cost of the project is about US\$6.5 billion.

From the early part of year 2023, Nigeria has proven natural gas reserves totalling 206.5 TCF, and the output for a decade between 2012 and 2021, averaged 1.5 TCF, and consumption was about 0.649 TCF. Also, the export volume of Nigerian natural gas is depicted with Figure 3-4.

Table 3-5 NLNG Bonny Projects

Project name	Status	Ownership	Start date	Number of storage tanks	Nominal liquefaction capacity (billion cubic feet per year)	Storage capacity (million cubic feet)
Nigeria LNG (NLNG) terminal		NNPC: 49% Shell: 26% Total Energies: 15% Eni: 10%		4		12
NLNG T1 - T2	Operating		T1: 1999 T2: 2000		317	
NLNG T3	Operating		2002		158	
NLNG T4 - T5	Operating		2006		394	
NLNG T6	Operating		2008		197	
NLNG T7	Under construction		2026			
Total					1,066	12

Nigeria exports the majority of its natural gas as LNG. Moreover, significant natural gas export volumes via pipeline to neighbouring countries face challenges related to both infrastructure and demand. Also, Nigeria exported over 824 bcf of natural gas in 2021, with the majority going to Europe or Asia. According to BP Statistical Review (2021) the top two European importers of LNG in 2021 were France and Spain, which received 123 bcf and 152 bcf feet of LNG from Nigeria, respectively.



Figure 3-7 Nigeria Natural Gas Exports Volume (Chen & Tan 2023)

Furthermore, China and India were the main importers of LNG in Asia, obtaining 74 bcf and 71 Bcf of natural gas from Nigeria. Figure 3-5 below indicates the destination of Nigeria's LNG export.

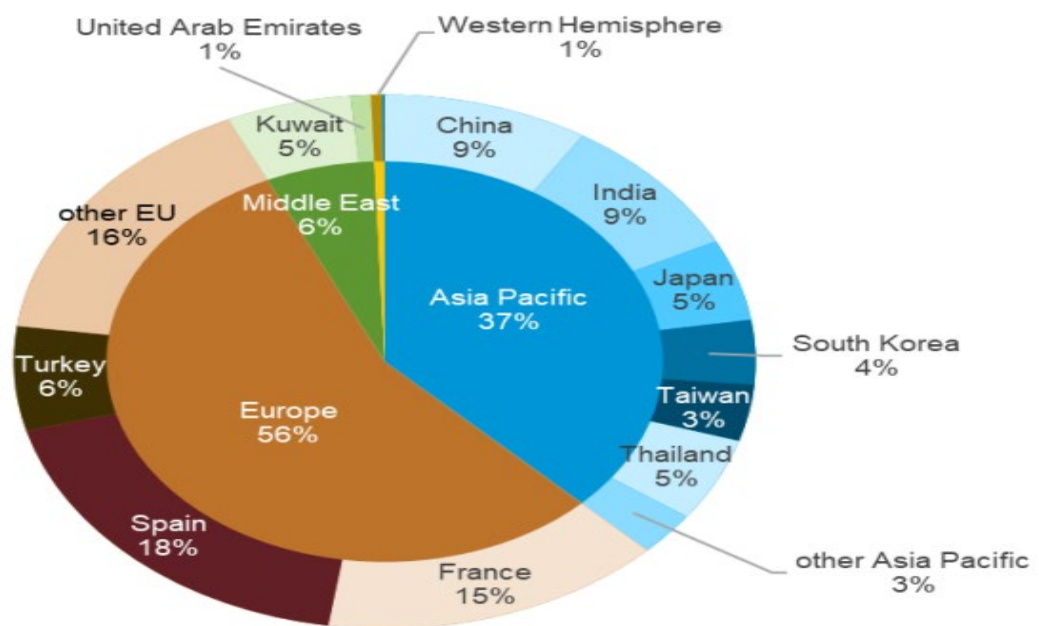


Figure 3-8 Nigeria's LNG Export Destination (EIA, 2023a)

As shown in Figure 3-6, natural gas is by far the most used fuel to produce electricity in Nigeria, a nation with the largest proven reserves in Africa. 86% of the nation's power generation in 2022 came from natural gas, followed by electricity sourced from hydroelectricity, which is 14% of Nigeria's total power generation by energy source.

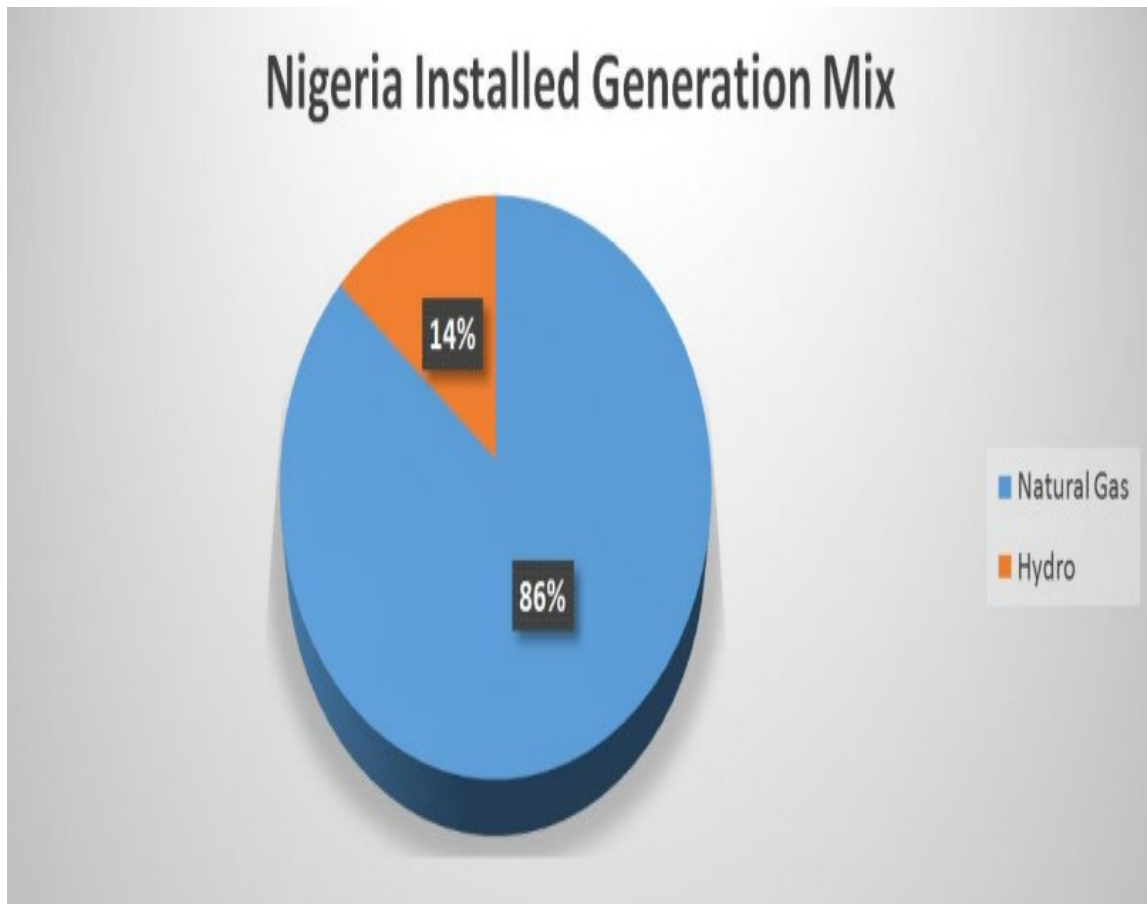


Figure 3-9 Nigeria Electricity Generation by Energy Source in 2022 (Sasu 2023).

NLNG Bonny signed long-term sale and purchase agreements (SPAs) with different buyers on a delivered ex-ship (DES) basis, as shown in Table 3-3. These long-term LNG buyers include Shell International Trading Middle East Ltd. (SITME), Endesa S.A, Galp Gas Natural S.A, Naturgy S.A, ENI S.p.A, Total Gas and Power Ltd. (TGPL), and two new long-term LNG buyers, Vitol and NNPC LNG, are also included. The first SPAs for Trains 1 and 2 ran out on September 30, 2021, and remarketed SPAs went into effect on October 1, 2021. The following batch of SPAs for Train 3 will expire in 2024. Before the long-term agreements, the Atlantic Basin (Turkey, Mexico, Spain, France, Portugal, and Italy in Europe) received most LNG deliveries. Moreover, in addition to the traditional base destinations in Europe, NLNG now delivers its cargoes to new markets in the Far East and Middle East regions, further solidifying its position as a major global player in the gas industry.

Table 3-6 NLNG 2022 Medium-term and Long-term Contracts (NLNG 2023)

Exporting Country	Port	Seller	Buyer	MTP A	Start Date	End Date	Delivery Format
Nigeria	Bonny Island	Nigeria LNG T1-3	ENI	1.5	2021	2031	
	Bonny Island	Nigeria LNG T1-3	Galp Trading SA	1	2021	2031	Delivered Ex Ship
	Bonny Island	Nigeria LNG T1-3	Total Energies	0.75	2021	2031	Delivered Ex Ship
	Bonny Island	Nigeria LNG T1-3	Total Energies	0.75	2021	2031	Delivered Ex Ship
	Bonny Island	Nigeria LNG T1-3	Total Energies	0.375	2021	2031	Delivered Ex Ship
	Bonny Island	Nigeria LNG T1-3	Vitol	0.5	2021	2031	Delivered Ex Ship
	Bonny Island	Nigeria LNG T3	Galp Energia	0.73	2003	2023	Delivered Ex Ship
	Bonny Island	Nigeria LNG T3	Naturgy Energy Group	1.99	2002	2024	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	Endesa	0.75	2006	2026	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	ENI	1.15	2007	2027	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	Galp Energia	1.42	2006	2026	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	Pavilion Energy	0.38	2007	2027	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	Shell	2.3	2006	2026	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	Shell	1.13	2006	2026	Delivered Ex Ship
	Bonny Island	Nigeria LNG T4 & 5	TotalEnergies	0.23	2006	2029	Delivered Ex Ship
	Bonny Island	Nigeria LNG T6	Shell	3.1	2008	2027	Delivered Ex Ship
	Bonny Island	Nigeria LNG T6	TotalEnergies	0.9	2008	2029	Delivered Ex Ship

3.6.2 Questionnaire- Based Survey

To determine a general idea about research, theoretical surveys are employed to gather opinions through questionnaires that reflect a subset of the population (Kasunic 2005; Rowley 2012). In addition, the majority of empirical studies on factors influencing FDI use the Likert-scale questionnaire (Farnaz & Harandi 2013; Kassem et al. 2019; Mahbub & Jongwanich 2019). Furthermore, using the Likert-scale questionnaire in this study is beneficial for gauging thoughts and opinions because it offers a variety of possible responses (Bishop & Herron 2015; Rowley 2012). Also, created a questionnaire to gather data on energy investments from a diverse group of respondents in Nigeria.

Appendix C shows three elements of the questionnaire-based survey. Part 1 defined the type of organisation for which respondents worked. Additionally, did not request any demographic information, as they were not required to test the hypothesis—the first part of the questionnaire required multiple-choice responses from participants. The second part had twenty-eight (28) Likert-type questions with a five-point scale that requested responses to each topic on a scale of “Strongly disagree”, “Somewhat disagree”, “Neither agree nor disagree”, “Somewhat agree”, and “Strongly agree”. In addition, the responses to the twenty-eight (28) questions served as the independent variables. The literature review helped with the questionnaire's structure.

A questionnaire-based survey can be analysed using the quantitative analysis method. After entering the Likert data into Microsoft Excel, the data were exported to IBM SPSS Statistics version 24, and the data was analysed, which presented descriptive and inferential statistics. Moreover, questionnaires using the Likert scale produce ordinal data, because the intervals between each of the five-point values are not assumed to be equal (Pimentel 2019). For example, it is not possible to assume that the difference between “Probably not and “Might or might not” is the same as the difference between “Might or might not” and “Probably yes”.

In descriptive statistics, using Likert-type data, frequencies, and cross-tabulation are all appropriate (Chyung et al. 2017). The mode, mean, and median are suitable metrics for determining central tendency because the distribution of values in the Likert scale is not equal (Chakrabarty 2021). Also, this research determined frequencies, medians, interquartile ranges, and mode responses for each question, and similarities were seen. Additionally, suitable statistical tests for Likert-type responses are distribution-free, non-parametric tests including the Mann-Whitney U Test or Kruskal-Wallis statistical tests because they produce ordinal data (Özdemir al. 2022).

Likert scale was created to assess attitudes using questionnaires, it consists of either a statement or a series of five (5) or seven (7) replies to answers (Munshi 2014; Nemoto & Beglar 2014). Also, to record their attitudes, beliefs, or

behaviours as well as their degree of agreement or disagreement, respondents to a questionnaire selected the answers that matched how they felt about statements or questions (McGuirk & O'Neill 2016). Generally, the analysis of Likert scale data has resulted in a split in opinion on the best analytical approach (Ferguson et al. 2019). Some researchers and statisticians reckon that using the parametric test approach to test Likert scale data delivers suitable outcomes regardless of whether the data is normally distributed or not (Gelman & Hennig 2017). Additionally, researchers advised that the Likert scale can utilize mean, median, and mode as the optimal central tendency for descriptive statistics. As a result, the best choice of analytical method depends on the research objective, and how the datasets are classified (Rowley 2012). If the data are classified as ordinal measures, then the data is considered not normally distributed because they are rated, ranked, or ordered. Also, the percentage frequency distribution of responses in each category can be calculated. This choice of statistics can help determine the respondent's attitude toward Likert elements (Mishra et al. 2019). While focusing on the research objectives, the appropriate analytical strategy for testing the hypothesis in ordinal measure is the employment of non-parametric tests such as the Mann-Whitney U test, Kruskal-Wallis statistical tests, and ordinal regression, among others. After loading the data into SPSS software, clicking on analyse in the windows shows that the Likert data is an ordinal scale, the values are classified and coded with numbers as shown below.

Strongly Disagree = 1

Somewhat Disagree = 2

Neither Agree nor Disagree = 3

Somewhat Agree = 4

Strongly Agree = 5

This is the method used for coding the data. Now the suitable analytical approach for this kind of data is to perform descriptive statistics, calculating the mean, median, and mode as measures of central tendency, calculating the percentage frequency distribution of the different categories of the Likert scale, and testing

the hypothesis using non-parametric tests such as the Durbin-Watson Test, Mann-Whitney U Test, or Kruskal-Wallis statistical tests. The median and the mode were assigned to each Likert item, and the responses of the participants indicated the attitude and behaviour of the participants towards the subject using the median and mode values. For example, if the median and the mode for an item are 4 and 5, respectively, it indicates the respondents “Somewhat agree” or “Strongly agree” respectively with the statement. Additionally, to test the hypothesis, the Durbin-Watson Test can be used, which is done by clicking on the “Analyse” button on the menu, and then on the non-parametric test, and the settings button to go to the settings page. This analysis will indicate the attitude, and behaviour of the respondents. This is a simple representation of how to analyse the Likert scale as an ordinal measure.

The questionnaire was presented to a variety of respondents totalling 150 in the society, covering different sectors that are involved in FDI-related issues in the LNG sector of the economy. About 126 participants participated in the survey collection, but only 116 returned with all the questions answered. Table 3-4 below is the organisation the survey respondents represent. In addition, the first step taken was to seek the approval of the Cranfield University Research Ethics System (CURES) before embarking on the data gathering, see Appendix A.

The process was followed by a presentation to my supervisor, and the survey sample was presented to co-researchers to gather their thoughts on how best it could be structured and presented to the public. In addition, Brace (2018) claimed that the questionnaire is one component of the survey procedure and a critical component of the process. Therefore, a badly worded questionnaire will not offer the essential data or will supply the wrong data (Lochmiller 2021).

Identifying research goals is the first step in every survey (Hancock & Algozzine 2021). Furthermore, the questionnaire was structured by determining the target audience first; the survey questions were then chosen; the design was selected which in this research was Qualtrics survey software with Likert 5-scale; it was then launched, and participants’ responses were examined.

Table 3-7 Survey Respondents Classification

S/No	Answer	Percentage	Count
1	Local Banks	2.59%	3
2	Foreign Banks	0.86%	1
3	Executive Arm of Government	1.72	2
4	Legislature	3.45	4
5	Ministry Department and Agencies	12.93	15
6	Regulatory Agencies	1.72	2
7	Start-Up	4.31	5
8	Small Medium Enterprises	17.24	20
9	Conglomerate	2.59	3
10	Multinational Corporations	11.21	13
11	International Financial Institutions	0.86	1
12	Private Equity Firms	6.03	7
13	Foreign Investor	1.72	2
14	Local Investor	9.48	11
15	Manufacturer	23.28	27
16	Other Please Specify	0.00	0
	Total	100	116

Additionally, the Likert 5-scale survey created was meant to acquire a comprehensive understanding of people's perspectives, with response options moving from “Strongly agree to Strongly disagree” (Logan 2021). It also has a “Neutral” option for respondents, with “Neither agree nor disagree” at the bottom of the spectrum (Newlands et al. 2017). Additionally, it is a methodology for scaling or assessing attitudes in a series of response types. Also, rather than asking a single question, participants respond with multiple propositions which are indications of their viewpoints on the area of research.

Moreover, it is necessary to identify the variables that the Likert scale should evaluate, by making a list of the indicator statements needed. Also, Likert-scale surveys are most effective when learning about subjects that cannot be adequately covered by a single question. It's an indicator inquiry that assists in comprehending the topic. There are two options when it comes to Likert-type response ordinal scales. The semantic scale comes first; simple and clear options are the most desirable. In most cases, the most typical are: Not Effective—Effective, Disagree—Agree, Unlikely—Likely, Not Important—Important, False — True, Negative—Positive, and No—Yes. Also, just because something is well-liked doesn't mean it offers clarity.

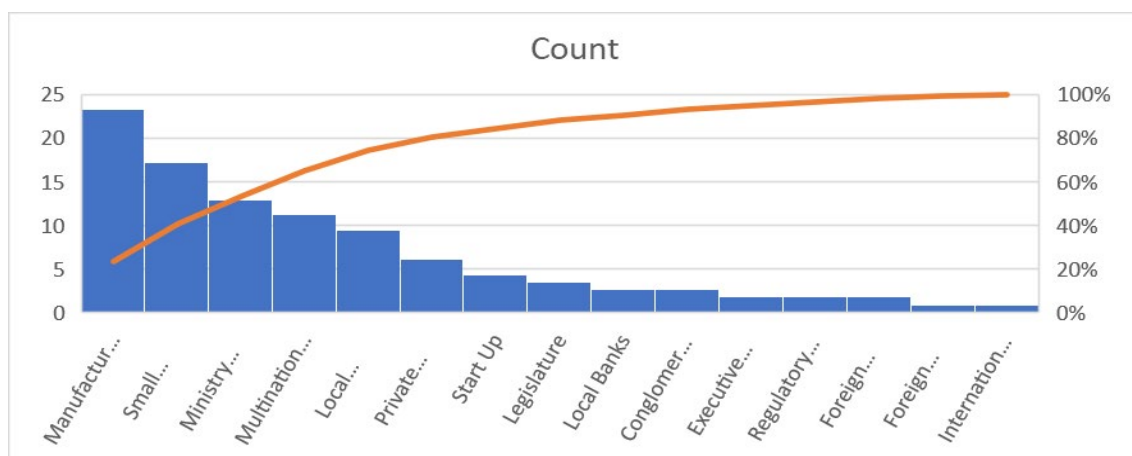
Some researchers agree that a 5-point Likert scale survey is the bare minimum (Chakrabartty & Chakrabartty 2019). However, other studies indicate that the more options there are, the less frequently respondents choose the middle or neutral category (Nemoto & Beglar 2014). The 7-point Likert scale certainly approaches the upper limits of reliability. So, additional options are likely to result in worse rather than better Likert results (Finstad 2009). Similarly, surveys employ iterative processes, testing, analysing, revising, and improving data to achieve effective research (Skulmoski et al. 2007). Additionally, initial testing of the survey on a small sample of respondents allows for better understanding.

In the questionnaire presented to the respondents, they were asked to specify their roles, and a total of 116 respondents participated, with their roles ranging from “Entry position” to “Executive role” positions. The distribution of the participants is shown in Table 3-5 below, and Figure 3-7 is the classification of the respondents. While gathering the data using a questionnaire, the process followed a sequence: emails were sent out to the targeted audience. The participants focused on in this case are people working in different sectors, including local banks, foreign banks, international financial institutions, the legislature, government regulatory agencies, the executive arm of government, local and foreign investors, multinational corporations, private equity firms, start-ups, small and medium enterprises (SME), conglomerates and manufacturers. The researcher was able to reach out to the participants through personal contacts, business correspondences, and a few others on social media platforms like LinkedIn, and Twitter, and professional organisations including Marine Technology Society, Association of International Energy Negotiators, Society of Petroleum Engineers, and Energy Institute. Subsequently, the participants shared their email addresses, and the survey questionnaire was sent out to 150 of them in bulk.

Table 3-8 Survey Respondents' Role Classification

S/No	Answer	%	Count
1	Entry Level	2.54	3
2	Junior Role	1.69	2
3	Middle Management	17.80	21
4	Senior Management	24.58	29
5	Executive Role	14.41	17
6	Board of Directors	4.24	5
7	Supervisor	5.93	7
8	Coordinator	1.69	2
9	Consultant	5.08	5
10	Analyst	1.69	2
11	Associate	4.24	5
12	Shareholder	2.54	3
13	Operations Engineer	5.08	5
14	Researcher	1.69	2
15	Other Please Specify	6.78	8
	Total	100	116

In total, the questionnaire had twenty-eight questions. It encompassed a broad spectrum of factors that are deemed significant in influencing the inflow of foreign direct investment (FDI) into any jurisdiction, and consequently, the liquefied natural gas (LNG) sector. These factors include accountability, capital flow, corruption levels, credibility, deregulation, economic performance, employment, fiscal issues, government efficiency, globalisation, human development index, human rights issues, income, judicial system, legal framework, political stability, political unrest, population growth, poverty reduction, regulatory quality, social stability, social unrest, societal values, sovereign ratings, and trade.

**Figure 3-10 Survey Respondents Classification**

Additionally, before the participants could proceed and participate in the survey, their consent was gained when a statement was presented to each participant to either answer Yes or No before they could proceed. The statement by the person agreeing to participate in this questionnaire was, *“I have read this informed consent document, and the material contained in it has been explained. I understand each part of the document. I freely and voluntarily choose to participate in this questionnaire”*. See Appendix B.

3.6.3 Semi-Structured Interviews

When compared to questionnaires, semi-structured interviews allow the researcher or interviewees to raise unanticipated issues, resulting in more flexible, rich, and in-depth research (Baškarada 2014). Moreover, each interview takes a conversational fluid form, according to the interests, experiences, and views of the interviewees (Wilson et al. 2016). In addition, semi-structured interviews can be used to augment survey results to obtain more detailed data because of their more flexible nature (Barriball 1994). Also, Interviews provide extensive, open-ended responses, making them suitable for determining the factors driving FDI in Nigeria's LNG sector. Gaining as much detail as possible through interviews is vital in practicality, while there is no agreed-upon number of interviews required to achieve saturation (Guest et al. 2020). Also, the quantity of interviews conducted is unimportant compared to relevance, quality, and rigour (Hayashi et al. 2019; Morse 2015).

In-depth, semi-structured interviews started in April 2023, engaging relevant players in the gas industry, including top-level management employees. Archival study data helped in formulating the interview questions and supported participants' responses during data analysis. Additionally, the information gathered from participants' interviews was critical for compiling and evaluating data from archives and understanding factors influencing FDI in the LNG sector. Thus, it helped to confirm results and identify new trends. The average interview lasted an hour, but some lasted longer. This time frame seemed appropriate enough to allow respondents to reflect and shed more light on the factors driving the inflow of FDI into the LNG sector from experience. Each of the participants

was provided with research details and was required to sign the consent form (Appendix B). Also, each participant was given the chance to read the interview report, which was sent out to them days before the interview took place. Some of the interviewees suggested minor changes be added to the prepared document.

3.6.3.1 Framing Interview Questions

The interview's initial strategy focused on research questions and the general trend of FDI inflow in the Nigerian LNG sector. The procedure below was used to create an interview guide:

- i. Initial questions were formulated based on the results of the archival study and were then refined through discussions with experienced professionals with managerial expertise on issues relating to FDI inflow into the gas sector.*
- ii. Initial interviews were conducted by engaging two experienced stakeholders on issues about factors influencing FDI and then rewording initial questions to make them more pertinent to the unit of analysis, the case, and the research context.*
- iii. Consulted with my academic supervisors and engaged one other knowledgeable industry player.*

Follow-up questions were created drawing from earlier answers from other interviewees (Rowley 2012), and my over twenty (20) years of experience in the industry was also deployed at this stage in creating the interview guide.

Table 3-6 is the manual for interviews conducted with the 12 participants. Each of the participants relayed their experience to show their knowledge of how FDI is attracted to the LNG sector and the factors that influence its inflow. More questions were raised to understand if participants could pinpoint the specific factors needed to achieve the expected objective. Additionally, other questions attempted to establish the main factors influencing the LNG sector's growth and the interview procedure included questions about participants' involvement in FDI attraction.

Table 3-9 Manual of Interview Conducted

S/No	Action	Process
1	Preparation	Make a list of the information to collect. This can be accomplished by analysing previous observations and identifying the gaps.
2	Create a manual	Once the questions are determined, create a guide to help remind
3	Introduction and Building Rapport	Formal introduction and explaining the goal of the interview. This includes outlining the subjects or themes to discuss during the interview.
4	Sequencing & Navigation	Prioritising the easier questions before moving on to the more difficult ones. To navigate an interview, start with the easier questions first and move to the more difficult ones
5	Approach & Appropriateness	The appropriate questions to ask are critical to the success of interviews. Questions should be open-ended
6	Interview Duration	Interviews should not last more than 1 hour, Interviews should be concluded after collating comprehensive answers to all the questions.
7	Insight & Impression	Recording of observations and insights at the end of the interview is very important.
8	Record & Transcribe	The interview should be recorded and transcribed. Never forget videotaping the interview because it's difficult to recall everything.

To gather participants' contextualised knowledge of the factors driving FDI in the gas sector during the research period, a critical incident method was used (Londoño-Pulgarin et al. 2021). This method is an exploratory and investigative tool for qualitative research methods (Watkins et al. 2022), providing a solid foundation for concluding how to measure motivation, and it is sufficiently flexible and adaptable to serve the relevant purposes (Pandey & Pandey 2015). Furthermore, the critical incident method emphasises the significance associated

with events by contextualising the essential procedures for the research (Watkins et al. 2022). Figure 3-8 below indicates how the critical incident method is applied.

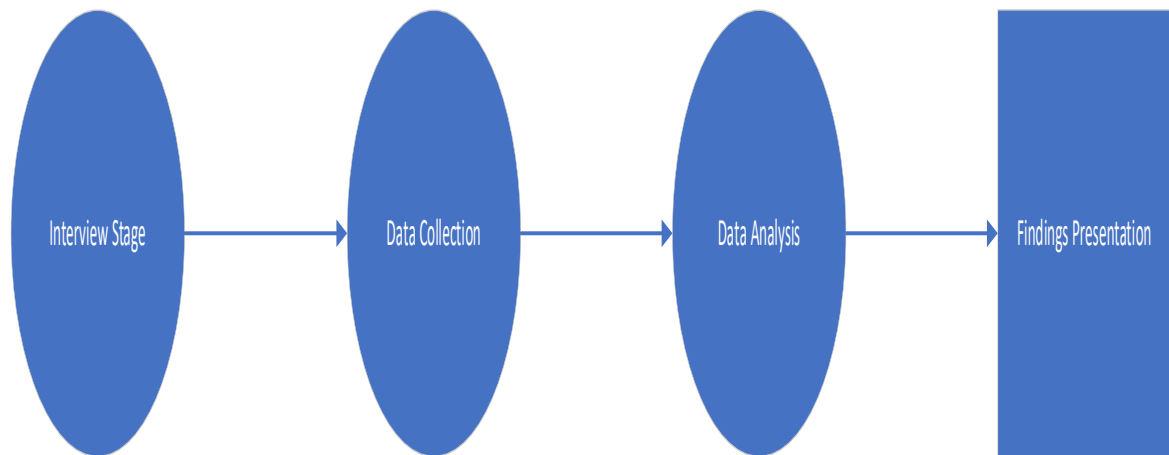


Figure 3-11 Critical Incident Method

As the research project developed, so did the interviewing process, where participants' suggestions guided the exploration of research topics (DeJonckheere & Vaughn 2019). Moreover, the interview protocol was structured by anticipating participants' responses (Barriball 1994) and they were also asked questions on how more FDI can be attracted into the LNG sector.

Additionally, we followed five steps during semi-structured interviews to collect data.

- i. Defining general research objectives, as done in previous chapters.*
- ii. Establishing guidelines and plans informed by the findings of the archival study and detailed in the interview protocol.*
- iii. From the interviews, data were collected.*
- iv. Data analysed.*
- v. Data interpreted and findings reported.*

3.6.3.2 Sampling Methods

Respondents to the interviews were selected using the non-probabilistic method, which is a sampling method in which the probability of selecting an individual or group from the population is unknown (Hassan 2023) as shown in Figure 3-9. To obtain theoretically useful responses, researchers use purposive sampling instead of random sampling (Neetij & Bikash 2015). So, purposive sampling is a method in which researchers use their discretion to select a limited number of people who can most effectively address their research issue (Mack et al. 2005). Based on my experience and contacts in the petroleum industry, it was easy to contact and engage top-level management employees and stakeholders. Additionally, participants chosen were in the regulatory sector, business owners, gas producers who are indigenous players, and a few actively participating in the monetisation and commercialisation processes of the gas sector. While mid-level management employees took part in the interview sessions, employees in the junior cadre category were not contacted for the interview, the reason being that such employees only carried out tasks that were delegated to them by their superiors and did not participate in decision-making on their company's investment plans. To ensure that data is collected in a systematic, structured, and reproducible manner, interviews were conducted in a semi-formal setting on Microsoft Teams, which encouraged participants to speak candidly, and how the collected data will be used was explained to the participants. In addition, also offered anonymity and confidentiality. Moreover, the respondents provided ample material for the research, and all the interviews were recorded and transcribed. Their inputs were compared with findings from archival data to minimise inaccuracies and retrospective preconceptions, and for additional support, their inputs were cross-referenced with the results from the literature review. In addition, the sampling method had minimal associated costs, was practical, took little time, and was excellent for exploratory research (Gentles et al. 2015).

Moreover, Obilor (2023) defined purposive sampling as a non-random sampling approach that selects samples based on specific criteria or goals. To select the sample, one or more procedures or criteria can be used. The goal is to get detailed information from suitable responses (Robinson 2014).

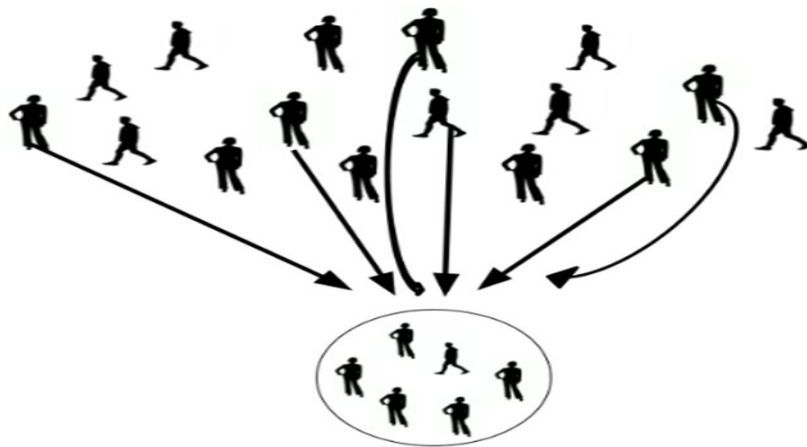


Figure 3-12 Participants Purposive Sampling (Malik et al. 2022)

Similarly, researchers collect information from participants through various instruments, including interviews, adhering to the fundamental principle of purposive sampling, which emphasizes the accessibility of information and the researcher's responsibility to identify potential sources (Onwuegbuzie & Leech 2007). This facilitated the acquisition of the most valuable information from pertinent participants. As a result, purposive sampling is increasingly common in qualitative research (Obilor 2023). The disadvantage is that there is selection bias in identifying the respondents, and the respondents may not reflect the complete sample population (Adekeye & Apeh 2019), which might be subjective and probably limit the generalisation of the data acquired (Ragab & Arisha 2017). However, posing a similar set of questions while using the same interview protocol on a sufficient sample size mitigates the impact of both bias and subjectivity (Etikan 2016). Also, triangulating the data collected from interviews with data from the archival study, posing a similar set of questions, and using the same interview protocol for the sample size mitigates the challenge of generalising conclusions to some extent. Consequently, qualitative research employs non-random sampling methods, as they offer comprehensive insights into the issue. This is not the case with quantitative research, where the information obtained is generalizable. In addition, the purposive sampling technique was used to create a list of potential interviewees. All those invited to participate in the interviews were leaders, employees, and industry professionals in Nigeria's gas industry. One is an energy company business owner, three of the

interviewees were executive players in the upstream sector of the gas industry; another three participants are directors, five others are in senior managerial positions; and one is an investment advisor in the government's local content regulatory agency with an average of 22 years of cognate experience in the upstream and downstream petroleum sectors. In addition, the interview sections offered the participants the opportunity to provide detailed accounts of their views on the factors driving FDI in the LNG sector as well as provide validation for the archival study. After twenty-one (21) interviews; it was obvious that theoretical saturation had been reached, on the issue of factors driving foreign direct investment in the Nigerian LNG sector. In this research, the saturation point in interviews was reached because no new data added unique insights to the research, only reiterating what was already known. Furthermore, the emerging theory is broad and strongly supported by the collected data. Additionally, some of the participants were interviewed more than once, because as the research progressed, early data acquired was used to shape later interviews, and the questions were steadily modified to shed more light on the subject. Each interview is regarded as a separate interview because it offers more insights into the research. After the initial interviews, the interview schedule remained unchanged for further interviews of participants. Conducted all interviews using Microsoft Teams for video conferencing. Each interview lasted an average of one hour and took place between April and June 2023. The participants were informed of the research objectives, anonymity and confidentiality were provided. Also, sought permission to videotape the interviews. All interviews have recordings and transcripts stored. Also, analysed and compiled each set of notes and recordings to create a single interview record. Coded the interviews to facilitate cross-referencing and identify beneficial modifications to the data collection process. Moreover, transcribed the audio files from the interviews to prepare for analysis. Furthermore, the application of thematic analysis to the examination of interview transcripts revealed themes and similar patterns (Byrne 2022).

Table 3-10 Semi-Structured Interview Procedure

Stages	Process	Action
One	Research Overview	Introduction, research objective outlined, research focus explained, how the data will be used explained, then provide anonymity and confidentiality; seek permission to record.
Two	Participants Introduction	Participants are requested to introduce themselves, their role in their respective organisations.
Three	Perspective Questions	<p>What are the key factors influencing foreign direct investment in the Nigerian LNG sector?</p> <p>How does the political and economic stability of Nigeria impact foreign direct investment in the LNG sector?</p> <p>What role do government policies, legislation, and regulations play in attracting or deterring foreign direct investment in the Nigerian LNG sector?</p> <p>How does infrastructural development in Nigeria affect foreign direct investment in the LNG sector?</p> <p>What are the challenges and risks associated with foreign direct investment in the Nigerian LNG sector?</p> <p>How can Nigeria enhance its attractiveness for foreign direct investment in the LNG sector?</p> <p>In what way do environmental, social, and corporate governance issues impact FDI decisions in the LNG sector in Nigeria??</p>
Four	Conclusions	Participants closing statement or final thoughts.
Five	End	<p>Request for follow-up and additional discussions when needed.</p> <p>Appreciation was extended to the participant and the interview ended.</p>

Because of its flexibility, thematic analysis appears to be one of the most commonly used qualitative data analysis approaches for inductive or data-driven research (Swain 2018). Hence, through the process of coding, themes emerge. Furthermore, Vaismoradi et al. (2016) defined coding as the process of breaking down and reducing text into flexible components that form meaningful units. Also, Baškarada (2014) defines coding as a methodical process that breaks down a large amount of data into smaller, more manageable pieces by producing categories and concepts based on the data. As the research advanced, initial data were utilised to guide subsequent interviews, gradually refining the questions in the process (Etikan 2016; Gentles et al., 2015; Barriball 1994; Obilor 2023; Onwuegbuzie & Leech 2007; Robinson 2014). This approach promoted new interviews that aided in the advancement of the research, and when required, we reached out to past participants for clarification. Table 3-7 above is the procedure for how participant interviews were conducted.

3.6.4 Focus Group Discussion

The qualitative method has one distinct advantage in that it provides feedback capable of explaining occurrences that are difficult to quantify (Paoletti et al. 2021). Although the quantitative method also offers benefits, the qualitative method particularly offers more concrete data analysis, thereby avoiding perceived biases (Fox & Lash 2020). When analysing factors affecting FDI in the Nigerian LNG sector, there are numerous unquantifiable factors to consider (Eneyo 2022), for instance, the legal framework, political stability, macroeconomic conditions, community issues, stakeholder values, infrastructural development, regulations, legislations, government effectiveness, etc. To analyse and evaluate the factors affecting foreign direct investment (FDI) inflow into the Nigerian LNG sector, the group discussion method was also utilised.

Considering stakeholder's responsibilities in this industry, it is possible to gain a deeper knowledge of these unquantifiable factors in the analysis of the factors driving FDI into Nigeria's LNG sector. Stakeholder analysis was carried out to identify the key players in the Nigerian LNG sector. Each of the stakeholders comes from different segments of the Nigerian gas industry. For example, the

Nigerian Upstream Petroleum Regulatory Commission (NUPRC) is the upstream regulatory agency in the gas industry, and a few other players contacted are indigenous gas producers. For this research, numerous stakeholders in the energy sector can provide thoughts and opinions about factors driving FDI into the Nigerian LNG sector (Addison & Roe 2018). However, using a quantitative method to incorporate all this feedback would be less beneficial than employing a qualitative one (Hendren et al. 2023). The researcher chose this approach because it allows for systematic and concurrent interviews (Kaiser & Presmeg 2016). In this instance, stakeholders in the Nigerian gas sector, most especially those in executive and senior positions. Moreover, the focus group discussion method can take numerous forms, including unstructured, semi-structured, structured, or organised interviews (Taherdoost 2022), and can produce data (Islam & Aldaihani 2021) which can be explanatory and descriptive at the same time (Adeoye-Olatunde & Olenik 2021). Similarly, Mwita (2022) uses the group discussion method as a qualitative method to deeply understand challenging situations. Moreover, Barbour (2018) asserted that focus group discussions have benefits. Besides, the method has the distinct advantage of collecting real-world data as well as having high flexibility, high face validity, a quick turnaround, and low cost (Dawadi et al. 2021). In conclusion, it is crucial to exercise caution when moderating focus group discussions, as internal disagreements could pose significant challenges to the analysis of the results. The group discussion was conducted on 31 August 2023 featuring four (4) contributors plus the researcher, who moderated the proceedings. The contributors were selected based on their expertise and experience in the Nigerian gas industry. Kept the number of participants low to maintain a conducive forum. Also, ensured deliberate sampling of participants to accommodate the available expertise. This method is consistent with the previously used method of analysing semi-structured interviews.

3.7 Findings Triangulation

The concept of triangulation relates to the idea of supporting the research narrative with evidence from findings and connecting this with relevant literature that contributes to the existing body of knowledge in the area of research interest

(Fusch et al. 2018). This exploratory PhD research character necessitates a flexible approach while maintaining a systematic approach (Muzari et al., 2022). Thus, it enables new emergent possibilities through an investigation of commonalities, the development of concepts or ideas, and ongoing confirmation as research continues (Carcary 2020). Therefore, the goal of the research methods was to guarantee that the research's narrative agrees with evidence from the findings, which was then triangulated with the results of literature reviews and theoretical viewpoints earlier discussed (Ospina et al. 2018). Additionally, this thesis uses a variety of techniques and information, and the results must converge in a triangulating manner. Additionally, this research's methodology aligns with inductive research, requiring a flexible yet methodical approach that allows for innovative possibilities.

3.8 Data Analysis

Qualitative data processing involves iterative steps where you investigate, code, ponder, modify, and query (Stoudt et al. 2021). The image below in Figure 3-10 describes how semi-structured interviews, and group discussion documents in a file are used to create a case node for each interviewee. After coding the theme and case nodes. Then, queries or charts are used to investigate the data, and memos are used to document findings.

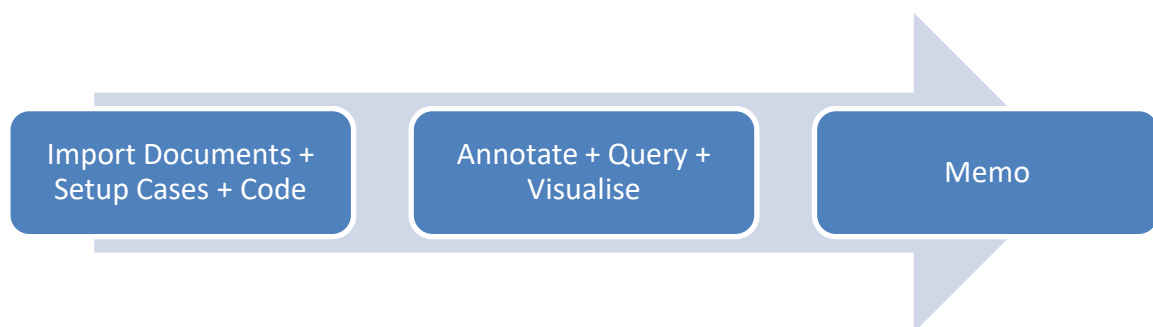


Figure 3-13 Theme and Case Nodes

Figure 3-11 below depicts a possible path taken to analyse qualitative data for the research topic. In addition, interview documents were transferred from the source into the NVivo software studied. Then a note of recurring words is noted, which will be the node and a test search query is run if there are different views. Thereafter, results are gathered in one place, and all the methods are reviewed.

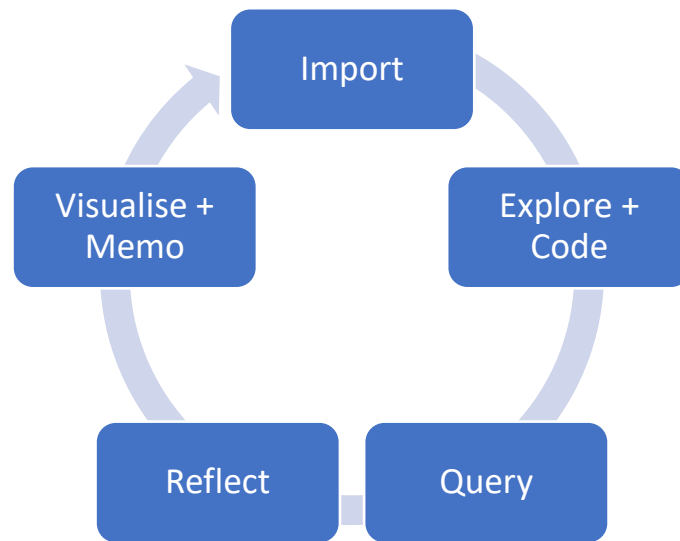


Figure 3-14 Qualitative Data Analysis Trail

Analysis of the participant's reports using the methods specified in this section after collecting them. Similarly, the researchers coded the gathered data using open manual procedures (Williams & Moser 2019). Additionally, data analysis is conducted by numerous iterations of code. The next step is to classify data by labeling words and phrases using analytical memo writing (Linneberg & Korsgaard 2019). Furthermore, descriptive codes were then organised into categories and in a hierarchical style, utilising broad themes, and concepts and progressively integrating narrower themes in the second stage of the coding process. Also, the coding model comprises nodes that symbolize themes or issues crucial to the core elements of the research question (Wiltshier 2011). The objective was to enhance comprehension of the situation and generate concepts through data analysis and interpretation (Thorne 2000)

3.9 Data Analysis Method

In analysing the data gathered, evidence is simplified and analysed to create scenarios that illustrate the meaning of the data (Vaismoradi et al. 2016). For this research, primary (quantitative and qualitative) and secondary (compendium of FDI and LNG sector gazette and reports) data from various sources were collected. Consequently, each set of data is subjected to a unique analysis process, as outlined below:

3.9.1 Questionnaire Based- Survey Analysis

The statistics program SPSS version 21 is used to examine the data obtained from the questionnaire-based surveys. Also, Little's MCAR test was first applied to the data to determine whether any missing data, whether random or not, would affect the accuracy of the results (Li 2013). Also, descriptive statistics are used to determine the relevance of each participant's years of experience, background knowledge, and qualification to cover the personal information of the respondents' groups and their perceptions of the questions (Vaismoradi et al. 2016). Also, participant's personal information ensures that participants accurately represent a designated response group, allowing for more reliable data on the questionnaire's assertions. However, non-parametric statistical methods translate Likert-scale questionnaire responses from their numerical values of 1 to 5 (ranging from strongly agree to strongly disagree) into rankings that produce ordinal data (Lalla 2017).

The initial goal of this PhD research is to analyse factors driving FDI in Nigeria's LNG sector. To achieve this, the research began by formulating hypotheses, which subsequently underwent evaluation through questionnaire-based surveys. In addition, purposive and snowballing strategies improved the study's validity and reliability by selecting relevant participants and determining the appropriate sample size. Also, respondents had up to four weeks to confirm their responses, which allowed the participants to complete the surveys more comfortably. Likewise, the Mann-Whitney-U test was deployed to identify any potential differences between the respondent groups, as this research relies on a 5% significance level for reliability. Additionally, crosstabulation tests analysed any differences that did appear as a result. This research further lessens the likelihood of participant biases by employing anonymous codes to avoid identifying specific responses that can produce desirable results. Therefore, we ensured that participant bias had no impact whatsoever on the dependability of the surveys. Respondents can easily grasp the questions thanks to the standardising, minimising, and interpreting questionnaire design method, which was employed to prevent observer errors.

3.9.2 Semi-Structured & Focus Group Discussion Analysis

While this section extensively discusses the validity and reliability of the qualitative study, it's important to acknowledge that respondents consented to a digital recording device recording the entire interview process. The veracity of research data transcripts, produced from interview audio files, increases with the use of a digital voice recorder. According to Roller (2019), the success of data analysis is dependent on how accurately transcripts are generated. Also, to identify common patterns and themes, semi-structured interview data was first transcribed and then subjected to thematic analysis (Swain 2018). Equally, thematic analysis is one of the most often used methods in qualitative research analysis because of its adaptability to diverse research questions, including bottom-up data-driven and top-down theory-driven ones (Bouncken et al. 2021).

3.9.2.1 Data Coding

The researcher created an initial list of codes based on recurring patterns found in the produced interview transcripts (Deterding & Waters 2021). Furthermore, the codes allow researchers to provide precise meaning to text transcripts, and a single text may generate distinct codes to signify innumerable interpretations (Craig et al. 2021). Also, Deterding & Waters (2021) described coding as a process of reducing text to a flexible component that creates meaningful units. In addition, creating categories and concepts based on data allows for the systematic transformation of large, concentrated data sets into manageable, smaller-scale units for analysis (Kitchin & Lauriault 2015). Finally, using NVivo version 12, the data was coded and transferred to a computer for analysis.

3.9.2.2 Themes Identification

Themes provide extensive patterns of information that describe phenomena related to research (Conboy et al. 2012). Also, thoroughly observe codes by identifying themes, which allows us to separate findings and combine related codes into a single text (Sovacool et al. 2018). Moreover, the theme's identification process is solely inductive at first, concentrating on patterns that appear in the data set (Linneberg & Korsgaard 2019). Upon further investigation,

Graebner et al. (2023) suggested using deductive methods to look for patterns that fit with the research's theoretical explanation.

3.9.2.3 Reviewing, Defining, and Indexing of Themes

It is critical to ensure that themes are consistent with the collected data and support research (Maher et al. 2018). The second stage involves generating ideas from the narrative that explores the data (Linneberg & Korsgaard 2019). Additionally, by succinctly naming each subject, this method clearly defines the theme and gives the reader a clear understanding of its contents (Byrne 2022). A numerical system was used to link each identified topic to the participant, noting it in the margin next to the text for reference. Also, an indexing process was conducted using NVivo software to ensure the accuracy and efficiency of the analysis, selecting a portion of the data set that aligned with a specific theme. Ultimately, the identified themes guided the organization of the indexed data into a chart. This method would convert data from its original textual context to a chart format with headings and subheadings, resulting in a thematic framework.

3.9.2.4 Analysis of Compilation of FDI & LNG Sector Reports

Reviewing literature is one of the simplest methods to determine whether original material is present in research (Ramdhani et al. 2018). A literature review based on factors driving foreign direct investment in the liquefied natural gas sector is created by reviewing textual policies related to the Nigerian LNG sector contained within the compendium of the organisational gazette and reports from government agencies such as NNPC, CBN, NIPC, as well as reports from the NLNG Bonny project, which served as secondary data. The primary data approach identifies elements influencing FDI in the LNG sector based on data gathered through quantitative and qualitative methods.

3.10 Validity and Reliability

Validity and reliability are the terms used to describe how well a method or test measures a phenomenon to assess the quality of research (Noble & Smith 2015). Correspondingly, validity is the propensity of a study to measure what it promises to assess (Holtom et al. 2022). To put it another way, validity is the precision with which a test measures the result. Reliability is the degree to which an instrument

or test yields the same results when subjected to a constant condition (Taherdoost & Lumpur 2016). Accordingly, reliability is defined as capacity measurement to produce consistent results across time (Drost 2011). The quantitative validity of this mixed-methods research relates to how well a questionnaire-based survey reflects the study's hypotheses (Imran & Yusoff 2015). The qualitative validity of this study evaluates the accuracy of the research findings using the thematic framework (Noble & Smith 2015). Overall, the validity of this PhD research assesses how closely the pertinent scientific research methodologies and techniques were used to produce the research findings. As a result, the methodology chapter focuses on the paradigm and analytical approaches of this study, demonstrating the validity of the research's conclusions. Nevertheless, researchers can investigate validity in a variety of ways, depending on the approach they adopt. Therefore, the discussion of validity in this thesis focuses on construct validity.

3.11 Sequential Method & Parallel Questions

Once the analysis methods are complete, the findings are presented in a sequential format with parallel questions. Figure 3-12 below shows how the findings from each of the three analysis methods are presented, answering each of the research questions.

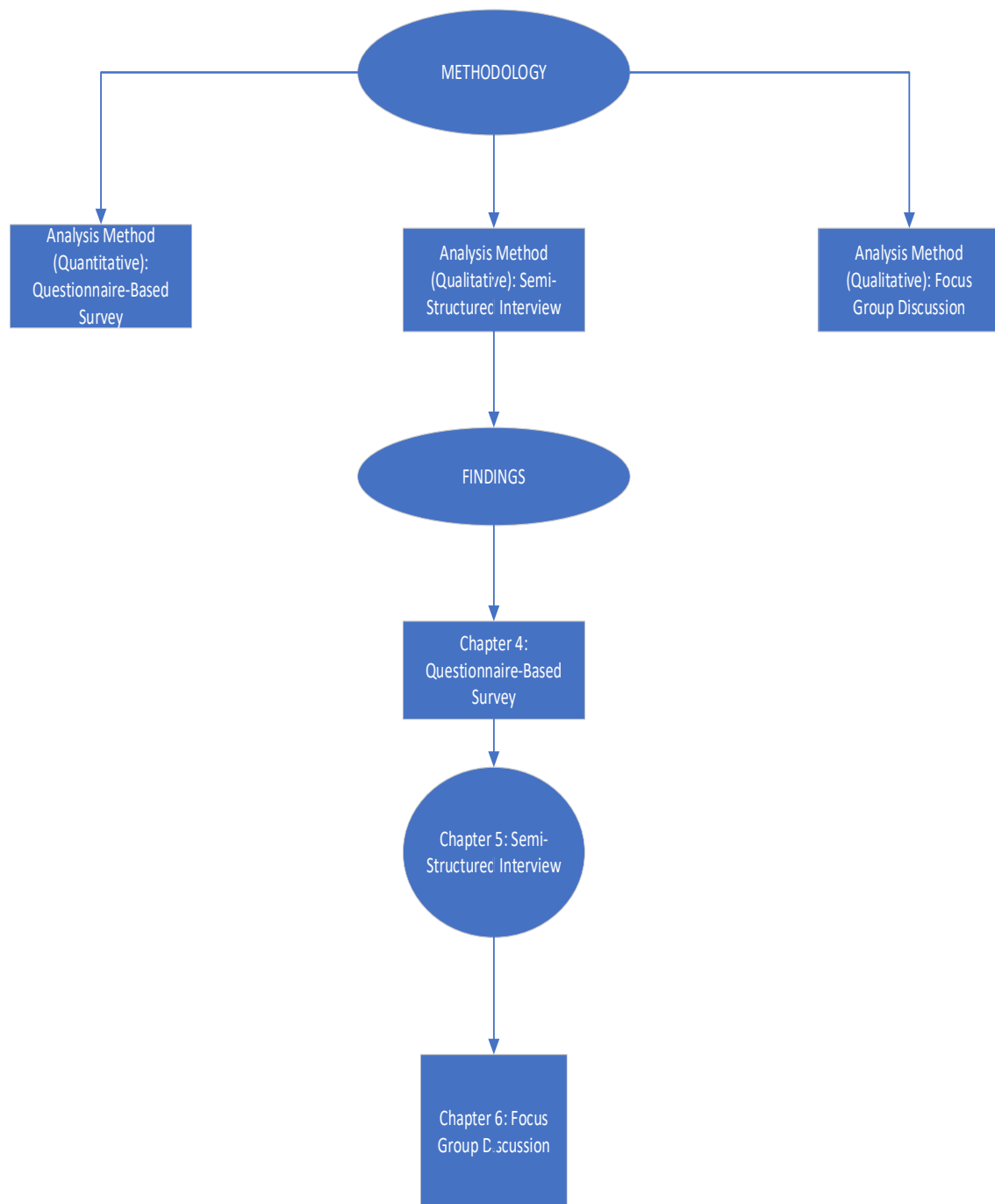


Figure 3-15 Sequential Method with Parallel Questions

3.12 Research Matrix

Table 3-8 below is the research matrix outlining how the research questions were answered. A questionnaire-based survey (QBS) was used to tackle RQ2, RQ3, RQ4, RQ5, and RQ7. The semi-structured interview (SSI) method addressed all seven (7) research questions. The Focus Group Discussion (FGD) method

answered RQ1, RQ2, RQ4, RQ5, and RQ6. It shows how the findings from each of the three analysis methods are presented, answering each of the research questions.

Table 3-11 Research Matrix

	RQ1	RQ2	RQ3	RQ4	RQ5	RQ6	RQ7
QBS		✓	✓	✓	✓		✓
SSI	✓	✓	✓	✓	✓	✓	✓
FGD	✓	✓		✓	✓	✓	

3.13 Methodology Conclusion

This chapter's content included a thorough examination of the literature on the methodology and procedures used for the analysis. The choice of philosophy was justified, which led to the development of a pragmatic paradigm. The quantitative and qualitative components of the primary data collection, which are questionnaire surveys, semi-structured interviews, focus group discussions, and secondary data through the organisational gazette, were created. A compendium of factors driving FDI inflow into Nigeria's LNG sector was also established. In conclusion, the research employed semi-structured interviews and focus group discussions using NVivo software, complemented using SPSS analysis software for the questionnaire-based survey and secondary data from the archival study. The subsequent chapters present findings from the analysis of primary data gathered from questionnaire-based surveys, semi-structured interviews, and focus group discussions after outlining the methodologies used, and methods of analysis used for this PhD research.

4 FINDINGS- Questionnaire-Based Survey

4.1 Outline

This chapter aims to provide an analysis of factors driving foreign direct investment (FDI) in the liquefied natural gas sector (LNG) based on the results of a questionnaire-based survey. The responses from the questionnaire serve as the study's quantitative primary data. Equally, data analysis and presentation are intended to show factors driving foreign direct investment in the liquefied natural gas sector as a component of the research hypothesis. The chapter includes sections and subsections such as 4.2 Questionnaire Response Results, 4.3 Theory Testing, 4.4 Quantitative Results Section, 4.5 Quantitative Findings Summary, and 4.6 Questionnaire-Based Survey Conclusion,

4.2 Questionnaire Response Results

This study discusses the examination of three tested theories. In addition, variables were created and examined using descriptive statistics of the respondents' thoughts, computing each statement computed using a five-category scale of replies. (1=Strongly Disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5= Strongly Agree). Mann-Whitney tests were used at the 5% significance level to identify any differences between the respondent groups. Also, used crosstabulation tests to analyse any differences that emerged.

4.2.1 Questionnaire Response Rate

This section presents the distribution, collection, and responses obtained from 150 questionnaires that were distributed as part of the survey. Trespalacios & Perkins (2016) theory states that a well-crafted questionnaire yields a significant response rate, which is supported by the response rate shown in Table 4-1 below. Moreover, the response rates to questionnaires differ from one to the next, but they normally range from 10% to 90% (Phillips & Phillips 2004).

Table 4-12 Survey Process Structure and Breakdown

	<i>Respondents Group</i>	<i>Distributed</i>	<i>Returned</i>	<i>Response Rate</i>
1	<i>Banks/ Financial Institutions</i>	15	12	80%
2	<i>Executive</i>	5	2	40%
3	<i>Legislature</i>	5	4	80%
4	<i>MDAs</i>	20	17	85%
5	<i>SME/Start-Up</i>	30	25	83%
6	<i>IOCs/Conglomerates</i>	20	16	80%
7	<i>Investors</i>	20	13	65%
8	<i>Manufacturers</i>	35	27	77%
	Total	150	116	77%

Table 4-1 indicates the survey process structure and breakdown of the responses. Also, distributed 150 questionnaires to the eight stakeholder groups, completing and returning 116 of them. Consequently, it shows a 77% overall response rate, which is sufficient to conclude, and it also aligns with the perspectives of researchers on survey response rate (Kasunic 2005). Furthermore, the high response rate can be attributed to different factors, including the following: the easy presentation of the questionnaire and its design questions were carefully framed in simplified and layperson language, following the aims of the research. Secondly, respondents had adequate time to complete the questionnaires- an average of two to three weeks to respond and submit. Thirdly, the researcher undertook consistent follow-up attempts using diverse methods such as SMS messages, phone calls, and physical visits. Fourthly, the researcher obtained permission from Cranfield University Research Ethics to collect data, and the team of supervisors guided in crafting an engaging questionnaire-based survey (see Appendix A). Also, there was a request for approval from the regulatory agency in Nigeria to participate in the survey which, was sent by the school (see Appendix D).

4.2.2 Missing Values

Data files for any missing information were checked. The rationale for this approach stems from the fact that, in surveys with this volume of data, missing data frequently occurs (Shrive et al. 2006). However, this survey was subject to certain limitations, including the presence of missing data. The missing values had to be filled in. The researcher filled in the missing data following Little & Rubin (2019) recommendation to address the missing data issue, enabling statistical software to do an error-free analysis. Also, conducted a hypothesis test to ascertain the randomness of the pattern and the missing data (Little & Rubin 2019). The result indicates that, at the 0.206 significance level, it was higher than the alpha (0.05), confirming the absence of any discernible pattern in the missing data. Therefore, no additional research was needed.

4.2.3 Respondents Role & Demography Information

Before delving into the core analysis, the respondents' current role data is provided. To increase the validity and dependability of the information acquired, it is essential to describe and demonstrate the respondent's role and demography.

Table 4-13 Respondents Role Information

Gender	%	Experience	%	Qualification	%	Organisation	%
Male	65.2	1-5	4.8	Below Degree	1.8	NNPC	22.8
Female	33.8	6-10	34.9	First Degree	35.7	NUPRC	17.2
Missing	1.0	11-15	30.5	Masters	48.3	CBN	14.6
		16 and above	28.8	PhD	12.3	NIPC	12.3
		Missing	1.0	Others	1.9	IOCs	11.6
						NASS	12.1
						Min of Petroleum	9.4

Table 4-2 presents information on the respondent's role. Based on the respondent's demographic data displayed above, the experience, organisation, and qualification of the respondents were identified as the most fundamental factors. Therefore, it is rational to pick experienced respondents with a minimum of six years and above and a minimum of a first degree in relevant organisations to supply needed data on the factors driving foreign direct investment in the LNG sector.

4.3 Theory Testing

Kruschke & Liddell (2018) state that the stages of theory testing are as follows: developing assumptions; setting criteria for decisions; computing test statistics; and making decisions. In addition, theory testing is a crucial step in assessing the quality of data collected, and it provides the framework for making informed decisions based on the entire study conducted (Davis & Mukamal 2006). Additionally, the research question serves as a guide for the development of research theory. Likewise, the hypothesis is necessary for restating the null and alternate hypothesis testing the research question. Similarly, the alternate hypothesis (H_A) is typically the first hypothesis that anticipates the relationship between variables, the null hypothesis (H_0) on the other hand, predicts that there is no link between the variables of interest. Furthermore, the null hypothesis is the presumption that the event won't happen or that the variables being compared have no relationship. Except in cases when it is rejected, it has no bearing on the research's findings. The null hypothesis is the logical inverse of the alternate hypothesis. Similarly, once we reject the null hypothesis, we accept the alternate hypothesis.

Hypothesis testing plays a crucial role in determining the significance of the relationships. It involves formulating null and alternative hypotheses and employing statistical tests to evaluate evidence (Grieve 2015). This step allows for assessing the strength and significance of the relationships between FDI and the factors in the LNG sector (Wamba et al. 2015). Robustness checks are necessary to ensure the validity and dependability of the results. These checks involve conducting additional analyses, using alternative variables or statistical

techniques, to confirm the consistency and reliability of findings (Lakshmi & Mohideen 2012; Morse et al. 2002). By following this comprehensive approach, researchers can gain a deeper understanding of the relationships and provide valuable insights for policymakers, industry stakeholders, and investors in the LNG sector.

This research accepts the alternate hypothesis (H_A) due to the statistically significant relationship between the variables. Six (6) basic assumptions were met before deciding to accept the alternate hypothesis.

- i. *Interval or ratio variables ought to be used for both the independent and dependent variables.*
- ii. *The two variables should have a linear connection, meaning that the correlation should not be zero.*
- iii. *The variances in the data along the line of best fit should remain similar if the data display homoscedasticity.*
- iv. *The data should be independent of the observations.*
- v. *The prediction outcome needs to be valid and to protect the mistakes, there shouldn't be any notable outliers.*
- vi. *The regression line's errors should be somewhat regularly distributed.*

In the context of analysing factors driving FDI in the liquefied natural gas (LNG) sector, it is important to define the variables involved, such as FDI inflows into the LNG sector, the growth of the LNG sector, and the factors hypothesised to influence FDI. To conduct the analysis, relevant data should be collected (Scheel et al. 2021). This includes data on FDI inflows and economic indicators that reflect the growth of the LNG sector.

4.3.1 Non-Response Bias Test

Non-response bias arises when certain persons in a survey's target population do not respond, and their failure to respond is related to the behaviour or attribute being assessed (Desiree et al. 2003). This creates a situation in which the survey results do not accurately reflect the total population. Also, response rates significantly influence survey design and implementation. Anticipated response rates determine the sampling and fieldwork procedures (Wagner & Raghunathan 2010). It is posited that late respondents exhibit greater similarity to non-

respondents (Schmidt et al. 2020). By comparing the early and late respondents, one may evaluate whether a notable disparity could indicate the presence of non-response bias (Roberts et al. 2014). Furthermore, the respondents are categorised into two groups: early responders and late respondents. To investigate the possibility of non-response bias in this research, some tests comparing responders and non-respondents on various relevant factors were done. An assessment of non-response bias can be conducted by comparing the attributes of respondents who returned completed surveys with those who did not return a completed survey (Whitehead et al. 1993). According to descriptive data, respondents who replied to the survey had a substantially bigger average size (116 respondents against 34 for non-respondents). However, the results should be regarded with caution, particularly when generalising the findings to all areas of Nigeria's economy. To summarise, although some items exhibit statistical differences, these variations are rather small and typically would not impact the overall interpretation of the findings. It may be inferred that non-response bias is not a problem for this dataset. The ensuing subsection below displays the descriptive analyses of the frequency distribution derived from the participants' responses.

4.4 Quantitative Results Section

This section will include a summary of the results. This section reviews the hypotheses, especially in a quantitative study, and reports on the statistical significance of the data as well as whether the results support them. Giving a thorough summary of findings is always beneficial, regardless of whether the analysis confirms or refutes them. To demonstrate how each research question or hypothesis was addressed in the study, results are typically arranged by research question or hypothesis, and outcomes are stated for each one using statistics. Consequently, if the outcome of the Durbin-Watson test in regression analysis is not less than 1 or larger than 3, then the observations' independence will be tenable. Similarly, the hypothesis testing should accept standardised residuals with a minimum value of -3.29 and a maximum value of +3.29. In addition, this research sought expert opinions on factors driving FDI in the Nigerian LNG sector. Upon reflection, the hypothesis aims to evaluate industry

stakeholders' perspectives on the factors influencing FDI in the Nigerian LNG sector. See section 3.14.

Descriptive statistics enable the summary and comparison of critical characteristics between respondents and non-respondents (Lynn 2003). This comparison aids in the determination of whether non-respondents exhibit a systematic difference from respondents (Stoop 2004). Also, means, medians, standard deviations, frequency distributions, and proportions are among the most frequently used descriptive statistics (Mishra et al. 2019). The survey results may be biased toward the characteristics of those who responded if the mean of a key variable is substantially different between respondents and non-respondents (Lynn 2003).

4.4.1 Political Stability

Effect of political stability in the form of legal framework, political system, political unrest, and social unrest on FDI in the LNG sector.

This section delves into how factors like the legal framework, political system, political unrest, and social unrest—all subsets of political stability in an environment—influence the inflow of foreign direct investment into the LNG sector. Therefore, political stability, which includes a robust legislative framework, a stable political system, minimal political instability, and social unrest, is critical for attracting FDI to the LNG industry. Plus, each factor contributes to the creation of a predictable and secure environment in which investors can be certain that their investments will be safe and profitable over time. Addressing these characteristics can considerably improve Nigeria's ability to attract FDI into its LNG sector, thereby creating a stable and conducive climate for foreign investors.

Nations that are low-risk and stable attract more FDI in their LNG sector (Chih et al. 2022). Also, political stability encourages long-term investment because it ensures continuity and reduces volatility (Abu et al. 2015). Additionally, Chen (2017) analysis revealed that foreign companies continue to invest and profit from an unstable environment, despite the associated risks. Vulnerability theory posits that the host country's environment and diverse industries influence the impact of

political risk on FDI (Jiang & Martek 2021). Despite operating in the same political context, both general FDI and FDIE (energy sector FDI) experience varying impacts from political risk (Campisi & Caprioni 2017). Due to these characteristics, foreign investors in the energy sector are more susceptible to host-country political risk than general FDI (Shimbar & Ebrahimi 2020; Steckel & Jakob 2018). Below is an analysis of the findings based on the responses to each factor. Table 4-3 below is the descriptive statistics for political stability showing all the relevant factors where the mean is used.

Table 14 Political Stability Factors Descriptive Statistics

	Descriptive Statistics							
	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Variance Statistic	Kurtosis Statistic	Std. Error
LEGAIFRAMEWORK	111	1	5	4.02	.831	.691	2.166	.455
POLITICALSYSTEM	111	1	5	4.48	.796	.634	8.477	.455
SOCIALUNREST	111	1	5	4.59	.858	.736	5.908	.455
POLITICALUNREST	111	2	5	4.72	.525	.276	5.885	.455
Valid N (listwise)	111							

4.4.1.1 Legal Framework

Less developed countries have progressively passed laws encouraging foreign direct investment (FDI) by multinational companies (MNCs) since the mid-1980s (Barclay, 2004). This acceptance of MNCs by developing countries is largely due to the official rejection of old development practices such as import substitution in favour of a new orthodoxy of export-led development that is heavily reliant on foreign investors (te Velde 2006). Despite assertions by economists that everything else is equal, even seemingly comparable laws will change based on location, date, and legal excitement, all of which influence how these laws are viewed, enforced, or valued in relationship to other priorities (Czinkota & Skuba, 2014). After examining the contrasting viewpoints of the respondents in Table 4-4 underneath, 56.56% of the respondents said they agreed with the statement that legal framework impact is very effective on political stability, which positively impacted FDI in the LNG sector. In contrast, an insignificant 2.56% reckon it's not effective at all, another 2.56% believe it is slightly effective, and 13.68% opine that the legal framework impact on LNG investment is moderately effective. The

remaining respondents, which are 25.64%, believe the legal framework's impact on LNG investment is extremely effective. Using a regression analysis equation, $y = m(x) + b$ the variable correlation can be positive or negative. A positive correlation indicates that increasing one leads to an increase in the other, whereas a negative correlation indicates that increasing one variable causes a reduction in the other.

Table 4-15 Legal Framework Impact

LEGAL FRAMEWORK	Minimum	Maximum	Mean
The constitution, legislation, and regulation are important attributes of the legal framework in any jurisdiction. Does it affect LNG sector investment decisions	1	5	3.99
Answer	%	Count	
Not effective at all	2.56%	3	
Slightly effective	2.56%	3	
Moderately effective	13.68%	16	
Very effective	55.56%	65	
Extremely effective	25.64%	30	
Total	100%	117	

Therefore, it is concluded that a highly effective legal framework fosters political stability, which drives FDI into the LNG sector. Additionally, most respondents seem to agree that a stronger legal framework in any jurisdiction contributes to political stability. Also, the analysis results for the statement provided this PhD research with enough justification to believe that the legal framework, as a subset of political stability, impacts LNG sector investment decisions effectively. For the aforementioned statement, alternative hypothesis theory (H_A) is accepted, which indicates a relationship between the dependent variable (FDI) and the independent variable (legal framework).

Table 16 Legal Framework Credible Interval and Posterior Mean

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.849	.882	.015	.673	1.155

a. Assume standard reference priors.

The posterior distributions of the mean aid in evaluating the likelihood of significant differences between respondents and non-respondents. According to Table 4-5 above, the legal framework's mean is 0.882, and when the Bayes factor is greater than one, it suggests evidence against the null hypothesis, whereas a factor less than one indicates support for the null hypothesis. In this situation, non-response bias is not significant.

4.4.1.2 Political System

FDI entails a sophisticated system of analysis for the attractiveness of countries. Also, political conditions play a critical role when investors study a country before investing (Filipe et al. 2012). In addition, FDI necessitates a sophisticated system of assessing a country's desirability, and political conditions play an important role when a firm analyses a country (Enderwick 2005). In countries with weak institutions and considerable political risks controlling a significant part of the reserves, investment prospects can result in significant above-ground risks for the hydrocarbon sector (Mahdavi, 2014). While domestic politics play a major role in determining energy policy, environmental issues and the energy markets have both gone global. Therefore, international cooperation is necessary for nations to effectively address energy-related concerns (Keohane & Victor 2013).

Table 4-17 Political System Effect

POLITICAL SYSTEM	Minimum	Maximum	Mean
A democratic culture is a political system that influences foreign direct investment inflow into any jurisdiction. Is the impact of this political system on LNG sector investment significant?	1	5	4.49
Answer	%	Count	
Extremely unlikely	1.71%	2	
Somewhat unlikely	0.85%	1	
Neither likely nor unlikely	1.71%	2	
Somewhat likely	38.46%	45	
Extremely likely	57.26%	67	
Total	100%	117	

After examining the aforementioned statement in Table 4-6, the mean for all participants was 4.49, suggesting that the majority of respondents agreed that the political system in any jurisdiction has a huge impact on FDI in the LNG sector. 57.26% of the respondents believe that the political system has a significant

impact on FDI in the LNG sector; while 39.46% perceive it as somewhat likely; and 1.71% believe it is neither likely nor unlikely. Another 0.85% reckon it is unlikely, and 1.71% stated that it is extremely unlikely. The respondent's position is consistent with the literature that the political system as a factor in political stability impacts FDI in the LNG sector. Consequently, empirical data from the above statement suggests that the political system has a relationship with FDI, and the null hypothesis is rejected. As a result, the alternative hypothesis (H_A) is accepted.

Table 18 Political System Posterior Mean and Credible Interval

Bayesian Estimates of Error Variance^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.890	.924	.017	.705	1.208

a. Assume standard reference priors.

The posterior distributions of the mean facilitate the evaluation of the probability of substantial differences between respondents and non-respondents. Evaluation of the probability of substantial differences between respondents and non-respondents is facilitated by the posterior distributions of the mean. According to Table 4-7, the average value for the political system is 0.924. A Bayes factor above one provides evidence against the null hypothesis, whereas a factor below one offers support for the null conclusion. Given that the credible interval is 95% and the difference between early and late respondents is close to zero, the Bayes factor provides evidence in favor of the null hypothesis. Non-response bias is not statistically significant in this scenario.

4.4.1.3 Political Unrest

Political unrest impedes growth and development (Okafor 2017). Additionally, risky markets, whether caused by autocratic institutions, corruption, or a variety of other issues, find it difficult to attract FDI (Jensen et al. 2003; Bénassy-Quéré et al. 2007). Similarly, investors are also concerned about the unpredictability of the host market. There is compelling evidence that risky markets attract lower levels of inward investment, whether the risk stems from fear of expropriation,

government corruption, armed interstate conflict, or a combination of factors (Barbieri & Reuveny 2005; Biglaiser & DeRouen 2006; Habib 2002; Li 2009).

Table 4-19 Political Unrest Influence

POLITICAL UNREST	Minimum	Maximum	Mean
Political unrest in any environment will force capital outflows to other countries by foreign investors. Does it affect LNG investment decisions considerably?	2	5	4.73
Answer	%	Count	
Strongly disagree	0.00%	0	
Somewhat disagree	0.85%	1	
Neither agree nor disagree	0.85%	1	
Somewhat agree	23.08%	27	
Strongly agree	75.21%	88	
Total	100%	117	

By extension, this suggests that domestic political turmoil discourages FDI and that political unrest is a key predictor of FDI flows (Schneider & Frey 1985). As a result, countries with a history of turbulence received less FDI than their more stable counterparts. According to the descriptive statistics in Table 4-8, out of the 117 responses from different stakeholder groups, 75.21% strongly agree with the statement above that political unrest will force capital outflow to other countries and 23.08% somewhat agree. Negligible 0.85% of respondents neither agree nor disagree, and another 0.85% somewhat disagree. In Equation 2, regression analysis is used.

Equation 1

$$y = m(x) + b$$

Where the variable correlation is negative; the negative correlation indicates that increasing one variable causes a reduction in the other. Therefore, an increase in political unrest will lead to a reduction in FDI, and the analysis findings for the above statement provide sufficient justification for this research to assume that FDI and capital outflow to other countries are caused by political unrest; hence,

the research alternative hypothesis (H_A) is approved for the statement and the null hypothesis (H_0) is rejected.

Table 20 Political Unrest Non-Response Bias Mean

Bayesian Estimates of Error Variance^a					
Parameter	Mode	Posterior Mean	Variance	95% Credible Interval	
				Lower Bound	Upper Bound
Error variance	.901	.936	.017	.714	1.226

a. Assume standard reference priors.

When assessing the possibility of significant differences between respondents and non-respondents, the posterior distributions of the mean are useful. The mean for political unrest, as shown in Table 4-9 above, is 0.936. A Bayes factor greater than one provides evidence against the null hypothesis, whereas a factor less than one suggests support for it. The Bayes factor, with a credible interval of 95%, supports the null hypothesis if the credible intervals for the difference between early and late respondents contain zero. Non-response bias is not substantial in this case.

4.4.1.4 Social Unrest

The projected returns on investment opportunities determine financial flows. As a result, events that alter the competitiveness of any relevant third party can have a substantial impact on bilateral trade flows between two countries (Korn et al. 2022). Similarly, violent conflicts are known to displace people and severely disrupt countries economies (Blattman & Miguel 2010). Similarly, civil conflicts harm a country's exports (Novta & Pugacheva 2021). In addition, FDI can generate wealth and tax revenue, thereby influencing what fragile countries risk losing by participating in conflict (Ragousis & Sham 2017). The price of all this social unrest has been high. Between 1999 and 2004, direct attacks on infrastructure and oil installations cost the Nigerian government \$6.8 billion in lost revenue. That amount increased significantly in the subsequent three years(Watts 2007).

Table 4-21 Social Unrest Impact

SOCIAL UNREST	Minimum	Maximum	Mean
Does social unrest in the form of war, civil disputes, conflicts, and genocides discourage LNG investment decisions?	1	5	4.55
Answer	%	Count	
Strongly disagree	2.54%	3	
Somewhat disagree	2.54%	3	
Neither agree nor disagree	5.08%	6	
Somewhat agree	16.95%	20	
Strongly agree	72.88%	86	
Total	100%	118	

Following examination of the statement in Table 4-10, the mean for all participants was 4.55 out of 5, indicating that most respondents agree that social unrest in any environment has a significant impact on FDI in the LNG sector. In addition, 72.88% of the participants strongly agreed with the statement above, while 16.95% agreed somewhat. A further 5.08% of the participants expressed neither agree nor disagree, while 2.54% somewhat disagree and another 2.54% strongly disagree with the statement. Therefore, the statement's empirical evidence suggests that social unrest, such as war, civil disputes, conflicts, and genocides, can deter LNG investment decisions. This thesis concludes that social unrest, which is a critical factor in political stability, affects the LNG sector based on the analysis results of the statement. There is also a strong relationship between social unrest and LNG investment. An increase in social unrest events, such as war, civil disputes, conflicts, and genocides, deters LNG investment decisions. Because of this, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_A) is thus accepted.

Table 22 Social Unrest Posterior Mean

Bayesian Estimates of Error Variance^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.821	.853	.014	.650	1.117

a. Assume standard reference priors.

The mean posterior distributions help determine the likelihood of substantial differences between respondents and non-respondents. Table 4-11 shows that the mean for social unrest is 0.853, and a Bayes factor greater than one indicates evidence against the null hypothesis, whereas a factor less than one indicates support for the null. The Bayes factor supports the null hypothesis. In this case, non-response bias is not significant.

4.4.1.5 Political Stability Index

Figure 4-1 and Figure 4-2 below are the political stability values and the historical chart for Nigeria, indicating it is a volatile environment and that it will be challenging to attract needed FDI in the LNG sector. Also, the index of political stability assesses public perceptions of the likelihood of the government being destabilised or overthrown through unconstitutional or violent means, including politically motivated violence and terrorism. Moreover, the underlying indices represent the likelihood of a disruptive transition of power, military conflict, violent demonstrations, social unrest, foreign tensions, terrorism, and ethnic, religious, or regional conflicts. Based on the index of 193 countries, the average for 2021 was -0.07 points. The greatest score was 1.64 points in Liechtenstein, and the lowest value was -2.68 points in Somalia. In 2021, the country rankings ranged from -2.5 (weak) to +2.5 (strong). Nigeria, with a score of -1.78 points, is ranked 181st out of 193 globally.

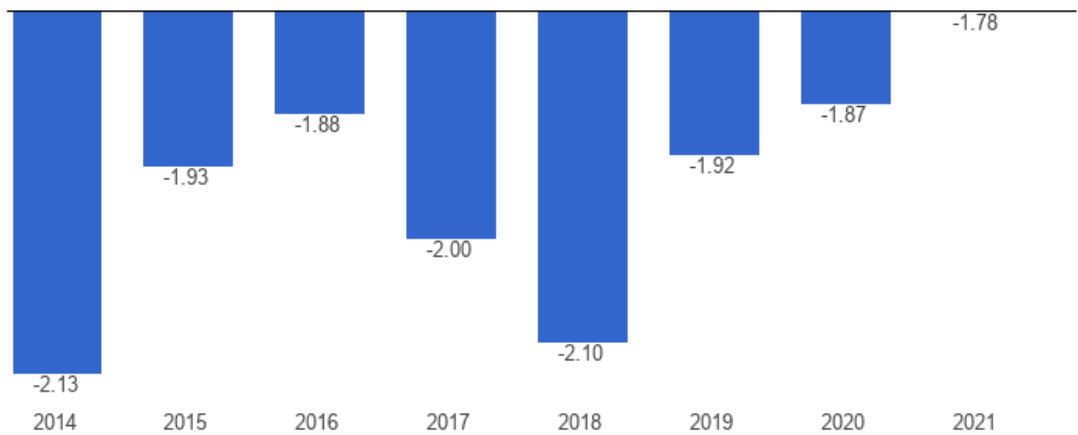


Figure 4-16 Nigeria Political Stability Values (Global Economy 2023)

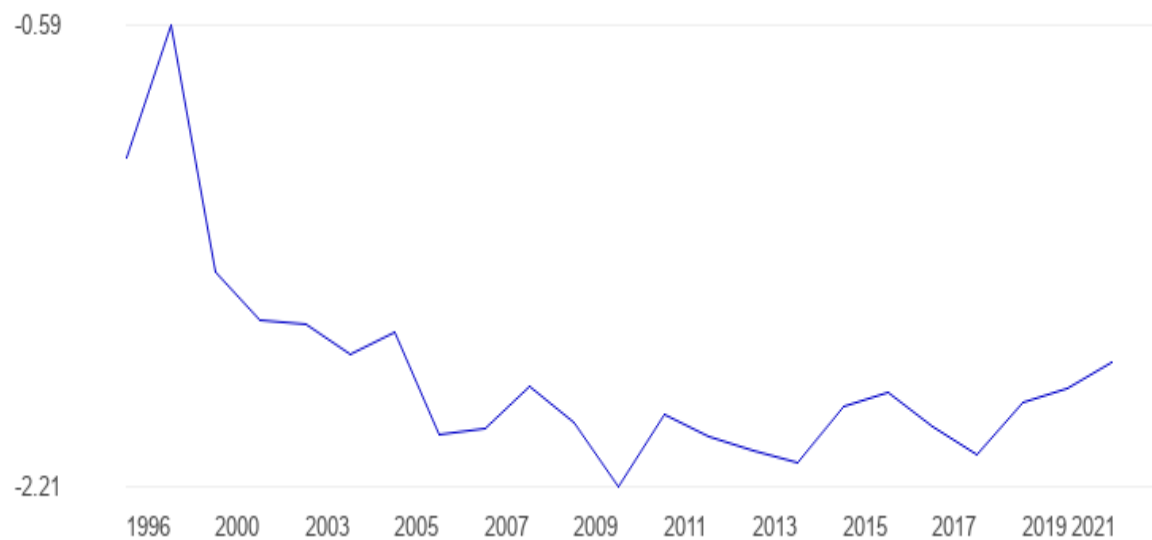


Figure 4-17 Nigeria Political Stability Historical Chart (Global Economy 2023)

4.4.2 Government Efficiency

Exploring how government efficiency through economic performance, fiscal responsibility, regulatory quality, and judicial system impact FDI in the LNG sector in Nigeria.

This section will explore how economic performance, fiscal responsibility, regulatory quality, and the judicial system, which are functions of government efficiency, impact FDI in the Nigerian LNG sector. The judicial system, economic performance, fiscal responsibility, and regulatory quality are key indicators of government efficiency, which is crucial in attracting FDI to Nigeria's LNG industry. By making improvements to these areas, Nigeria may increase its attractiveness as a location for FDI and offer foreign investors the assurance they need to invest significant funds in its LNG sector. Equally, to foster an environment that is conducive to investment, policymakers should prioritise preserving economic stability, wisely managing public finances, guaranteeing regulatory clarity, and strengthening the legal system.

Additionally, countries with stable economies and large markets attract foreign direct investment to the LNG sector (Chowdhury & Mavrotas 2005). People assume that big markets offer high returns on investment, and stable economies provide favourable investment conditions. However, Junxia (2019) argued that foreign investment will usually face risks in some environments where the

benefits outweigh the challenges, whether perceived or calculated. In addition, Azam et al. (2019) asserted a correlation between energy development and economic growth, considering its role in promoting and enhancing social and industrial activity (Christensen & Hain 2017b). Nevertheless, different nation-states are facing unprecedented energy demand because of high population growth and economic development, especially in less developed countries (Keeley & Ikeda 2017; Shimbar & Ebrahimi 2020). Below, the descriptive frequencies and analysis of the responses of government efficiency influence on LNG investment are captured. is the descriptive statistics of the factors where the mean is the determinant.

Table 23 Descriptive Statistics of Government Efficiency Non-Response Bias

Descriptive Statistics								
	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Variance Statistic	Kurtosis Statistic	Std. Error
ECONOMICPERFORMANC E	111	1	5	4.12	.902	.813	1.531	.455
FISCALISSUES	111	1	5	3.72	.983	.967	1.331	.455
JUDICIALSYSTEM	111	1	5	4.53	.840	.706	3.927	.455
REGULATORYQUALITY	111	1	5	4.29	.918	.843	.817	.455
Valid N (listwise)	111							

4.4.2.1 Economic Performance

Some scholars and policymakers regard FDI as a vital contributor to the growth of developing and emerging economies (Kudina & Pitelis 2014). In addition, people regard FDI as a factor that boosts economic growth as well as a solution to developing countries' economic issues (Forte & Moura 2013). A few economic theories suggest that efficient allocation of foreign capital flows leads to economic growth (Mencinger 2003). Similarly, FDI is even regarded as the most effective means of achieving economic growth (Lee & Tcha 2004). According to the OECD (2002) report, FDI is the only source of growth and economic modernisation for nations with weaker economies. As a result, governments, particularly in developing nations, regard foreign capital as very crucial (Carkovic & Levine 2005). Indeed, it is usual for countries to establish governmental institutions whose goal is to attract foreign investments using public funds, demonstrating

they are ready to incur costs to attract investments (Ford et al. 2008). Furthermore, tax holidays, import duty exemptions, land supply for amenities, and direct subsidies are the incentives granted to foreign investors (Hanson 2001). Additionally,

Table 4-24 Economic Performance Effect on FDI

ECONOMIC PERFORMANCE	Minimum	Maximum	Mean
GDP evaluates, the balance of payments indicates, and budget performance assesses a national economic performance. Is their effect on energy investment noteworthy?	1	5	4.1
Answer	%	Count	
Strongly disagree	2.59%	3	
Somewhat disagree	3.45%	4	
Neither agree nor disagree	12.93%	15	
Somewhat agree	43.10%	50	
Strongly agree	37.93%	44	
Total	100%	116	

Table 4-13 presents descriptive statistics indicating that, among the 116 responses received from participants who responded to the questionnaire-based survey, 43.10% of the respondents somewhat agree with the statement above that the economic performance effect on LNG investment is noteworthy, while another 37.93% of participants strongly agree with the statement 12.93% neither agree nor disagree, then 3.45% somewhat disagree, and 2.59% strongly disagree. Following a review of the statement in Table 4-7, the mean for all participants was 4.10 out of 5, suggesting that 82% of respondents agreed with the statement. Consequently, the statement's empirical evidence suggests that the effects of GDP evaluation, balance of payments, and budget performance under economic performance are noteworthy on LNG sector investment. This leads to the rejection of the null hypothesis (H_0), and the alternative hypothesis and acceptance of the alternative hypothesis (H_A).

Table 25 Credible Interval for Economic Performance

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior Mean	Variance	95% Credible Interval	
				Lower Bound	Upper Bound
Error variance	.821	.853	.014	.650	1.117

a. Assume standard reference priors.

When assessing the possibility of significant differences between respondents and non-respondents, the posterior distributions of the mean are useful. The mean economic performance is 0.853, as shown in Table 4-14 above. The Bayes factor supports the null hypothesis if the credible intervals for the difference between early and late respondents are zero. Non-response bias is not substantial in this case.

4.4.2.2 Judicial System

International investments are typically associated with a host of problems and obstacles that, if they are not resolved, will either impede or limit the full actualisation of investment in a host nation (Fagboyegun & Soyaju 2016). Moreover, international investment agreements include umbrella clauses to protect foreign investors and ensure both parties fulfill their obligations (Paramita 2020). Likewise, the rights and obligations of host nations to guarantee fair and equitable treatment to investors, which is equivalent to that accorded to citizens, are among the topics covered by umbrella clauses (Gehne & Brillo 2017). Also, foreign investors typically do not find it acceptable to take their disputes with the host nation to the local courts (Charles & Schill 2009). Different factors contributed to this, including cultural disparities, legal conflicts, disparate legal systems, low confidence in the legal system, delays in the administration of justice, concerns about injustice in a corrupt society, unduly drawn-out trials in certain areas, and the qualifications of judges (Neudorf 2015). From Table 4-15 below, the mean aggregate of the responses was 4.54 indicating that over 90% of those polled agreed with the statement. Also, 69.83% strongly agree with the statement, while another 19.83% somewhat agree, 6.03% neither agree nor disagree, 3.45% somewhat disagree, and 0.86% strongly disagree. Therefore, an independent judiciary and an effective legal system, which protects investors, encourage investment in the LNG sector, according to the experimental data

supporting the statement. Consequently, the alternative hypothesis (H_A) is accepted, and reject the null hypothesis (H_0).

Table 4-26 Influence of Judicial System on FDI

JUDICIAL SYSTEM	Minimum	Maximum	Mean
Does a nation with an independent judiciary and an efficient legal system promote LNG sector investment, where investors are protected, and investment protection is obtainable?	1	5	4.54
Strongly disagree	0.86%	1	
Somewhat disagree	3.45%	4	
Neither agree nor disagree	6.03%	7	
Somewhat agree	19.83%	23	
Strongly agree	69.83%	81	
Total	100%	116	

The mean posterior distributions help to assess the probability of notable variations between respondents and non-respondents. From Table 4-16 below the mean for economic performance is 0.940; however, a factor less than one shows support for the null. The Bayes factor supports the null hypothesis assuming the credible intervals for the variation between early and late respondents are zero. In this case, non-response bias is not noteworthy.

Table 27 Posterior Mean for Judicial System

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.905	.940	.017	.717	1.231

a. Assume standard reference priors.

4.4.2.3 Fiscal Responsibility

Usually, the government has sources of income other than taxes, including oil revenue (Abdelwahed 2020). While more equitable extraction agreements are necessary, governments that overshoot towards disproportionately high tax rates may jeopardise optimal resource exploitation, effectively reducing overall state income (Weijermars 2015). Aside from the increased tax burden, the expenses of exploration and production (E&P) companies have risen rapidly in the last two decades since 2000 (Graham & Ovadia 2019). Furthermore, petroleum taxation heavily influences the decision to invest in gas, thereby significantly impacting

basin production (Nakhle 2008). Additionally, when oil prices are high, countries and firms aim to maximise profits from the gas industries, and fiscal regime design is an important component in creating views of basin competitiveness (Kaitah 2021). In addition to their ability to generate income, taxes can be used as a tool for fiscal policy to influence the state of the economy (Zhattau 2013). Also, governments use tax policies to control the economy by promoting or opposing economic decisions (Rosser 2006). The aggregate mean for all participants was 3.68, and after looking at the statement in Table 4-17, it indicated that most respondents' views are in line with it. 51.72% of the participants reckon the accrual of tax revenue is crucial, and the government using its spending power obligations is also important for LNG investment. 18.97% believe fiscal responsibility is moderately important; very close is another group of participants 17.24% who also consider budgetary responsibility to be extremely important.

Table 4-28 Fiscal Issues Effect on FDI

FISCAL ISSUES	Minimum	Maximum	Mean
Is accrual of tax revenue crucial and government using its spending powers obligations important for LNG sector investment?	1	5	3.68
Answer	%	Count	
Not at all important	6.03%	7	
Slightly important	6.03%	7	
Moderately important	18.97%	22	
Very important	51.72%	60	
Extremely important	17.24%	20	
Total	100%	116	

Two other groups of participants, 6.03% each, reckoned that it was slightly important, and another 6.03% reckoned that it was not at all important. Empirical data from numerous respondents indicates that encouraging investment in the LNG business is crucial. Because of this, the alternative hypothesis (H_A) is accepted, whereas the null hypothesis (H_0) is rejected.

Table 29 Fiscal Issues Posterior Mean

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior Mean	Variance	95% Credible Interval	
				Lower Bound	Upper Bound
Error variance	.909	.944	.017	.720	1.236

a. Assume standard reference priors.

The posterior distributions of the mean are a valuable tool for assessing the probability of substantial differences between respondents and non-respondents. The fiscal issues mean is 0.944, as shown in Table 4-18 is less than 1. A Bayes factor greater than one indicates evidence against the null hypothesis, while a factor less than one indicates support for the null hypothesis. The Bayes factor supports the null hypothesis, provided that the credible intervals for the difference between early and late respondents are zero. Non-response bias is negligible in this scenario.

4.4.2.4 Regulatory Quality

Regulation is critical for the implementation of investment projects because it can promote the development of new gas transport routes, LNG regasification terminals, and gas storage facilities (Banovac et al. 2009). Generally, the establishment of new strategic projects is influenced by regulatory frameworks implemented at the national and international levels (Raco 2014). Also, the implementation of regulations can impact project efficiency, potentially causing delays or even project cancellation (Reed et al. 2020). In addition, regulatory frameworks can have an impact on how gas infrastructure projects are evaluated, as in the case of gas hub services and transit routes (Joode 2012). Correspondingly, regulation also impacts the viability of new gas projects from an economic standpoint (Wang et al. 2014b). Also, a regulatory system that lacks incentives can lead to project cancellation or delay, or it can necessitate exceptions (Helm 2009). A supportive regulatory environment that is transparent and investor-friendly with streamlined processes attracts FDI (Sabir et al. 2019; Buchanan et al. 2012). Such an environment gives investors' confidence and lowers industry investment risks. Moreover, the OECD (2002) the report emphasised how crucial a supportive institutional environment is to maximise FDI benefits.

Table 4-19 below reveals the majority of respondents surveyed agreed with the statement, as indicated by the mean aggregate of the replies, which was 4.29. A significant segment of 55.26% of respondents polled definitely yes, while 24.56% polled probably yes, 14.91% polled might or might not, 4.39% decided to poll

probably not, and 0.88% answered no to the statement above. As a result, the overriding conclusion is that regulatory quality has an appreciable effect on LNG project investment, and the overwhelming majority of the respondents to the survey agree with the statement.

Table 4-30 Regulatory Quality Effect on FDI

REGULATORY QUALITY	Minimum	Maximum	Mean
Does the oversight function which assesses, and monitors policies, plans, programs, and projects have an appreciable effect on LNG project investment?	1	5	4.29
Answer	%	Count	
Definitely not	0.88%	1	
Probably not	4.39%	5	
Might or might not	14.91%	17	
Probably yes	24.56%	28	
Definitely yes	55.26%	63	
Total	100%	114	

Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_A) is accepted.

Table 31 Regulatory Quality Credible Interval

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.907	.942	.017	.719	1.234

a. Assume standard reference priors.

Evaluation of the probability of substantial differences between respondents and non-respondents is facilitated by the posterior distributions of the mean. The average value for regulatory quality is 0.942. According to Table 4-20, the average value for regulatory quality is 0.942. A Bayes factor above one provides evidence against the null hypothesis, whereas a factor below one offers support for the null conclusion. Given that the credible intervals for the difference between early and late respondents are close to zero, the Bayes factor provides evidence in favour of the null hypothesis. Non-response bias is not statistically significant in this scenario.

4.4.2.5 Index of Government Efficiency

The government efficiency index was ranked from -2.5 indicating weakness to +2.5 signifying strength. In the 2021 country rankings of 191 countries, the average was -0.03 points. Singapore had the highest value at 2.29 points, while Yemen had the lowest score at -2.3 points. In the same year, Nigeria had -1 point and ranked 164 globally. The government efficiency index measures people's perceptions of the quality of public and civil services and their independence from political pressures. The government also formulates, implements, and demonstrates its commitment to these policies. Figure 4-3 explains that government efficiency in Nigeria is low. The country's economic freedom score is 53.9, which is an indication of government efficiency, ranking the country 124th globally in the 2023 index. It scored 0.5 points lower than the previous year. Also, Nigeria ranks 22nd out of 46 countries in Sub-Saharan Africa, and its overall score falls short of the global average of 59.3 (Heritage 2023).

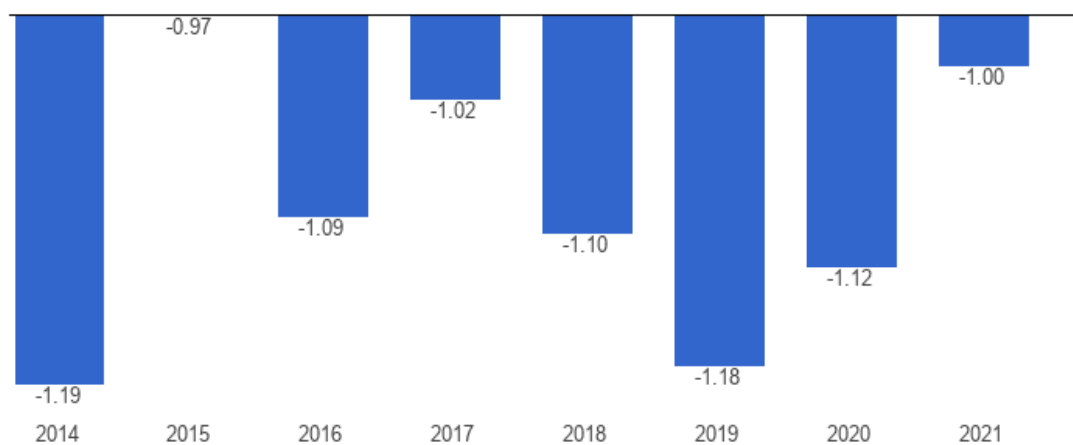


Figure 4-18 Government Efficiency Index in Nigeria (Global Economy 2023)

Figure 4-4 below captures it all. The structural reforms required to establish a more dynamic private sector or produce more broad-based growth have not yet manifested in Nigeria. The gas sector continues to dominate the economy, and institutional problems harm other economic activity. The rule of law is weak, and the judiciary is vulnerable to political meddling.

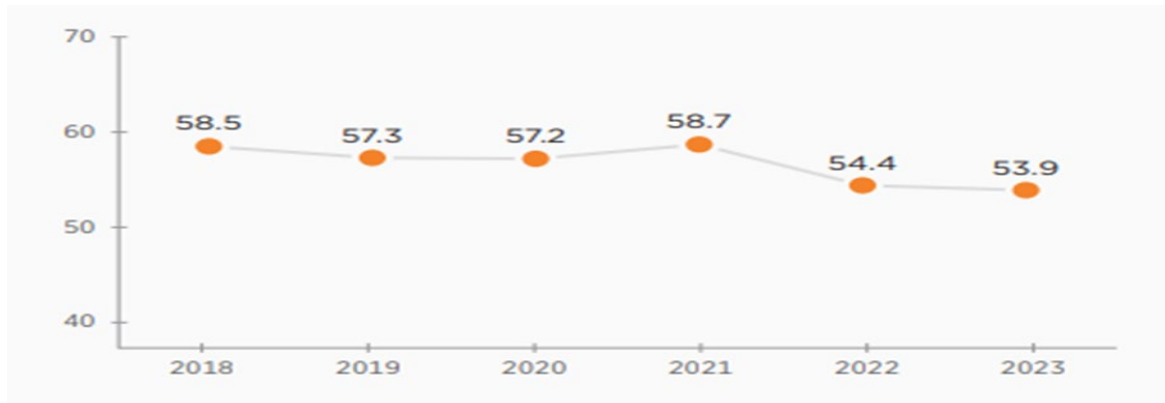


Figure 4-19 Economic Freedom Trend in Nigeria (Heritage Foundation 2023)

Nigeria's rule of law is weak, as illustrated in Figure 4-5. Also, Nigeria's property rights score of 55 points is lower than the global average; its judicial effectiveness score of 50 points is also lower; and the government integrity score of 49 points is equally lower. Nigeria placed 120 out of 142 nations in the World Justice Project 2023 index. The country has had challenges in areas such as effective law enforcement, access to justice, and security. Assessments have also highlighted issues with the court system, such as delays and inefficiencies. While Denmark is ranked first globally with a score of 0.90, Nigeria has a total index score of 0.41. Venezuela is the nation with the lowest score, followed by Cambodia, Afghanistan, Haiti, and the Democratic Republic of Congo.



Figure 4-20 Rule of Law Index in Nigeria (Habib 2023)

The regulatory quality of governance indicators reflects assessments of the government's capacity to establish and enforce solid laws and regulations that

enable and support private sector development (Hanke 2023). Moreover, the business environment in Nigeria has only marginally improved, and very time-consuming and costly regulatory procedures continue to pressure the entrepreneurial environment. In addition, Nigeria's World Bank regulatory quality score for 2021 was 0.9, placing it in the 15.9 percentile of all nations. Equally, persistent bureaucratic delays continue to stymie trade and investment. Also, Nigeria has a reputation for bureaucratic complications and red tape that affect business. Figure 4-5 shows the country's rule of law index. Similarly, a lack of clarity in the regulatory system can lead to inefficiencies. Figure 4-6 shows the score of Nigeria from 2014-2021, In 2021, 191 countries were assessed; Nigeria scored 0.93 and ranked 160th globally. The global average was 0.04 points, and Singapore ranked first with the highest value of 2.23 points.

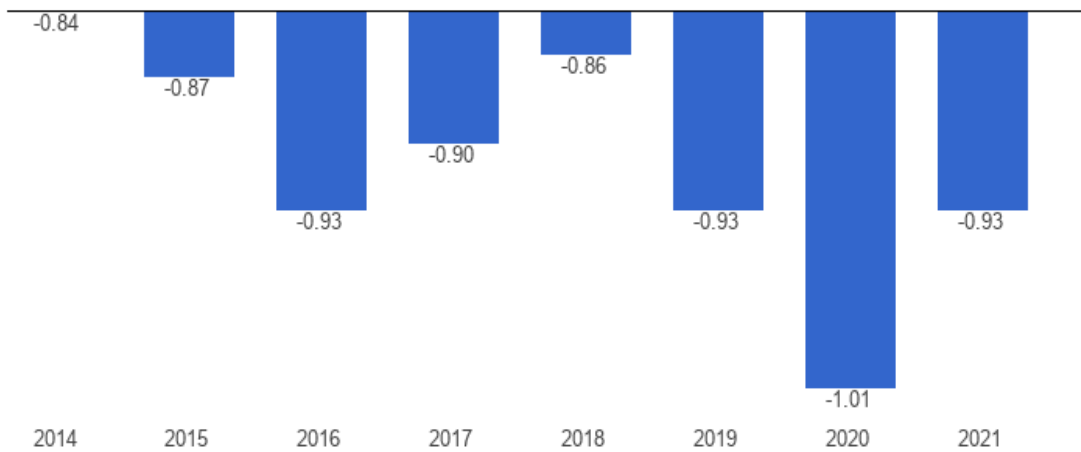


Figure 4-21 Nigeria Regulatory Quality Value (Global Economy 2023)

4.4.3 Corruption Levels

To examine how Nigeria's corruption levels through the effect of government accountability and policy credibility, affect FDI inflow into the LNG sector.

This section examines the relationship between corruption, and the subset factors like government credibility, accountability, and sovereign ratings legitimacy, yielding a more complex picture of FDI dynamics in Nigeria's LNG sector. By concentrating on these mediating factors, the government needs to

develop methods to lessen the negative consequences of corruption while also increasing Nigeria's attractiveness as an FDI destination. Also, the section explores the effect of government accountability referred to as the procedures in place to hold public officials accountable for their acts, the promotion of transparency, and how the reduction of corruption in the system impacts FDI inflow. Equally, the section investigates investors' confidence in the consistency, transparency, and long-term adherence to government policy. Similarly, policy credibility can be assessed by using investor surveys and historical analyses of policy changes and execution. Corruption has a statistically significant and comparatively large negative impact on foreign direct investment. More significantly, corruption has a greater detrimental effect on FDI than it does on other forms of capital inflows (Field et al. 2003). Likewise, corruption complicates and disrupts policies that govern FDI inflow and foreign companies' operations. Consequently, interference with the policy is likely to reduce and disrupt FDI inflows (Panigrahi et al. 2020). In contrast, Nye (1967) states that economic wealth increase has always been correlated with corruption. Under certain circumstances, corruption may be the only way to get past incredibly onerous and practically never-ending bureaucratic procedures that serve as strong entry barriers (Funderburk 2016). So, the levels of corruption are evaluated by the listed factors, accountability, credibility, and sovereign ratings. Their impact level determines successful project execution in any environment, together with the descriptive frequency of the factors and their effect on LNG investment.

Table 32 Corruption Levels Descriptive Statistics

Descriptive Statistics								
	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Variance Statistic	Kurtosis Statistic	Std. Error
ACCOUNTABILITY	111	2	5	4.40	.678	.460	1.331	.455
CREDIBILITY	111	1	5	4.72	.677	.458	11.763	.455
SOVEREIGNRATINGS	111	2	5	4.33	.898	.806	.683	.455
Valid N (listwise)	111							

4.4.3.1 Accountability

Fiscal transparency improves a country's political and economic climate, making it more favourable for foreign investment (de Renzio & Wehner 2017). Also, government openness, or the ease of access to information about governmental operations, increases a nation's appeal to foreign investors (Bouchoucha 2022). Additionally, FDI is positively impacted by investment security, but it is negatively impacted by expropriation risks and corruption levels, which create a risky business climate (Cicatiello et al. 2021). In developing nations, the impact of government institutional structure on FDI is limited due to its inadequate structure (Sabir et al. 2019). By making the past, present, and future status of public finance more predictable, fiscal information disclosure serves to increase the credibility of a country's fiscal policies and can help underpin market confidence and market perceptions of fiscal solvency (Cicatiello et al. 2021). Likewise, significant fiscal transparency (accountability) can be achieved by making budget documents available to the public and providing timely access to high-quality information (Harrison & Sayogo 2014)

Table 4-22 Significance of Accountability on FDI

ACCOUNTABILITY	Minimum	Maximum	Mean
If malfeasance is exposed, and damaging policies are quickly corrected by the host nation government, will these issues support the LNG project investment decision-making process by investors?	2	5	4.39
Answer	%	Count	
Definitely false	0.00%	0	
Probably false	1.74%	2	
Neither true nor false	6.09%	7	
Probably true	43.48%	50	
Definitely true	48.70%	56	
Total	100%	115	

After analysing the statement in Table 4-22, the aggregate mean for all participants was 4.39, suggesting that the majority of respondents' opinions support it. About 48.70% of participants averred that the government's accountability is crucial for the LNG project decision-making process, and another 43.48% of the respondents stated that it's probably true. Additionally, 6.09% of them believe it's neither true nor false, while 1.74% think it's probably false. In addition, 0.00% of the respondents provided a definitive false response. Consequently, the empirical statistic in the statement implies that when malfeasance is exposed, and damaging policies are quickly corrected by the government, it supports the LNG project decision-making process. Also, the vast majority of participants found the questionnaire's statement to be acceptable. As a consequence, there is a link between the independent variable (government accountability), which is a subset factor under corruption, and the dependent variable (FDI), as evidenced by the rejection of the null hypothesis (H_0) and acceptance of the alternate hypothesis (H_A).

Table 33 Accountability Mean Posterior

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.729	.757	.011	.578	.990

a. Assume standard reference priors.

The posterior distributions of the mean help determine the likelihood of substantial differences between respondents and non-respondents. Table 4-23 shows that the mean for accountability is 0.757, and a Bayes factor larger than one indicates evidence against the null hypothesis, while a factor less than one indicates support for the null. If the credible intervals for the difference between early and late respondents contain zero, the Bayes factor supports the null hypothesis. In this case, non-response bias is not significant.

4.4.3.2 Credibility

Governments trying to attract FDI can improve the environment for foreign investors by improving political institutions and economic policies that encourage

FDI inflows (Saidi et al. 2013). Also, foreign investors, in fact, constantly seek investment opportunities where the institutional climate is helpful (Bevan et al. 2004). Furthermore, multinational corporations choose to invest in host nations with transparent institutional frameworks and well-defined policies (Dunning & Lundan 2008). Generally, a more credible policy environment entails more secure property rights, giving foreign companies more incentives to invest (Zheng 2011). In addition, democracy has an institutional edge over autocracy in attracting foreign direct investment because institutional checks are essential for long-term policy credibility (Konki 2017). Although policy credibility is important, it's far from the only institutional factor influencing foreign investors' decisions (Daude & Stein 2007b).

Many of the respondents, as shown by the mean aggregate of the responses, agreed with the statement, see Table 4-24. Eighty percent of the participants answered definitely yes, saying that any situation where the government has a good reputation, is trustworthy, and the public interest is protected contributes significantly to making LNG project investment decisions. Also, 15.65% of the participants answered probably yes, 1.74% responded might or might not, and another 1.74% answered probably not. Finally, 0.87% of the participants responded definitely not.

Table 34 Impact of Government Credibility on FDI

CREDIBILITY	Minimum	Maximum	Mean
Does a situation where the government has a good reputation, is trustworthy, and public interests protected, contribute significantly to making LNG project investment decisions?	1	5	4.72
Answer	%	Count	
Definitely not	0.87%	1	
Probably not	1.74%	2	
Might or might not	1.74%	2	
Probably yes	15.65%	18	
Definitely yes	80.00%	92	
Total	100%	115	

The observed data from the statement suggests that where the government has a good reputation, is trustworthy, and protects the public interest, it significantly contributes to the decision-making process for LNG project investment. The majority of participants found the statement in the questionnaire acceptable.

Therefore, the rejection of the null hypothesis (H0) and acceptance of the alternate hypothesis (HA) indicates a relationship between the independent variable (government credibility), a significant factor of corruption, and the dependent variable (FDI).

Table 35 Credible Interval and Mean Posterior for Government Credibility

Bayesian Estimates of Error Variance^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.763	.792	.012	.604	1.038

a. Assume standard reference priors.

The posterior distributions of the mean help to assess the probability of notable variations between respondents and non-respondents. From Table 4-25 above, the mean for credibility is 0.792; however, a factor less than one shows support for the null, and a factor more than one suggests evidence against the null hypothesis. The Bayes factor supports the null hypothesis, assuming the credible intervals for the variation between early and late respondents contain zero. In this case, non-response bias is not noteworthy.

4.4.3.3 Sovereign Credit Ratings

Sovereign credit ratings (CRA) are credit rating agencies' assessments of sovereign governments' projected capacity and willingness to settle their debts with the unofficial sector fully and on schedule (van Damme 2016). Additionally, sovereign ratings combine all of the risk variables that rating firms deem important. Therefore, third-party sovereign credit ratings are a valuable information resource for international investors (Cai et al. 2018). According to Cantor & Packer (1996), a country's sovereign credit rating is determined based on its per capita income, GDP growth, inflation, external debt, level of economic development, and default history. Similarly, the majority of corporate clients use sovereign ratings as a rating ceiling (Williams et al. 2013). Also, Parsley & Gande (2004) discover a significant correlation between capital outflows from downgraded countries and sovereign downgrades. Likewise, Kim & Wu (2011) discover comparable data regarding global bank transfers. It reveals that news of

downgrades affects a nation's currency, bond, equity, and credit default swap markets.

Table 36 Influence of Sovereign Ratings on FDI

Sovereign Credit Ratings	Minimum	Maximum	Mean
Does the government's ability and willingness to repay its public debt, both principal and interest on time influence investment decision-making in the LNG sector?	2	5	4.34
Answer	%	Count	
Strongly disagree	0.00%	0	
Somewhat disagree	6.09%	7	
Neither agree nor disagree	10.43%	12	
Somewhat agree	26.96%	31	
Strongly agree	56.52%	65	
Total	100%	115	

According to the mean aggregate of the responses see Table 4-26, the majority of poll respondents agreed with the statement. 56.52% strongly agree, while 26.96% somewhat agree. Respondents who totalled 10.43% neither agreed nor disagreed with the statement, and 6.09% of the respondents somewhat disagreed. None of the respondents strongly disagree. Therefore, the statement's empirical statistic implies that the government's ability and willingness to repay its public debt, both principal and interest influence investment decision-making in the LNG sector. Most participants who participated in the survey regarded the questionnaire statement as acceptable. Hence, it may be concluded that there is a relationship between the independent variable (sovereign credit ratings), which is another factor under corruption, and the dependent variable (FDI) based on the rejection of the null hypothesis (H_0) and acceptance of the alternate hypothesis (H_A).

Table 37 Sovereign Ratings Mean Posterior

Bayesian Estimates of Error Variance ^a					
Parameter	Mode	Posterior		95% Credible Interval	
		Mean	Variance	Lower Bound	Upper Bound
Error variance	.760	.788	.012	.602	1.031

a. Assume standard reference priors.

The posterior distributions of the mean help determine the likelihood of substantial differences between respondents and non-respondents. Table 4-27 shows that the mean for sovereign credit ratings is 0.788, and a Bayes factor larger than one indicates evidence against the null hypothesis, while a factor less than one indicates support for the null. If the credible intervals for the difference between early and late respondents contain zero, the Bayes factor supports the null hypothesis. In this case, non-response bias is not significant.

4.4.3.4 Corruption Levels Index

An index of corruption perceptions of 100 signifies the absence of any corruption. Based on the assessments of 177 countries, the average for 2022 was 43 points. Somalia had the lowest score of 12 points, while Denmark had the highest score of 90 points. Over that time from 2015 to 2022, Nigeria is ranked 153rd globally, with the most recent score of 24 points from 2022. See Figure 4-7 below.

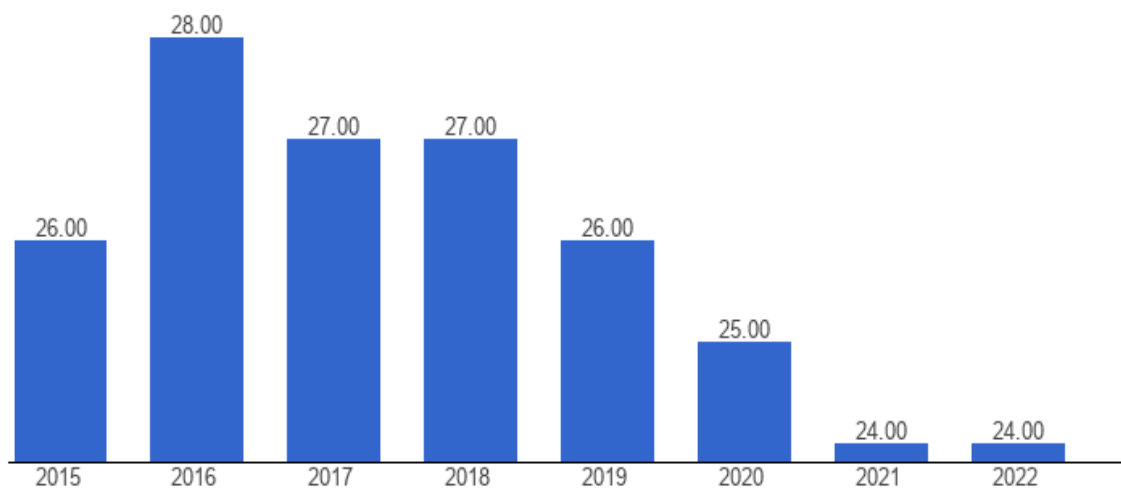


Figure 22 Nigeria Corruption Perceptions Values (Global Economy 2023)

The accountability index captures citizens' impressions of their ability to participate in choosing their government, as well as freedom of expression, freedom of association, and free media. In the 2021 country rankings for the accountability index, A score of (-2.5) is weak; +(2.5) is strong. Based on an assessment of 192 countries, the global average for 2021 was -0.05 points. In addition, North Korea had the lowest score -2.07 points, while Norway had the

highest score 1.75 points. In 2021, Nigeria's most recent figure was -0.64 points. See Figure 4-8 below.

Based on the degree of credit risk, all four international credit rating agencies' ratings are categorised into speculative grade for higher credit risk and investment grade for lower credit risk (Elkhoury 2009). Also, rating outlooks show the expected path of the rating throughout the next one to two years. Any changes in the underlying business conditions are considered. Equally, a stable rating indicates that it is not likely to change; a positive indicates that a rating may be raised, while a negative rating indicates that a rating may be lowered. In 2023, Standard & Poor's (S&P) rating for Nigeria was (B-), and Moody's rating was Caa1. For Trading Economics (TE), Nigeria is rated at 23% creditworthiness, which is regarded as a highly speculative environment for investment compared to Australia with an S&P rating of AAA and Moody's rating of Aaa which gives the country a TE score of 100% credit worthiness, regarded as a riskless environment for investment.

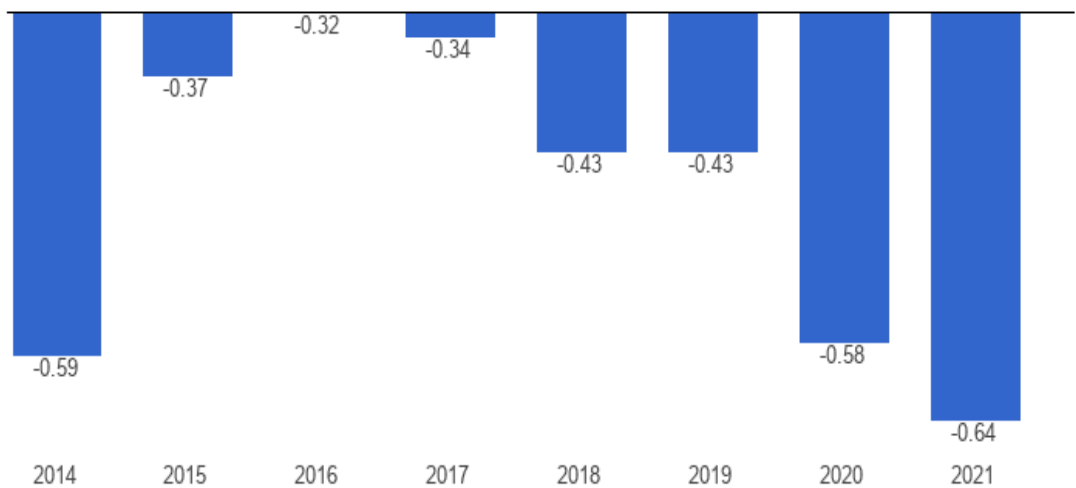


Figure 23 Accountability Index in Nigeria (Global Economy 2023)

4.5 Quantitative Findings Summary

The sections above present an analysis and findings of the questionnaire-based survey. Specifically, three hypotheses relating to Nigeria's petroleum fiscal

regime were tested. This section presents the summaries of the quantitative findings as follows:

4.5.1 Effect of political stability in the form of legal framework, political system, political unrest, and social unrest on FDI in the LNG sector.

The quantitative data's observed conclusions showed that the political environment's stability, as defined by a robust legal framework and predictable political institutions, is critical in attracting foreign direct investment to the LNG sector, and countries that can provide such stability are more likely to attract and retain investment in their LNG sector. Similarly, we must address issues that trigger political and social unrest. A key factor in attracting FDI into the LNG industry is political stability. Moreover, foreign investors view a stable political climate as one that is characterised by a strong legal system, transparency, and predictability in policy. According to research conducted by Asiedu (2006), research indicates that nations with more stable political systems tend to attract FDI due to the reduced risk associated with investment. In addition, the legal framework is critical in creating a safe environment for investment. Plus, clear and effective rules governing property rights, contract enforcement, and dispute resolution are critical for attracting FDI in the LNG sector. Likewise, a favourable legislative environment contributes greatly to investor confidence and FDI inflows (UNCTAD 2008). Similarly, the political system's character and stability have an impact on FDI. Likewise, democracies and stable political systems are regarded as better for long-term investments. However, Li et al. (2003) noted that foreign direct investment can be attracted to both stable and authoritarian regimes, emphasising the importance of stable political situations. Also, protests, civil disturbances, and conflicts can have a negative influence on FDI in the LNG sector. As a result, uncertainty and instability caused by unrest pose risks to foreign investors. In addition, Kobrin (2009) found that political violence can reduce FDI in affected regions.

4.5.2 Exploring how government efficiency through economic performance, fiscal responsibility, regulatory quality, and judicial system impact FDI in the LNG sector in Nigeria.

In summary, the Nigerian government's effectiveness in terms of economic performance, budgetary responsibility, regulatory quality, and the legal system influences FDI inflows into the LNG industry. Strong governance in these areas increases a nation's ability to draw on and hold on to investments in LNG sectors, fostering economic expansion and growth. Analysis conducted by Djankov et al. (2000) underscores the crucial role of effective governance in attracting foreign direct investment. Moreover, robust economic performance, including elements like GDP growth, stable macroeconomic policies, and low inflation rates, positively impacts FDI in the LNG sector. According to World Bank (2017) research, nations that exhibit strong economic growth and stability frequently attract greater levels of investment. Additionally, sound fiscal policies, defined by prudent budget management, manageable levels of public debt, and effective tax structures, produce a favourable climate for FDI. The IMF (2018) reports that nations with strict fiscal policies guaranteeing stability and economic sustainability attract investors. Furthermore, the enforcement of regulations significantly impacts FDI. Therefore, regulations that are clear, effective, business-friendly, and have less red tape create an environment that is conducive to investment. According to Porta et al. (1999) research, investors prioritize fair dispute settlement and legal clarity. Likewise, attracting FDI requires an efficient and transparent legal system that preserves property rights, enforces the rule of law, and offers effective dispute-resolution procedures.

4.5.3 To examine how Nigeria's corruption levels and the effect of accountability, credibility, sovereign ratings, and human development index affect FDI inflow into the LNG sector.

The general conclusions of the first-hand analysis demonstrate a thorough analysis of levels of corruption in Nigeria, as well as the effects of credibility, accountability, and sovereign ratings. It also reveals important information on

factors affecting FDI inflows in the LNG industry. In truth, promoting transparency, strengthening institutional credibility, and improving governance may create a more favourable investment climate. This will attract more FDI and assist the growth of Nigeria's LNG industry. Indeed, the level of corruption in Nigeria significantly influences foreign direct investment in the LNG sector. Moreover, research indicates that high levels of corruption discourage foreign investors and raise the risks and uncertainties of doing business in the country. Furthermore, the existence of robust accountability systems within the country's governance framework is a key factor in attracting FDI into Nigeria's LNG sector. Certainly, transparent and accountable government operations and policies undoubtedly positively impact investor confidence and FDI inflows. Also, the legitimacy of Nigerian institutions drives FDI inflow in the LNG sector. Similarly, institutions that demonstrate credibility, reliability, and trustworthiness tend to attract foreign investors due to their ability to reduce investment risks and enhance confidence in the business environment. Finally, sovereign ratings, indicating a country's creditworthiness and economic stability, play a substantial role in determining FDI inflows. Likewise, Borensztein et al. (1998) claim that higher sovereign ratings regularly lead to increased investor confidence, and more FDI attracted into the LNG sector in the country.

4.6 Questionnaire-Based Survey Conclusion

This chapter examines the results of a questionnaire-based survey presented to various participants directly involved in FDI inflow into the Nigerian LNG sector. The opinions of the relevant organization's stakeholders after analysing and accepting the three dominating factors of the research. The findings from the analysis also indicate the significance and impact of political stability, government efficiency, and corruption levels in the country on FDI inflow into the LNG sector. It also highlights the relationship between the factors and how foreign investors critically assess them before entering any jurisdiction. Equally, the analysed results of the questionnaire-based survey contribute to knowledge because the data gathered were novel and had never been published or used before.

5. FINDINGS- Interview Data Analysis

5.1 Preface

The qualitative method primarily presents data in the form of words, while the quantitative method presents figures and statistics. However, this does not imply that a qualitative study cannot include quantitative components. A qualitative method reports the frequency with which a theme appears in the data. Additionally, the rigor of research increases when the quantitative component provides more data to support conclusions, a phenomenon that is particularly common when applying qualitative content analysis. Also, the goals of qualitative research are to uncover subtleties and achieve depth and profundity. This section includes findings from an analysis of interview transcripts, which were based on significant trends defining factors driving foreign direct investment in Nigeria's LNG industry. Finally, the analysis revealed how knowledge and data from semi-structured interviews relate to findings from the archival study described in Chapter 3 and link their respective data.

This chapter outlines the distribution, collection, and responses obtained from twelve (12) individuals from the initial pool of twenty-two (22) respondents, who were selected based on their willingness to participate in data collection for the research topic through interviews. Twenty-one (21) interviews were conducted, with some participants interviewed twice or three times. Among those interviewed were regulators and senior industry leaders. Furthermore, semi-structured interviews deployed as the foundation of research necessitate a legitimate and dependable research procedure to achieve credibility (Barriball 1994). Additionally, non-respondent bias can distort the final results of any research project, and legitimate conclusions cannot be drawn if response rates are low or certain groups are underrepresented in the sample as a whole (Harrell & Bradley 2009). The semi-structured interview process and breakdown are presented in Table 3-7 above. The semi-structured interviews were analysed to get the findings in this thesis. By using the thematic analysis method, interviews with top stakeholders in Nigeria's gas industry were carried out. They were listed in

Section 3.6.3.2. Also, the process of identifying themes that accurately describe data in line with the research question is known as thematic analysis. See section 3.9.2.2.

However, participants were carefully selected based on their knowledge and level of managerial experience in the gas industry. See section 3.6.3. This PhD research motive uses the interview method to explore and build on the exploratory sequential mixed research design. Please refer to section 5.2 Method Selection Purpose, which describes the purpose of method selection. The next section, 5.3 Overview of the Research Thematic Framework Analysis, provides an overview of the thematic framework analysis. The rest of the chapter is organised as follows: Section 5.4: Findings of Semi-Structured Interview Analysis presents the research findings and Section 5.5, Semi-Structured Interview Compendium concludes the chapter.

5.2 Method Selection Purpose

The semi-structured interview method was chosen as one of the three techniques for data gathering in this thesis due to a significant number of reasons. Interestingly, the semi-structured interview's unstructured format allows researchers to learn more about respondents' perspectives by focusing on what they deem pertinent and important (Bryman 2016), which deepens the study of factors driving FDI into the LNG sector in Nigeria. Even if respondents' perceptions of relevance and essentiality are nuanced, these nuances might produce surprising results that offer rich detail and lessen bias during analysis (Morse 2015). Furthermore, by examining non-verbal cues (such as body language and physical impressions), which are crucial when discussing material, a semi-structured interview gives the chance to assess the veracity of the participants' responses (Morse 2015). Comparably, the semi-structured interview method works well when examining the motives, values, attitudes, and beliefs of primary data. However, the mixed-method research design used in this PhD research enhances a thorough understanding of the subject and bolsters the strengths of both the qualitative and quantitative methods used.

5.3 Overview of the Research Thematic Framework Analysis

Researchers identify, sort, describe, and report themes representing their research data set. According to Castleberry & Nolen (2018) research employs rigorous thematic methods to provide researchers with meaningful analysis that accurately reflects research findings. The subsections below outline actions completed during the thematic framework analysis to ensure efficiency and accuracy in data analysis.

5.3.1 Familiarisation with Data

To get a general sense of the data content, it was important to listen consistently to the twelve participants' interview audio files. Additionally, it was crucial to record sufficient information for the coding procedure. In the second phase, the audio files from interviews were used to create precise transcripts of all the research data. As a primary component of successful data analysis, transcript generation accuracy is critical to the process (Braun & Clarke 2019). In addition, Express-Scribe Software (ESS) is used to convert audio interviews into written word contexts, using digital transcribing software that allows a slow play mode, fast-forward, and rewind with a single button click. The Express-Scribe Software is among the most accurate and efficient qualitative ways to transcribe research interviews (Wollin-Giering et al. 2023). Additionally, the Express-Scribe Software (ESS) provides transcription-related exploration, assisting researchers with comprehensive answers on transcribing procedures (Taghreed 2015).

5.3.2 Generating Data Codes

During this step, patterns are documented by creating an initial list of ideas to serve as codes for the recurring patterns that emerged from interview transcripts (Locke et al. 2022). The list of ideas as codes helps to assign specific meaning to passages of text that indicate specific concepts. However, a single piece of text may generate several different codes to represent a variety of interpretations of identical elements (Vaismoradi et al. 2016). Also, the coding process is a systematic method for breaking down a concentrated, extensive data set into smaller, analysable pieces by producing categories and concepts drawn from the

data (Titscher 2000). Data are coded, which was simplified and entered into a computer for analysis utilising NVivo version 12 to evaluate the codes obtained from condensed transcribed data.

5.3.3 Identification of Themes

Themes are wider patterns of data that can be used to describe phenomena relevant to the research (Cassell & Bishop 2019). Besides, the identification of themes allows an in-depth evaluation of codes extracted from research and integrates related codes as a single unit theme. Also, the initial goal of identifying themes was simply inductive and focused on patterns that arose from the data set. Further inquiry offered deductive methods, such as looking for common patterns that mix with the theoretical model of the phenomena under review, which is an analysis of factors driving FDI in the LNG sector.

5.3.4 Reviewing, Defining, and Indexing of Themes

After examining the first themes generated for this PhD research, it is important to ensure that they support the research question and are consistent with the data set. This process involves reviewing and adjusting the themes discovered in the previous stage (Braun & Clarke 2019). On the other hand, the objective of the second phase was to identify themes that were grounded in factual information. This process succinctly names each theme, giving the reader a brief understanding of the research topic's meaning (Braun & Clarke 2006). Next comes the indexing phase, where a numerical system references and annotates the margin next to the text, linking each identified theme to the participant. The indexing phase then begins, using a numerical system to reference and annotate the margin next to the text, linking each defined theme to the participant. Also, NVivo software was used to carry out the indexing work, ensuring the accuracy and efficiency of the analysis by pinpointing specific themes within the data set. Finally, created a graphic by organizing the indexed data according to established themes. This procedure elevated the data from its original textual context, placing it in chart format with headers and subheadings to create a thematic framework.

5.3.5 Interpretation and Mapping

After arranging the data on the chart, the researcher created a schematic diagram of the phenomenon. This design facilitates the researcher's analysis of the collected data. Additionally, Ritchie & Spencer (1994) outlined a series of steps that included understanding qualitative analysis objectives, which encompassed defining concepts, mapping the range and nature of phenomena, creating categories, identifying associations, providing explanations, and developing strategies.

5.4 Findings of Semi-Structured Interview Analysis

The data collected from participants was analysed through interviews using comprehensive themes developed during the process. Each subsection enumerates the themes that address each of the seven research questions. In addition, Additionally, Table 5-1 summarizes the number of interviews, the organizations represented, and the respondents' experience in the gas industry. Moreover, each company granted permission for the participants to take part in the interviews. (Please see Appendix E).

5.4.1. Factors Analysis Breakdown

Wood (2012), asserts that LNG serves as a globally tradable commodity, ensuring consistent supply to meet the growing global demand for natural gas. Concerns about energy supply security, increased natural gas prices, higher LNG production costs, rising gas import demand, and demands for clean, low-carbon fuel continue to push more consuming countries to build LNG supply networks. Concurrently, there is a continued geographic diversification of the sources of conventional and unconventional gas supply due to the aspirations of prospective new gas producers to profit from their remote and yet untapped gas reserves (Economides & Wood 2009). Thus, factors driving FDI in the LNG sector are analysed, and the breakdown is listed below.

Table 5-38 Participants Demography

Interviewees	Role	Organisation	Classification	Interview Rounds
Respondent 1 (R1)	Chief Operating Officer	Seplat Energy	Energy Company	3
Respondent 2 (R2)	Chief Executive	Waltersmith Petroman	Indigenous Producer	1
Respondent 3 (R3)	Commercial Manager	First Hydrocarbon	Indigenous Producer	2
Respondent 4 (R4)	Project Director	Arcelor Mittal	Mining	2
Respondent 5 (R5)	Project Manager	Halliburton	Oilfield Service Contractor	1
Respondent 6 (R6)	Production Head	Shell Petroleum	International Oil Company	1
Respondent 7 (R7)	Investment Advisor	NCDMB	Government Agency	3
Respondent 8 (R8)	Accountant	Bonny LNG	LNG Producer	1
Respondent 9 (R9)	Head, Licensing & Permits	NUPRC	Regulator	2
Respondent 10 (R10)	Senior Manager	Bonny LNG	LNG Producer	2
Respondent 11 (R11)	Business Owner	Asiko Energy	Energy Company	2
Respondent 12 (R12)	General Manager	NNPC	National Oil Company	1
Total				21

5.4.2 Key Factors

What are the key factors influencing foreign direct investment in the Nigerian LNG sector? (RQ1)

Common variables that contribute to the growth of the LNG sector include the implementation of effective government policies. Secondly, the country possesses provable and recoverable gas reserves. Third, geopolitical activities and security issues in the country and neighbouring states. Finally, there is the globalisation effect. The aforementioned factors served as a standard for evaluating key factors that will drive the LNG sector's growth. In addition, the respondents' responses yielded a compelling conclusion, and the ensuing subsections present the interview's outcomes. This subsection presents the opinions of gas industry stakeholders based on the analysis of empirical data from semi-structured interviews. The findings revealed that increasing market liberalisation in major global markets will prompt future growth in natural gas consumption (IEA & KEEI 2019).

5.4.2.1 Enactment of Good Government Policies (Finding 1)

Respondents agreed that the country's fiscal framework policy was oil-oriented and unfavorable to natural gas. The literature reveals that Nigeria's tax structure is lopsided and heavily dependent on oil earnings. Also, the federal government controls the majority of significant tax-generating agencies (Odusola 2006). Furthermore, participant R7's contributions suggest that the country primarily produces natural gas for the export market, which sells it at high prices, generating significant revenues for the country. Additionally, R8 asserted that the enactment of the Petroleum Industry Act (PIA) into law has established a more transparent fiscal framework for the country's upstream gas development. Similarly, R2 asserted that the government initiated the Gas Transportation Network Code (GTNC) policy to streamline the fiscal and operational framework for third-party access to Nigeria's natural gas infrastructure, while the PIA established a more transparent licensing system for upstream gas development. However, R1 reveals.

“Regardless of the quality of a country's economic policies, foreign direct investment only stimulates growth in a politically stable environment. This, in turn, leads to a reduction in fiscal policy uncertainty, resulting in increased profitability and return on investment due to the predictability of the underlying fiscal terms.

Additionally, a dictatorial form of leadership introduces significant uncertainties in fiscal policies”.

The opinions of respondents R1, R2, R7, and R8 are supported by Esaenwi et al. (2022), who pointed out that the gas industry has a considerable economic impact in Nigeria. Despite contributing less than 10% of the country's GDP, the industry accounts for around 90% of foreign exchange revenues and 60% of total income. As a result, any negative shift in the industry will have a significant and long-term impact on government budgets. Furthermore, the operational fiscal laws, which govern each country's legal and institutional structure for the gas industry, determine its tax regimes (Dike & Nyemachi 2023). Also, the PIA incorporates the structure of the fiscal framework for gas investment. The PIA 2021 includes the same fiscal terms for both onshore and offshore investments in gas production, and the scale of these consistencies aligns with the descriptive assumption of stakeholder theory. It is empirically clear from the inference of the interview participant's opinions and the supporting literature that the implementation of good government policies is a major factor driving FDI in the LNG sector.

5.4.2.2 Provable and Recoverable Gas Reserves & Assets (Finding 2)

Interviewees agreed that gas projects are often huge in scale and will require FDIs. In addition, upfront pricing determinations and long-term volume commitments determine investments in the gas sector. Also, the commercial attractiveness of gas discoveries is a prerequisite for investment. Clearly, geological risk is what defines whether you can produce gas or not. Similarly, investing is nearly impossible if the geology hinders the discovery of significant quantities, also known as commercially developable gas reserves. Literature discloses that the term commercial should generally never be used concerning any extractive substance unless concentrations have been discovered and appraised and technical recoverability estimations have been determined (Max & Johnson 2018). One of the interviewees, R1, observed that geological risk is a crucial factor to consider. The gas business is highly sensitive to gas prices. If you cannot secure a gas price that makes investment decisions commercially

attractive, it will be difficult to attract finance for such gas projects or gas assets. The impact on investment is minimal for foreign currency exchange rates, price fluctuation, and volatility, but significant for commodities/volume commitments. Most of the time, even minimal government participation signals the viability of the gas project.

Similarly, R2 asserted that the government's minimal equity or lending to gas projects signifies their bankability. Additionally, the government's specific provisions and enhancements for the gas sector, which suggest its recognition as a resource or commodity in its own right, make it more appealing for investment. Consequently, the risk associated with upstream gas projects, the development of new fields, and the acquisition of new acreages is extremely high. Accessing proven reserves with a feasible path to production is one thing, but how can we ensure their reliable delivery? Additionally, it is crucial to have feedstock-proven reserves and ensure sufficient feedstock availability throughout the asset's life cycle. However, R3 reveals.

“If it's discovered in the future that these gas resources have flowed, or if their data changes to show that they are now straddling another asset, or whenever there is a disruption in the production of crude oil, the related gas will also experience a disruption. If there's an interruption in this line, then the crude oil wells automatically shorten, which means that there will be no agent produced, and that would automatically impact the quantity of gas produced that is going to the market”.

R3 further argued that it is crucial to monetise and commercialise both the associated and non-associated gas resources. Furthermore, the PIA supports the country's desire to develop gas reserves. In his submission, R4 asserted that the structure of the gas sector in Nigeria is such that it does not actively seek investors, implying that only a small number of International Oil Companies (IOCs) are interested in the country's gas assets. Hennchen (2015) supports this perspective by stating that Shell Company, Nigeria's largest gas producer, accounts for over 39% of the country's total production.

R4 claimed further that Nigeria's production keeps falling. Even though we have gas reserves, we still have geological risks that affect gas production, some of which can include access to the reserve itself. Geopolitical tensions can arise such as disputes over control of gas reserves. One of the reasons for the geopolitical risks is the ownership of those gas resources. In some communities, there are few living well, while countless live in poverty or penury. Additionally, the magnitude of geological risk in gas project investment can drastically reduce production, and the geological complexity of gas reservoirs can make it difficult to predict the size, location, and quantity of gas reserves. Also, complex reservoirs can make it more challenging and expensive to extract gas. This risk includes geological uncertainty in land that is not stable, and it is improbable to drill for hydrocarbons in an unstable geological plate. Going further, R7 claimed a producibility test needs to be conducted to determine whether the geology can produce gas, and the discovery must be commercially attractive before you can invest, and geological risk is considered a very big consideration. For R9, it is important to consider the location of the gas asset; is it an associated gas or a non-associated gas? Is it an onshore gas? Some believe that developing offshore gas in Nigeria is easier due to the absence of challenges and risks. Furthermore, commercialising offshore gas is unlikely to entail such risks and challenges. Furthermore, commercializing offshore gas is unlikely to entail such risks and challenges. Thus, R4 suggested using gas resources wisely, which will help locals feel the impact of their gas resources. The American system of property ownership gives the property and ownership of the gas resources to the people which, can be copied in Nigeria.

Conversely, R11 discloses.

“There is no geological risk in Nigeria at all; on the contrary, the most important consideration is the spread. Qatar has one large, huge gas field. Additionally, Saudi Arabia consists of an aggregation of gas fields, each with its associated gas reserves. In Nigeria, the sheer number of individual small gathering points of gas resources is comparable to the American oil industry, where there are 5,000,000 gas reserves here, 2,000,000 reserves there, and 10 million reserves overall. The challenge lies in congregating all of these gas reserves to a central

point". The empirical findings above suggest that provable and recoverable gas reserves and assets are key factors driving FDI in the LNG sector.

5.4.2.3 Gas Project Investment (Finding 3)

The interview participants agreed on the relationship between FDI inflow into the LNG sector and project investment. R1 stated that there must be an improvement in the quality of research and development on energy projects to lower procurement and construction costs to meet long-term energy investment goals. Similarly, R2 submitted that operating costs are a significant risk that should be managed because if revenue falls below operating costs, it will lead to the company folding up, and the likelihood that a project's output will not have a sale value that will cover its operating and maintenance costs, as well as its debt service requirements, is an economic risk. Therefore, controlling operating costs is crucial. Literature also reveals that long-term energy security and environmental sustainability can only be satisfied by deploying efficient and less expensive systems capable of using more abundant, cleaner energy sources with cheaper operating costs (Kaygusuz, 2012). Participant R3 believes that the cost you are going to expend in producing this gas includes operational costs, and the unit operating costs for the gas produced must be low so that after selling the gas, the price can accommodate the operating cost. This ultimately results in a significant increase in the cost of services and procurement. According to R4, *"During the operational phase of gas project investment, risk and cost are typically low but not completely absent"*. Also, R5 claimed that if the cost of production is higher than the price, it will run at a loss. These factors can increase the cost of production, making it harder for companies to operate profitably. It takes at least a minimum of five years to recoup the cost of production; most gas projects have at least five years to even get the fixed cost back. Also, it is well known that exploration and production activities are very expensive. So, any form of inefficiency can increase the cost of production, causing problems for every country with higher production costs. For instance, Nigeria's high production operational costs, which prevent profit-making and negatively impact the gas business, render the country unsuitable for investment. Moreover, investors will not venture into a region where operational costs are excessively high, leading to

a reduction in profit margin. Examples of issues that increase operational costs are equipment and maintenance costs and the cost of acquiring and maintaining equipment such as drilling rigs. According to R6, it is crucial to maintain control over operational costs, particularly if they are high. Another participant, R7, surmised that a situation where revenue falls short of operating costs signifies the death of the business. In Nigeria, operating costs include maintenance costs, general administrative staff costs, personnel costs, and regulatory requirements, all of which translate into additional operating costs. Similarly, R11 asserted that the treatment of operational costs extends beyond the gas sector, encompassing the establishment of logistics companies and telecoms. However, it costs five times more in Nigeria than in the United States for a similar project, so why would any investors come to Nigeria? Policymakers need to address and reduce the cost of entry for foreign investors.

5.4.2.4 Security Matters (Finding 4)

All the participants believe that foreign direct investment (FDI) promotes growth only in a politically stable environment, irrespective of the quality of the country's economic policies, and investors in the gas sector are more inclined to support investment in a politically stable environment. In this context, R1 asserted that a stable political environment enables the effective and continuous utilization of FDI, and the assurance of sufficiency only occurs when sound policies align with political stability. Additionally, the inflow of FDI in the gas industry is influenced by the overall geopolitical risk and the uncertainty it brings to business. Furthermore, Bissoon (2012) stated that good governance, as measured by political stability, can provide fiscal regime stability and is more likely to persuade and attract foreign investors. This literature supports and aligns with participants' submissions. According to R2, Nigeria has been relatively stable in the past few years. Beyond image making, the focus should be on addressing the underlying issues, particularly enhancing security, which is fundamental." For R3, the government continues to strive for greater stability in the Niger Delta region, home to gas production. If political stability is unachievable, investors will want to move to more stable areas.

According to participant R5, geopolitical issues such as civil unrest, terrorism, wars, kidnapping, and hostage-taking can disrupt the smooth operation of oil production, distribution, and pricing. In addition, political stability is one of the most critical factors that can influence gas production. Therefore, a stable political system such as democracy, which emphasizes the rotation or transfer of power every four years, not only enhances stability but also significantly and positively impacts gas production. Specifically, R6 holds the belief that insurgency and insecurity can negatively impact gas projects, thereby affecting both investors and the host nation. Most investors typically employ a framework and various combinations to assess the risk and appeal of host communities or nations. Specifically, R10 recommended conducting a framework analysis of the host countries to aid in decision-making. This analysis should also assess the host country's friendliness, and it is preferable to invest in countries where the home country's currency is significantly stronger than the host country. It is also crucial to determine whether the host country will be an attractive or risky place to invest and to ensure the protection of life and property through internal security measures. In line with the insights from other interviewees, participant R12 asserted that societal violence, like assassinations, falls under a broad geopolitical risk category that adversely affects gas project investment, while a stable political system ensures uninterrupted and effective use of FDI. From the literature, politics, and business have always had a relationship, and acknowledging this relationship allows for a better understanding of political risk (Bischoff & Lambrechts, 2010; Somers-Cox 2014). This research is based on the preceding empirical evidence that security issues and geopolitical risks in any form affect FDI in the LNG sector.

5.4.3 Political and Economic Stability

How does the political and economic stability of Nigeria impact foreign direct investment in the LNG sector? (RQ2)

The themes that drive foreign direct investment (FDI) in the LNG sector include the effects of economic issues on the development of the gas sector, the influence of foreign exchange fluctuations, investment decisions in the gas

sector, and the impact of political issues on gas project investment. The factors served as a baseline for assessing the important factors that contributed to the growth of the LNG sector. Furthermore, the respondents' responses led to a compelling conclusion, and the subsequent subsections report the interview's results. This section summarizes the perspectives of the gas sector stakeholders on the empirical data from the evaluated semi-structured interview.

5.4.3.1 Effect of Economic Issues on the Gas Sector (Finding 1)

During the interview, all the interviewees concluded that upfront pricing decisions and long-term volume commitments determine gas sector investments. R1, one of the interviewees, emphasised the importance of weighing the economic risk before deciding to invest in a gas project, and only proceeding if the expected profits significantly outweigh the potential risks. Also, the current energy market conditions in the country are characterized by profitable net margins and growth from gas investment projects. Additionally, fiscal policies assess the bottom line (net profit), tying the resultant profitability and return on investment to the certainty of the underlying fiscal terms. Hogan & Goldsworthy (2010) noted that minerals (other than gas) are a significant source of export earnings and tax revenue. Moreover, the price that consumers pay for natural gas consists of two main components: taxes and fees, and the proportions of these two cost components vary based on the conditions of the natural gas market. Furthermore, the gas business is highly sensitive to gas prices. If you cannot secure a gas price that makes your investment decision commercially attractive, you will not be able to attract finance for your gas projects or assets. Gas prices play a significant role in every gas project opportunity worldwide. Furthermore, an evaluation of the value derived from gas projects is linked to a repeated assessment of establishing the commodity sales price. Additionally, the price of gas plays a crucial role in determining the decision to invest, regardless of whether it's for the domestic market or an export market such as LNG. The direct relationship between supply and demand influences prices, and in the international market, most gas contracts typically have a long-term duration of 10 to 20 years, with the price of gas determined by the demand-supply equation. There is also a market for gas

known as the spot market, where prices are consistently higher than those in long-term contracts. Additionally, contracts lack sanctity, and there are significant uncertainties regarding profitability and investment recovery. If this trend persists, the gas industry will see an increase in investment, which will incentivize investors to align their prices with the demand curve, particularly in the spot market. Furthermore, R11 reported that gas pricing at the consumer level generates revenue and typically serves as the primary policy, control, and mechanism, thereby limiting investment. Additionally, most of the time there is a need for pricing regulation, and by choosing efficiency in the industry, we will naturally now start to regulate pricing. Fiscal policies thus serve as the basis for assessing the bottom line (net profit). In addition, R12 stated that the gas industry's investments are based on long-term volume commitment predictions and upfront pricing decisions. Also, the price of natural gas, whether it is generated on-site, acquired at a market trading centre, or obtained through a contract with marketers and utilities, is a significant factor. Consequently, an assessment of projected bottom-line profitability informs the final investment decision. The stability of the underlying fiscal situation determines the profitability and return on investment, while price volatility or fluctuation typically impacts cash flow estimates and profitability. According to Khan et al. (2020) consistent with R12 viewpoints, there is a direct relationship between investments and the expected value of a company. This is because stakeholders expect investments to boost future cash flows, which in turn increases the firm's value. Furthermore, participant R2 confirmed that natural gas prices in Nigeria were uncertain before the implementation of the Petroleum Industry Act (PIA) and that natural gas pricing is now regulated. Even within the PIA, there are still some grey areas, but the reality is that the pricing framework is considered a major disincentive for upstream investment. Also, pricing risk has significantly decreased post-PIA, but it was a major concern before PIA. Furthermore, the agenda of PIA is to decouple the gas price from any regulatory interference.

Participant R3 declared that pricing is very significant because, after running the economics, it is important to ensure that the costs spent to produce the gas resource, including the cost of getting it to market, are less than the income that

you will derive from it and to make a profit. Also, ensure that the price can carry the costs and can also carry a reasonable profit, and there are still fixed prices for the sale of gas to the domestic market. To help ensure that the domestic gas market is developed, the government came up with what it now calls the Domestic Gas Supply Obligation (DGSO). When you check the pricing for DDG (domestic gas delivery), there are price caps that the government has placed, and those prices are payable in Nigerian Naira currency. But the pricing can also be in USD according to how the government categorises the off-takers whether commercial or in the power industry. This is just an example, and I believe this is one of the reasons why investors have not invested in the Nigerian gas sector in the past. So, pricing plays a major role because in the global scene, there is a notional price that gas is sold for X amount of money but in the local scene, you have the domestic gas supply with the government fixing the price, which forced the oil majors and IOCs to begin to look at other markets and how to develop projects in other places. Additionally, R5 asserted that geopolitical actions hurt production, distribution, and pricing. The current political instability in Ukraine is influencing the price of Russian gas due to sanctions imposed by the Western government on Russia. These sanctions impose a price cap on Russian oil, preventing it from being sold beyond approved levels. This disruption in the supply of gas can lead to a price hike in the global oil market, which in turn affects the profitability of gas companies. Additionally, when gas companies are not profitable, they tend not to invest, which can significantly impact the market through the imposition of new taxes or tariffs. For example, a country's economic stability plays a crucial role in influencing gas production, as a lack of stability can negatively impact foreign direct investments. In addition, economic stability is one of the most critical factors that can influence gas production. When a country's economy is stable, it is more likely to have the financial resources and infrastructure needed to support oil exploration, drilling, and production. If there is economic instability, countries will experience instability, which will create a challenging environment for oil companies as it may lead to political unrest, currency fluctuation, and inflation. These factors can increase production costs, making it difficult for companies to operate profitably. Similarly, socioeconomic instability hinders a company's ability

to generate profits. For instance, high-income inequality can have a significant impact on production, leading to social and economic tensions. High levels of income inequality can also impede a country's overall economic development and potential. The viewpoints of R9 were unmistakable: regulations and taxes impede companies' operations, potentially leading to a decrease in production. The government must knock out taxes in the early years for companies that are investing in the gas sector and provide tax holidays for companies that are bold enough to invest in the country's gas sector.

5.4.3.2 Exchange Rates Effect on FDI (Finding 2)

Exchange rate fluctuations, changes in governmental rules or policies, and the imposition of economic sanctions are a few examples of economic risk. Similarly, economic risk affects global trade and has the potential to have a long-lasting impact on all economic activity. The literature also supports this viewpoint. Specifically, Al-Thaqeb & Algharabali (2019) asserted that in today's interconnected world, the importance of uncertainty in policies about economic decisions is greater than ever. On the issue of foreign currency, R1 stated there is a risk of mismatch, and the level of impact on investment is low for currency exchange rates but high for commodities or volume commitments. So hedging activities against exchange rate fluctuations will prove worthwhile to mitigate that risk. Furthermore, participant R10 asserted that foreign trade policies, specifically trade restrictions, incentivize investors to invest in countries where their home currency is significantly stronger than that of the recipient country. R11 elaborated that they initiated a project with a specific foreign exchange rate, but it doubled over time, and by the time they were repaying their investment, the exchange rate had declined. Because of the exchange rate and all other challenges in the country, the inflow of funds into Nigeria has contracted over the years. In addition, R2 asserted that price fluctuation, volatility in interest rates, foreign currency exchange rates, commodities, and stock prices are very significant. This is a major issue; it is a significant deterrent. Additionally, when sourcing funds, the optimal strategy is to tap into the major global sources of finance, which raises the issue of foreign exchange in such situations. If the commodity is export-

focused, it means that income or revenue will be in dollars. Therefore, the issue of foreign exchange becomes more prominent, leading to increased costs and a higher demand for foreign currency. On this note, R3 claimed that the Nigerian local currency (Naira) has been fluctuating in terms of value compared to other currencies. Converting the Naira to United States dollars (USD), British Pounds Sterling (GBP), or any other currency, and then remitting it along with bank charges, can result in a loss of funds. Additionally, a higher inflationary trend can lead to higher costs for commodities and services. Similarly, participant R5 noted that the Nigerian currency has deflated by almost 300% in the last few years. So, any gas investor who invests in an environment with the current Nigerian exchange rate and inflationary trends will face challenges. Additionally, companies often conduct gas production in countries with different currencies, exposing them to exchange risk fluctuation. Therefore, there is an urgent need to guarantee the free float of the currency to liberalize the exchange rate system. Consistent with R1, R2, R3, R5, R10, and R11 views, Mordi (2006) stated that the goal of instituting an exchange rate policy, which is a component of monetary policy, is to protect the value of the home currency, maintain favourable foreign reserves, and promote price stability in the domestic economy. Accordingly, the results above demonstrated the degree of consistency as well as the impact of volatility and currency rate fluctuations on FDI inflow.

5.4.3.3 Investment Decision Making (Finding 3)

Making a final investment decision (FID) in the gas industry is linked to an assessment of projected bottom-line profitability. Likewise, long-term contracts and associated cash flow projections underpin investment decision-making in the industry. This view of R1 is also supported by Rui et al. (2016), pointing out that cost performance aids in understanding a project's success and identifying its drivers. The predicted project cost is one of the primary factors influencing the FID decision. R1 went further and opined that

“Price fluctuation or volatility typically impacts cash flow projections and profitability. Additionally, energy investments typically have long-term cash flow projections, and the globalisation effect frequently exerts pressure on these decisions. As this trend persists, the gas industry will see a surge in investment, motivating investors to align with the

demand curve. This is due to the direct correlation between supply and demand, which directly influences gas prices. The demand-supply equation, in turn, sets the price of gas, demonstrating that supply and demand significantly influence gas prices. Gas prices are affected by the direct relationship between supply and demand, and the demand-supply equation itself determines the price of gas, indicating that supply and demand do indeed have a significant impact on gas prices. Therefore, the risk of a supply-demand imbalance is substantial; a decrease in demand leads to the emergence of gluts in the gas industry, which in turn drives down prices due to the reduction in supply back”.

According to participant R2, there will come a time when demand and supply will significantly align, despite low consumption. Experts are now advocating for initiatives to prevent this low supply, particularly when the product's cash flow is in local currency, the Nigerian Naira. On the domestic side, most of the gas produced in Nigeria is exported, so if we continue to pursue supply-side enhancement strategies and frameworks, there is a risk of losing out if there isn't commensurate demand domestically. If domestic demand isn't met, any produced gas will be exported. Similarly, participant R11 asserted that Nigeria has an enormous demand for natural gas, which remains unmet. However, this should not be mistaken for a demand risk, as it does not directly impact the market, but rather alters the direction of investment decisions. R3 indicates low demand for gas, like during the pandemic, when it seemed like the economy was slipping into recession. The lack of demand compelled those offering the products to lower their prices. In particular, R5 pointed out that supply and demand dynamics ultimately affect oil prices and profitability. Such factors as global supply and demand have significant contributions that can affect the company's revenue and profitability.

Therefore, supply and demand play a crucial role, especially when the overall supply-demand curve is constantly fluctuating. According to participant R6, during the economic downturn, an oversupply occurred as producers sought to store their products due to a lack of demand, which negatively impacted investment decision-making. So, supply-demand dynamics ultimately affect oil prices and profitability. Participant R7 stated that a decrease in demand can lead

to gluts in the gas business. This was evident during the COVID-19 pandemic in 2020/21, when many industries shut down, resulting in a decrease in demand. The supply-demand relationship is crucial, especially considering how OPEC has been manipulating the oil price by adjusting the demand-supply curve. Furthermore, the process of balancing supply and demand is what drives and determines the price of gas. Clearly, supply plays a significant role in determining gas pricing. In every region, as the industry transitions to gas, there is a gradual increase in gas demand. This means that as the demand for gas increases, it will also follow the demand curve, as the price reflects this profile. A growing demand profile attracts investment to the gas sector, underscoring the importance of securing a gas price that makes investment decisions commercially appealing. In support of this, Kumar et al. (2011) posited there will be significant growth in LNG trading as a result of rising natural gas prices, growing natural gas demand, and decreased production costs for LNG. It is clear from the empirical findings presented above that gas investment decision-making is subject to demand-supply dynamics and prevailing macroeconomic conditions.

5.4 3.4 Effect of Political Issues (Finding 4)

The effects of political issues on FDI in the energy sector and how political risk also increases the cost of production of gas in the country are outlined. Also, Asiedu (2006) stated that big markets or countries rich in natural resources will attract more foreign direct investment (FDI). Similarly, political stability encourages. One of the participants, R1, asserted that political stability is a critical factor before taking advantage of investment opportunities. Correspondingly, political risk assessment is a major criterion for every company, whether an international oil company, an independent company, or a local company. Global trends today indicate that the gas industry is experiencing the impact of political risk. Moreover, internal conflicts can trigger sociopolitical instability, resulting in social unrest, political bloodshed, and the possibility of regime or government change. Another type of political system is dictatorship, often characterized by the suspension of elections and civil liberties, declaration of a state of emergency, rule by decree, and repression of political opponents. Most of the time, foreign

investors with FDI will avoid dictatorship as a form of leadership. Additionally, R3 opined that investors need to be sure of the political climate available in the country, such that it will support the political, legal, and other social-cultural factors. Also, when you look at politics properly in terms of the electioneering process and the political system available in the country, whether it is a democratic system of government or not, and how it impacts operations on the ground, that is very key and important. Additionally, security plays a crucial role, as political instability often complicates investment decision-making. No investor wants to invest in a region where political power struggles are taking place, and operating in a community with political issues becomes even more challenging. Moreover, when there is political restiveness, civil unrest, or riots, are categorised as the first major situations, in which case you cannot hold anyone responsible for failing to perform their obligations when such kinds of situations arise. Similarly, R5 argued that political risk refers to the potential for political upheavals, which can arise from a variety of factors. Political instability, for example, creates a challenging environment for gas companies because it can lead to political unrest, currency fluctuation, and inflation. The current political instability in Ukraine is affecting the price of Russian gas due to sanctions that the Western government has placed on Russia. In fact, political instability in an oil-producing country can disrupt operations and lead to force majeure, a significant concern for companies and investors in the gas industry. Furthermore, the impact of political instability on gas production intensifies when the military becomes involved in political affairs. It makes it harder for the government to develop a long-term plan for the gas industry. Participant R11 stated that political risk is significant and not influenced on a day-to-day basis by politics only but by issues of piracy, terrorists, and all militant groups. What is more, R2 believes that political risk is ranked very high historically by most lenders and investors. On this note, Meldrum (2000) asserted that political risk is the possibility that shifts in social structure, governmental authority, or other non-economic factors will result in changes to political institutions, plus the risk of expropriation and the possibility of internal and external conflicts. Additionally, the growth of the energy sector hinges on political leadership, where the government must demonstrate its

commitment by establishing institutions that are solely responsible for pursuing this objective. Literature also reveals that primary energy supply, long-term economic growth, and development are strongly and amply correlated, and politics plays a big part in the energy-industry nexus (Moe 2010). This comes from leadership. Additionally, R1 stated that the government initiated a significant investment program to enhance the capacity of the energy sector, recognizing that jurisdictions with dictatorial and theocratic leadership typically do not attract foreign direct investment (FDI) due to the lack of contract sanctity. In the submission of participant R2, investors want high-level political assurance before investing in the country and a strong commitment to developing the gas sector. Additionally, there should be a political commitment from one administration to the next regarding gas projects and policies to ensure continuity. Once the government commits to the project and pledges to nurture and protect it in the long run, it provides significant assurance to potential investors, particularly those from abroad. Participant R11 believes that effective leadership plays a crucial role, which is why every election cycle sparks a fervor for candidates to win. Furthermore, the government's intervention in the energy sector aims to enhance the overall welfare of the populace. It will also foster political cohesion among Nigeria's diverse groups, interests, and stakeholders. These are some of the necessary interventions and initiatives the government is pursuing.

5.4.4 Policies, Legislation, and Regulations

What role do government policies, legislation, and regulations play in attracting or deterring foreign direct investment in the Nigerian LNG sector? (RQ3)

Themes are created from the factors driving FDI in the LNG industry. Legislation and regulation oversight functions, policy drive, governance effect, and financial issues served as the foundation for evaluating the significant factors that facilitated the LNG industry's growth. Additionally, the responses from the respondents led to a robust conclusion, which is summarized in the following subsections based on the findings from the interviews. This subsection summarizes the perspectives of the gas industry stakeholders on the empirical data from the evaluated semi-structured interview, encompassing the

governance impact, investment concerns, policy motivation, laws, and regulations.

5.4.4.1 Governance Effect (Findings 1)

The effect of good governance on the inflow of FDI into the LNG sector in Nigeria is explained here. Also, the government is doing its best, and it is only a matter of time before the benefits begin to materialise. The PIA, signed into law by the government, provides a clearer fiscal framework and licensing regime for upstream gas development in the country. On a positive note, government has been involved in one way or another in financing the development of certain sectors indirectly, especially gas project development, with investment funds allocated for the industry recently. In contrast, what the government has done in Nigeria is to form bodies and then leave overlaps in other areas, which creates confusion. Leadership plays a crucial role in creating an entity, such as a regulatory agency, that is free from political influence and possesses the authority to eliminate bureaucratic obstacles, thereby enhancing its efficiency. Participant R3 highlighted that the political outlook for gas is now assured due to the government's unwavering commitment and ongoing efforts to promote stability in the Niger Delta region. Furthermore, in the gas sector, safety holds paramount importance, encompassing the well-being of individuals, the security of facilities, and the safety of the resources under production. Nobody wants to go into a place that is unsafe to operate; it is a huge responsibility of the government to keep everyone safe. The government's efforts in this regard are starting to restore investor confidence in the region. Consequently, politics in any environment will have an impact on investors, as they seek assurances that the government will support their investments. Participant R4 expressed that there is a connection between investors and the Nigerian government, and the key question on every investor's mind is the type of support the government offers. Undoubtedly, the political will or deep political decision of the moment takes precedence. However, R5 reveals.

"if the government changes policies or the fiscal framework abruptly, or if there are political undertones, it will undoubtedly impact the expectations of investors

and lead to a lack of trust between the government and international oil companies. Additionally, the government should simplify the process for individuals to obtain oil licenses”.

Building on the submission of R3, participant R6 also stated that government should institute measures that safeguard people and their property, preserve public safety because safety is crucial, and prevent the destruction of lives and property. Moreover, there should be less bureaucratic red tape, especially when it comes to the credibility and integrity of government officials. Additionally, the government has committed to addressing issues related to the rule of law and the existing law and order in the country. Finally, participant R9 concluded by stating that the government must institute the necessary taxes and laws to regulate the interactions with investors. Clear laws and policies explicitly state legislations and regulations, and a clear understanding of the permits and approvals investors require is crucial, especially when other factors such as government bureaucracy cause delays in license and permit issuance. It can be assumed from the empirical findings above, that the governance effect as a factor driving FDI is quite significant and far-reaching.

5.4.4 2 Policy Drive of Government (Finding 2)

The government policy drive and impact on FDI inflow into the LNG sector are explained. Participant R1 claimed that FDI is ineffective in an unstable environment, even in the presence of good policies. Similarly, despite good policies, an uncertain climate, and an unstable economic environment make FDI inefficient. Moreover, FDI is more likely to be dissipated for wasteful consumption rather than invested, even in the presence of favourable policies. R1 provided additional support by asserting that the country's government fails to implement the sound policies it has developed. Additionally, it can also be deduced from the views of all the participants that government policy is very important and works best in a very stable economic environment. Even R10 explicitly mentioned that.

“The policy framework must be friendly and win-win for both the investor and the host country. Also, one key factor in this FDI decision is considering backward and forward integration and how they will affect the strategy. In addition, there is

an existing policy framework in the country; therefore, the subsequent framework should not be far away from the already established ones”.

In support, R11 pointed out that most gas projects have occurred despite extremely bad policies, not because of good ones. The viewpoint of R11 suggests that while government policies are crucial, economic stability plays a more significant role in attracting foreign direct investment into the LNG sector

For instance, R11 stated that.

"There should be an articulated policy roadmap. Additionally, policymakers must address and reduce the cost of entry for gas players. Furthermore, policy for the gas sector cannot be made in isolation from the electricity sector. The policy must be comprehensive and inseparable. The primary objective is to establish an energy policy that is both effective and sustainable. Moreover, Nigeria is mired in such a complex situation that we have struggled to formulate a coherent energy policy. For example, price control and interventionist policies in the country are implemented as short-term solutions, yet these can persist for years without accomplishing their intended goals”.

Closely related to the views of participant R1, participant R2 noted that Nigeria has made significant progress in this area, particularly with the enactment of the national gas policy in 2021. The acts of Parliament encode most of the frameworks that govern activities within the gas space. They are not mere policies that anyone can discard. Additionally, a firm political commitment from one administration to another on certain projects and policies provides potential investors with sufficient assurance from the government and political backing. Furthermore, the implementation of policies would not necessarily be limited or affected by policy flip-flops and administration changes.

To illustrate further, R2 stated that.

“It's the government's responsibility to make sure that the right kind of policies are in place to limit economic shock. The government launched the Gas Transportation Network Code (GTNC) to achieve the objective, of providing a streamlined fiscal and operational framework for third-party use or access to

natural gas infrastructure in Nigeria. Currently, there are good policies and laws in place; the major issue is the governance and implementation of those laws. Additionally, a key objective of the policy framework for gas sector development is the diversification and industrialization of Nigeria through the use of natural gas. Therefore, a broader policy standard for the sector is necessary, and the infrastructure, regulatory, and policy aspects will reap the rewards”.

Participant R3 articulated clearly that investors must comprehend the environment in which they intend to operate and utilize the policy's culture to conform to globally acceptable standards. Every investor should consider this crucial point, ensuring that the jurisdiction in which they are investing has robust policies and high compliance rates before investing their money. Also, government vigorously pursued the indigenisation policy, along with other policies such as anti-corruption, disclosure, compliance, and ethics. The overall objective will be achieved by crafting these regulations and policies, finalizing them, gazetting them, and then publishing them, which will lead to increased compliance in the gas industry. According to participant R6, a critical examination of policies impacts both investors and the host nation. Furthermore, the framework of most of the host countries will help in terms of making decisions by the investors, because the framework is used to determine the risk as well as the attractiveness of any host communities or any host countries. Such policies will also attract more investors and ensure their comfort.

5.4.4.3 Legislation & Regulations

This subsection clarifies the impact of policies, legislation, and regulations on FDI in the LNG sector. Participant R1 stated that the country's current energy market conditions are characterised by weak regulatory frameworks. Iwayemi (2008) also buttressed this point of view, stating that the Nigerian energy sector is arguably among the least effective in the world at satisfying the demands of its consumers. The ongoing disequilibrium in the markets for power and petroleum products is the clearest example of this. The population's living standards have suffered due to poor delivery of energy services, which has also made income inequality and energy poverty worse. Participant R5's perspectives were

consistent with those stated by R1 and the literature. Regulations and taxation make it harder for companies to operate, potentially reducing their production. It is a fact that Nigeria needs to modify the laws and regulations governing the gas industry. This may involve implementing robust internal controls and due diligence procedures to ensure compliance with anti-corruption laws and regulations. Rewriting some of the laws governing the gas sector, including government policies and regulations, is one of the things governments need to do. In some cases, frequent changes in government policies or regulations may hinder the regulators' ability to function effectively. This could potentially result in regulatory captures, where government officials and regulators collaborate with the operating company to safeguard their interests. This collusion can result in lax regulation and enforcement, potentially causing elemental damage and other negative impacts on production activities. According to participant R6, the laxity of the legal framework and regulations can lead to risky investments. Therefore, the implementation of the agreed-upon legal framework can provide an investor with the impetus to invest, provided that regulations such as labor regulations and legal frameworks become a solid legal structure that can be tweaked and made more effective. Participant R7 expressed the opinion that Nigeria's multiple regulatory zones, including the Nigerian Upstream Petroleum Regulatory Commission (NUPRC), the Nigerian Content Development and Monitoring Board (NCDMB), and the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), can present challenges. Post-PIA, industry stakeholders have been urging the government to streamline all these regulatory agencies, as the regulatory requirements often result in increased costs rather than the regulations themselves. Participant R8 believes that the most significant accomplishment in the industry is the recent enactment of the Petroleum Industry Act (PIA) 2021, a crucial policy. The PIA offers a more lucid fiscal structure and licensing system for upstream gas development, and it is evident that the ongoing implementation of the Petroleum Industry Act 2021 requires proper execution. Additionally, the PIA provides a fund for upstream and downstream gas infrastructure. These factors collectively constitute the most critical aspects of policy and regulation. Furthermore, natural gas prices in Nigeria were unclear

before the PIA; even within the PIA, there are still some grey areas. R9 believes that the laws and regulations governing the gas sector in Nigeria aren't very clear. Additionally, recent news indicates that NUPRC, the upstream regulatory agency in the gas sector, has released several regulations. These regulations include those related to gas flaring, which aims to compel producers to convert their flat gas reserves into value, and others that mandate companies to produce reasonably from their facilities. Certain regulations imposed by the government have not been well received by some investors. Additionally, the challenge investors face with regulatory agencies is establishing a proper interface that triggers the necessary measures to ensure companies meet all statutory and regulatory obligations.

5.4.5 Effect of Infrastructural Development

How does infrastructural development in Nigeria affect foreign direct investment in the LNG sector? (RQ4)

This section summarises the participants' opinions regarding the impact of infrastructure development in Nigeria on foreign direct investment in the LNG industry. The findings below capture the effect of infrastructure development on FDI in the LNG sector. Furthermore, the empirical data shows that the host nation's availability of the necessary infrastructure positively impacts FDI inflow (Haile et al. 2006)

5.4.5.1 Infrastructure Development Matters (Finding 1)

The relevance of infrastructure development to the inflow of FDI into the LNG sector is analysed. One of the participants R8, asserted that the PIA provides a fund for upstream and downstream gas infrastructure. If the plan and ongoing projects remain intact, infrastructure development appears promising. According to R2, the government has approved a 250-billion-naira gas sector intervention fund, which aims to lower the risk associated with gas-based infrastructure projects. R2 illustrated further,

“The gas transportation network code was launched, which is designed to provide a streamlined fiscal and operational framework for third-party use or access to

natural gas infrastructure in Nigeria, including the provision of infrastructure for the critical distribution of natural gas locally. Completing them will yield immediate benefits, both in terms of infrastructure and regulatory or policy aspects”.

Participant R5 believes that the government should prioritise investments in infrastructure, specifically those necessary to support gas exploration, drilling, and production. Additionally, the fixed costs associated with infrastructure represent a significant investment and are primarily the responsibility of the government. Furthermore, R5 highlighted

“Conflicts can lead to the destruction of oil infrastructure, including pipelines and storage facilities, which in turn can impact production. It is so difficult to even construct infrastructure that would transport equipment to those fields in some regions; some of these hazardous environments can damage the infrastructural structure and potentially cause environmental damage”. In its view, R12 asserted that inadequate infrastructure characterises current energy market conditions in the country, and ensuring that the requisite infrastructure is available by the government must be an urgent priority.

5.4.5.2 Pipeline and Distribution (Finding 2)

The importance of pipeline and distribution networks is highlighted in this section, and the perspectives of the respondents are shared below on how they affect FDI in the LNG sector. Moreover, participant R11 stated that there is a tendency for a monopoly in terms of distribution and transmission in terms of the efficiency of the delivery of gas projects at the distribution level. The costs associated with moving natural gas by pipeline from its point of production are quite high for the producer to produce and send gas to the domestic market in Nigeria. Participant R2 buttressed.

“That the farther mainstream plant is from the upstream asset, then the more complicated that decision is because the risk of transmission from point A to point B needs to be considered. Also important to bring into perspective is the distance between the source of the gas and the proposed plant. Moreover, it's very rampant within the sector, as the distribution companies are unable to collect revenues because of poor metering and the provision of infrastructure for the

critical distribution of natural gas locally. The gas resource availability is secured, but how reliably can it be delivered to end users?”

At the end of it all, the producer will have to bear the cost of delivering the gas to the purchaser. So, there was concern as to whether the seller or the producer would now have to bear the cost of delivery of the gas. It can be deduced from R5 viewpoints that

“When geopolitical issues happen, they affect the smooth operation of oil production, distribution, and pricing. Equally, conflict in transit countries such as those along the key shipping routes or pipeline networks can lead to the destruction of oil infrastructure such as pipelines and storage facilities, and the repair of infrastructure including pipeline storage and distribution facilities, comes at a significant cost”.

5.4.5.3 Transportation Issues (Finding 3)

Participants analyse transportation issues and share their perspectives on how they impact foreign direct investment in the LNG sector below. Participant R11 stated

“Transporting natural gas by pipeline from its production or storage location to local natural gas distribution utilities incurs significant costs. Additionally, the government should ensure the forward development of gas transport rights at the transportation level because most of the investments that are coming in are presently at the storage level”.

The literature also supports this, stating that bottlenecks in the sector, such as insufficient utilisation, high-cost outlay, pricing, distribution, transportation, and storage issues, result in a low impact of natural gas on the economy (Urhoromu et al. 2022). Participant R3 asserted that gas, unlike crude oil, is difficult to store. Once produced from the ground, gas products are difficult to store and transmit to the end-user, necessitating a temporary halt in gas production. In contrast, crude oil can be easily produced, stored, and wells can be easily shut down. Furthermore, R3 offered,

“The buyer will need to enter into the requisite transportation agreements to get the gas to their location. Also, there are quite significant challenges in Nigeria's transportation lines. The Forcados pipeline transfers petroleum products from the Western axis to the export point”.

The proposed expansion of the Escravos Lagos pipeline also anticipates the construction of three gas pipelines and a few others, which will alleviate the issue of product transportation. Furthermore, the expenses incurred in transporting natural gas via pipeline from its production or storage location to local distribution points, as well as the cost of delivering it to customers, are substantial. When investing in the domestic market, how do you move the produced gas from point A to point B? This is where an efficient transporting network comes into play. Furthermore, R5 submitted.

“Conflicts can destroy oil infrastructure, including pipelines and storage facilities, particularly when it becomes impossible to offload products due to the capacity of the storage facility. During the 2020 COVID-19 pandemic, there was a significant exodus of producers seeking storage facilities, resulting in disruptions to transportation, transmission, and distribution”.

5.4.6 Challenges & Risk

What are the challenges and risks associated with foreign direct investment in the Nigerian LNG sector? (RQ5)

Challenges and risks associated with FDI in the LNG sector in the country are outlined in this segment. In addition, challenges in domestic pricing, infrastructure, funding, regulations, and security conditions in the primary gas supply source, the Niger Delta region, have severely hampered the much-needed gains anticipated from natural gas (Agbonifo 2015). The excerpt from the interviewees' perspectives identifies the inherent risks and challenges associated with the inflow of FDI into the LNG sector in the country.

5.4.6.1 Enabling Environment

Specifically, R1 asserted that regime or government change has implications for introducing uncertainties in government policies, and FDI is ineffective in an

unstable environment even in the presence of favourable policies. R1 indicated that,

“Even with effective policies, an unstable economic environment and uncertain climate render FDI inefficient. Equally, with a high level of uncertainty, investments, whether domestic or international, become quite difficult”.

Moreover, internal conflicts can trigger sociopolitical instability, resulting in social unrest and political violence. Similarly, both internal and external conflicts, such as international wars, can influence any gas investment project, heightening economic uncertainty. R1 averred

“Conflict or civil war adds uncertainty, which investors for any gas investment project aim to avoid from a risk management perspective”. Additionally, ethnic conflicts pose a significant risk of investment loss due to the breakdown of law and order, which can disrupt positive business forecasts and alter the entire business environment”.

Furthermore, corruption creates a hostile environment for investors due to the absence of contract sanctity and the huge uncertainties around profitability and investment recovery. Similarly, the high cost of security due to insurance premiums is one of the primary issues Nigeria faces in comparison to other parts of the world. Because of the distinctive features of our country's portfolio, we invest in security due to enormous risk exposures and uncertainty in the investment climate. Participant R2 reinforced that security risks have become even higher over the last eight years. The persistent presence of militancy in the Niger Delta has always been a cause for concern. However, the real issue lies in addressing the enhancement of security in the country, rather than focusing solely on image-making. However, R2 reveals.

“Security risk is high and a major concern, but despite these potential security threats, gas operators have found a way to operate in Nigeria despite the limitations. Therefore, potential investors are advised to examine the activities, achievements, and footprints of those who have already established themselves in the country”.

Participant R3 submitted that the Niger Delta was experiencing significant unrest due to many ongoing issues. Most of the time, the cost of security is extremely high, adding unanticipated costs to operations. Therefore, it's crucial to establish a provision for miscellaneous costs and deploy government security forces to safeguard the lives and property of operating firms, thereby reducing expenses. In an environment of political instability, security plays a crucial role. The gas production in Iraq and Libya has faced significant challenges. As a result, it becomes more difficult to decide, and it becomes very difficult for an investor to invest in such environments. In addition, participant R5 reckons.

"Internal conflicts significantly impact gas projects and deter foreign investments in the gas industry. Investing in an unstable environment without a guarantee of a smooth operating environment is highly improbable".

Equally important, the threat of violence can pose a significant challenge to safe operations. In the absence of security, the kidnapping of expatriates could potentially cause delays or shutdowns. Consequently, companies will need to spend more on security measures. Once internal conflict starts in any host country, countries like the United States, the United Kingdom, mainland Europe, and so on will evacuate their citizens in the affected areas. Similarly, the conflict causes disruption to operations, which in turn leads to a decline in productivity. Also, protests can trigger strikes, which in turn can lead to disorder, civil unrest, operational destruction, security risks, and political instability. However, participant R11 discloses.

"When security issues arise in any environment, it becomes challenging for the energy industry to prosper. No investor would be willing to spend three times more to generate the same amount of revenue in a global context. Therefore, if there is insecurity, no investor will want to invest in such zones. Consequently, the primary concern about conflict is its impact on investment."

R12 specifically mentioned that an unstable political climate can lead to the dissipation of foreign direct investment (FDI) in unproductive consumption, and a high level of uncertainty can pose a significant challenge when sourcing investment funds, whether domestically or abroad. Furthermore, conflict not only

heightens economic uncertainty but also significantly increases the risk of investment loss and disrupts the entire business environment.

5.4.6.2 Energy Supply (Finding 2)

Some texts in the literature support this submission, stating that ensuring energy supply security is a fundamental component of energy policy. It intimately links both macroeconomic and microeconomic processes. Additionally, the balance of payments, taxation, subsidies, and the earnings or expenses of state-owned companies significantly influence the state budget. Furthermore, the cost of energy has a significant impact on both the rate of inflation and a nation's economy's ability to compete internationally (Correlje & van der Linde 2006; Jones & Babiker 2004). Additionally, participant R1 claimed that.

“In Nigeria, energy poverty is pervasive; over 85 million people, or 60% of the population, lack access to energy services; less than 20% of rural areas have access to electricity supply; and per-capita electricity usage is roughly 100 kWh. However, the government has initiated a significant investment program to enhance the capacity of the electricity supply sector”.

Also, when it comes to investment, gas is a little bit different from oil in that long-term contracts and supply agreements are required. Equally, the direct relationship between supply and demand, which determines the price of gas through the demand-supply equation, also significantly influences gas prices. Therefore, the risk of a supply-demand imbalance is enormous. As demand decreases, the reduction in supply also leads to a drop in gas prices. Similarly, participant R2 asserted.

“Most of the power plants don't get enough gas supply, and the ones received have unfulfilled payment obligations. Additionally, the decision becomes more complex the farther the mainstream plant is from the upstream asset, as you must now consider the risk of transmission from point A to point B”.

Furthermore, the government aims to maintain supply incentives for the power sector by maintaining low prices, a strategy that deters most gas suppliers from

providing gas. One other thing is supply reliability, and these two considerations are tied to the operator's reputation and nature. Nonetheless, R2 argued further.

“If you persist in implementing supply-side enhancement strategies and frameworks, you run the risk of losing out if domestic demand doesn't match supply. It's crucial to reach a point where demand and supply significantly align, allowing the dynamics of demand-supply within the liberal market to determine pricing”

In particular, R5 supposes that disruption to the supply of gas leads to a price spike in the global oil market. Therefore, supply and demand dynamics ultimately affect gas prices and profitability. Furthermore, supply and demand play a crucial role in overall supply-demand fluctuations, as a surplus in supply leads to a decrease in price.

5.4.6.3 Investment Barriers (Finding 3)

The primary obstacle to FDI inflow into Nigeria's LNG sector is the impact of investment barriers. The literature also reveals that several factors prevent foreign direct investment from flowing into an economy, including the macroeconomic environment, political environment, regulatory environment, infrastructure, and globalisation effect (Aveh & Krah 2013). This view is closely related to that of participant R1, as captured thus.

“Major barriers have been confronting the development of the gas sector in Nigeria, with some sound policies developed by the government not being implemented. Also, a lack of well-established standards and quality control for locally produced and imported technologies is a significant barrier to Nigeria's gas business growth. Another barrier is the impact of corruption, which can act as a tax on investment income. It not only lowers the quality of investments but also diverts resources from their intended use into payoffs, thereby impeding the growth of an organisation. Moreover, the corrupt tendencies of a person in a position of responsibility will impact gas investment projects, diverting funds earmarked for the investment for personal benefit, likely resulting in delays in project delivery”.

In extreme cases, such projects will fail, which can trigger litigation because of the inability to meet vendor payments due to low project financial performance. Also, extended litigation issues arise from failed contracts with a 100% absence of sanctity of contracts, resulting in huge financial losses introduced due to the absence of sanctity of contracts. In addition, economic risks are often the most difficult to foresee. Equally, consider the economic risk before proceeding with a gas project investment, and only proceed if the likely profits significantly outweigh the potential risks. Additionally, larger gas projects and longer completion times increase the risk that the project will not repay itself. However, if the economic risk mentioned above increases, the gas project investment may not be realised. Additionally, economic risk affects global trade and has the potential to have a long-lasting impact on both the host government and the investor. R3 stated further.

“During a political or economic crisis, it becomes challenging to function, and during this period, the drafting of agreements often incorporates force majeure events into the process. In such cases and conditions, investors reflect further and ask whether this is a good time to invest. Is this a favorable time to embark on the project, and is this a suitable location for its implementation? To illustrate further, during the conflict and challenges posed by armed militants in the Niger Delta region, companies divested from their onshore assets and moved further offshore because of insecurity. In addition, companies that acquire onshore assets need to find ways to work with all the parties to ensure that there is relative peace for them to continue to operate. This is crucial as it will significantly influence both the overall project and its cost. Similarly, most operators attempt to handle these issues by implementing community-based contracts, which are beneficial as they shield the company from bureaucratic obstacles and potential threats from the host community”.

Additionally, participant R3 asserted that foreign currency sources the funds for gas investments in Nigeria, which are based on the United States Dollar (USD). Therefore, paying for materials, equipment, and services in dollars makes it challenging to fund the investment in local currency (Nigerian Naira). In close relation to R3's perspective, participant R2 highlighted that securing local capital

or funding can be challenging. Despite employing club-style approaches for capital injection and funding, the overall ability to source funds locally from Nigerian banks and financial institutions is restricted. Thus, the funding risk is high. According to participant R5,

"It is evident that a country's unstable economy will affect foreign direct investments, which will undoubtedly have a significant effect on project development. This not only affects production but also potentially discourages investment, making it more difficult for companies to finance exploration and production activities".

Furthermore, economic risks can significantly impact the production of gas. Also, operating at a loss ultimately leads to project failure. For instance, when the economic crisis compels expatriates to depart, it results in production delays and shortfalls. It does reduce investment, and this misallocation of financial resources can limit the growth of the gas industry, potentially reducing the country's long-term production and thereby reducing investment in the sector.

Participant R11 opined, *"If there is no articulated policy roadmap, an investor can surmise that this is one environment, even if you are committed for another 10 years, nothing will be achieved. Some long-term projects (Olokola LNG, Brass LNG, Escravos GTL, etc.) in Nigeria, which were conceived for a long time, could never get off the ground because the projects could not attract the needed finance. Meanwhile, identical projects meant to take off two years later than our own in Nigeria have been operating for over 20 years, whereas ours hasn't gotten off the ground".*

It is extremely challenging to get projects off the ground in Nigeria, plus the amount of work that has to go into developing projects. An example was a project conceptualised for the last five years; the development is at the initial stage, which is huge for an individual and also a small company in the grand scheme of the quantum of funds required. So, if there are financing or banking issues, what it then does is cap investment, leading to project execution delays that are outside the control of operators, and investors will hold back on investments. It is important to note that the outlook for gas project investment is so long, big, and

massive that projects take longer to execute. Also, the projected funds that could complete the project would only achieve less than half of the project coupled with the threat of cost escalation.

5.4.6.4 Risk-Related Matters (Finding 4)

When it comes to the inflow of FDI into the LNG sector, risk management plays a crucial role. From the literature, Van Wyk & Lal (2008) assert that while institutional development and strong macroeconomic conditions create opportunities and draw investments to developing nations, they also expose investors to a range of risks. On this note, participant R1 believed.

“Conflict or civil war adds uncertainty, which investors for any gas investment project want to avoid from a risk management standpoint.”

Due to the enormous risk exposures and uncertainty in the investment climate, economic risk can be mitigated by investing in insurance, and hedging activities against exchange rate fluctuation, which will prove worthwhile to mitigate the risk. Furthermore, participant R2 asserted.

“International instruments like the World Bank Multilateral Investment Guarantee Agency (MIGA) can be used to mitigate risk by shielding assets from non-commercial risks and facilitating investors' access to funding sources with better terms.”

Consistent with the opinions stated by R2, Baroudi (2017) claimed that cash flow trends and donor community agendas are creating a climate in which MIGA's significance to corporate and public sector players is growing. Also, investors' and donor countries' increased understanding of the advantages of investment insurance and guarantees over more traditional kinds of financial assistance is another driver of change. In addition, participant R3 believes.

“The gas industry is a high-risk, high-reward sector, not suitable for individuals with a low-risk tolerance, and not every investor possesses the willingness to undertake that level of risk.”

Participant R5 expressed the opinion that *“a variety of factors can give rise to risk, underscoring the importance for oil companies and the government to evaluate the potential risks and opportunities associated with these factors. They must also carefully consider mitigating these potential risks, as doing so can limit available resources.”* Furthermore, R4 highlighted that projects incorporate risk mitigation to lessen both the execution-phase risk and the operational-phase risk. According to participant R6, *“it is necessary to incorporate risk-mitigating factors, develop a specific risk profile for each project, and effectively manage the risk, particularly for smaller projects”*. Also, R9 stated that every company must develop its strategy to manage the risk, and it has a broader impact on everyone. Furthermore, participant R11 elaborated on the scope of R9's opinion, stating that there is no risk mitigation in place, it is simply a decision, and that integrated thinking and planning are even more important in Nigeria than they are anywhere else. Operational and political risks exist in Nigeria. Therefore, a compendium analysis of risk, whether social, financial, or political, identifies Nigeria as a high-risk destination, implying that lower risk equates to lower returns. From a risk management perspective, investors typically avoid Nigeria for any gas investment project due to its high-risk exposures and unpredictable investment climate. Foreign investors with FDI typically avoid environments fraught with insecurities and conflicts. Additionally, the absence of contract sanctity increases the risk of not recovering an investment. Also, R12 reveals.

“Investment always carries a certain level of risk, and it will only proceed if the likely benefits significantly outweigh the potential risks. Another risk arises when the projected profits from the gas project investment fail to cover the costs, thereby leaving the company in debt. Additionally, the risk of the project not repaying itself increases as the project's size increases”.

5.4.6.5 Technology & Innovation (Finding 5)

Further advances in new technologies can lead to changes in demand for oil. Kinoshita et al. (2000) supported this idea by stating that FDI, which can transfer intangible assets like management skills through other channels, is one of the best ways to transfer technology. Similarly, participant R1 stated that the

globalisation effect of technology frequently pressures energy investment decisions. *The viewpoint of R5 also aligned with the claim made in R1's submission.*

“As a result of technological advancements, the level of geological risk associated with gas projects has significantly decreased. For instance, horizontal well drilling has emerged as an innovative method of gas drilling.”

Over time, technological advancements have alleviated the issue of increasing production, and addressing price risk can be achieved through technological advancements that lower personnel and machinery costs. Similarly, the most effective approach for host nations and investors is to implement policies that prioritize research and development. If you don't engage in this process, don't focus on replacing humans with technology, or continue to use outdated technology for production, it can significantly affect the entire operation. Equally, the lack of well-established standards and quality control for locally produced and imported technologies is a significant barrier to Nigeria's gas business growth. Therefore, there must be an improvement in the quality of research and development on energy projects to reduce procurement and construction costs and meet long-term energy investment goals. Also, R9 suggests that investors should first determine the technical feasibility of the project before proceeding with the commercials.

So, there must be an improvement in the quality of research and development on energy projects to reduce procurement and construction costs and meet long-term energy investment goals. In the submission made by R9, investors need to ascertain how technically feasible the project is before going into the commercials. *According to R9, “if the implementation of technical solutions takes four or five years, it could significantly influence investment decisions and necessitate the importation of technology for project construction”*

5.4.7 Enhancing Attractiveness

How can Nigeria enhance its attractiveness for foreign direct investment in the LNG sector? (RQ6)

Multinational corporations with enormous funds and cutting-edge technology rely on the oil, gas, and refinery industries. Foreign Direct Investment (FDI) serves as the primary avenue for expansion strategy in these industries, boosting petrochemical and other exports. There is also fierce competition among countries around the world for export-oriented FDI (Gawad & Muramalla 2013). This segment developed several themes, including energy-related, value-added, investment-friendly, safety-related, and skills-related concerns.

5.4.7.1 Energy-Related Issues (Finding 1)

Participant R2 expressed that *“the government aims to maintain low prices in the power sector and in the petrochemicals sector, where the \$1.5 billion Indorama Eleme petrochemical project is set to commence production of polyolefins, ammonia, urea, and methanol.”* Most of the mainstream projects are conventional-sized gas utilisation projects, typically with a life cycle of 20-25 years, and are particularly focused on the supply of natural gas to the power sector. Despite a significant concern, the majority of Nigeria's GENCOS, as we refer to them, have submitted gas applications, some of which remain unpaid, or at least not promptly. Participant R1 went further in support of the submission by R2.

“In Nigeria, families are using gas as a source of energy for various needs, with a per-capita consumption of approximately 100 kWh from gas. Additionally, manufacturing facilities utilize natural gas for captive power generation or production.” Participant 7 asserted that *“Nigeria maintains a diverse range of gas contracts within its portfolio, supplying gas to power industries and independent power projects (IPP). The Niger Delta Power Holding Company (NDPHC) procures gas power, while the Lekki Free Trade Zone (LFTZ) fertilizer plant and petrochemical plants run on gas”* Currently, the country's power plants are transitioning from diesel to HPO2 gas, and gas powers homes”.

Furthermore, R11's views align with the earlier submission of participant R7, which shifted its focus from the industrialization issue to the concept of pure existence. "Gas serves as the primary energy source for food processing, cooking, electricity production, power projects, industrial use of gas, and

petrochemical industries that utilize gas for plastics, urea, and chemicals, ensuring its survival”.

5.4.7.2 Investment Friendly (Finding 2)

On this note, Nnadozie and Njuguna (2011) believe that private sector growth, which is the driver of economic growth, depends on a positive business environment. Closely related to this viewpoint, R1 claimed that Nigeria offers appealing investment potential in many industries, including gas. Additionally, upfront pricing determinations and long-term projections on volume commitments primarily influence gas sector investments. Additionally, energy investments typically have long-term cash flow projections, and the resulting profitability and return on investment are dependent on the certainty of the underlying fiscal terms. Also, the gas business is highly sensitive to gas prices. If you cannot secure a gas price that makes your investment decision commercially attractive, you will struggle to attract finance for your gas projects or gas assets.

Similarly, gas prices are a major factor in every investment in a gas project or opportunity anywhere in the world, much like all oil industry prices. If the pricing doesn't correspond to that profile, there will be no investment. When it comes to investment, gas is a little bit different from oil in that long-term contracts and supply agreements are required. Moreover, even in the presence of favourable policies, FDI is more likely to dissipate in wasteful consumption rather than investment, given the absence of contract sanctity and the significant uncertainties surrounding profitability and investment recovery. Furthermore, a significant advantage of gas over oil is the inability to alter a long-term agreement daily once established. Therefore, long-term agreements typically come with lower costs and long-term guarantees. As this trend continues, more investment will flow into the gas industry, which will encourage investors to match the demand curve since prices are also following it. This is closely related to the viewpoint expressed by participant R1, as highlighted by participant R2.

“The gas industry is characterised by significant capital expenditure and outlay. In the last 20 years, the country has sanctioned projects with significant capital requirements. Similarly, Smart financing structures, originating from the public

sector, are crucial for the development of the gas sector. A while ago, the Central Bank established a fund specifically for the development of the gas sector, offering incentives for its growth”.

R2 also stated that smart financing significantly influences investment in gas projects. During the same period, Nigeria Liquefied Natural Gas (NLNG) constructed the majority of its trains and increased its production capacity through capital injection and investment. Moreover, we need to intensify investment in gas and energy-related projects to enhance the living standards of Nigerians. Most people struggle to make ends meet due to the low standard of living, which in turn restricts the flow of capital into the country. Some of the news that comes out of the country will deter investors. Moreover, participant R3 reveals that being *“able to recoup the projected returns on investment in the gas industry and able to avoid losses, attracts investors from any jurisdiction. These factors will not only encourage investors but also drive the country's development, leading to further advancements in gas investments and development in Nigeria”.*

R4 perspective indicates that.

"Companies investing in Nigeria typically participate in each oil field under a production sharing contract (PSC) or joint venture (JV). There are some agreed-sharing formulas between the multiple parties in that framework, which determine the type of return on investment for the investor. They also ensure that they are attractive to the investor compared to other potentially competing investment environments, to maximise the benefit from the entire agreement."

Participant R5 highlighted that when gas companies don't generate a profit, they tend to limit their investments. This is because gas production necessitates significant investment and large amounts of capital. Similarly, when gas assets are owned by the people, they tend to gather money, attract investments, and protect them. This increases production without the government owning a single well, allowing foreign investors to invest. Participant R6 further affirms the assertion of participant R4 above.

“A few questions arose: what motivates investors to invest in foreign direct investment, how can we boost investment in the downstream sector, and what crucial factors influence foreign direct investment? Additionally, determine whether the host country will be an attractive destination for investment, as attracting and retaining investment are not synonymous”.

The perspective of R7 differed significantly, asserting that *“investing is unfeasible if geology prevents the discovery of large gas reserves. The question then arises, how large the accumulation will be to justify the significant capital expenditure required for investment, and how all this translate into an economic return on investment, regardless of whether the gas is sold into the domestic market or an export market through LNG”*. Participant R9's viewpoint aligns with that of participant R4.

“Proper negotiation of financing agreements is necessary to ensure a reasonable return on investment and profit by year 10. The investment would have recouped reasonably and profit made. Also, the government stands to recoup reasonable income from the gas sector by encouraging investments in terms of making the process clearer and also providing some kind of incentive like pioneer status for investors that are investing in the gas sector so that they will be able to recoup reasonably on their investment. We hope that the upcoming years will witness increased momentum, triggering the necessary local financing, and fostering effective collaboration between the government and external financiers to provide the necessary funding”. In participant R11's opinion,

“Gas sector investment is significant, and how can we get this gas investment project going, given the spotlight on it? Also, in upstream gas investment, special incentive schemes are important, as are all sorts of factors that allow gas producers to recover their investments quickly”.

Odumugbo (2010), supports the assertion by R2 below, stating that Nigeria's gas sector has demonstrated its potential to be a major player in the developing global natural gas market, given the country's estimated gas reserves of 206 TCF and a predicted growth rate of over 70% by 2025.

Participant R12 stated, *“Nigeria presents attractive investment opportunities for investors within the gas sector. Investors can achieve projected net margins and growth from gas investment projects”*.

5.4.7.3 Value Addition (Finding 3)

The LNG sector views FDI inflow as a source of value addition. Products such as oil, petroleum, natural gas, and other items in the same group comprise the top five export and import categories for Mozambique. This demonstrates the importance of natural resources to the Mozambican economy, as well as the lack of downstream value addition to resource-related activity. Also, governments in developing countries have increasingly recognized foreign direct investment as a source of value addition and a driver of economic growth and transformation since the 1990s (Barclay 2004). In this regard, participant R3 pointed out that *“monetising and commercialising associated gas resources, as well as our non-associated gas resources, is crucial”*.

R11 proposed that the government should prioritize the goal of monetising the gas sector, enabling gas producers to meet the needs of the domestic market in Nigeria. Every dollar of gas exported in the country is reimported, and monetising the gas will add value. Furthermore, Nigeria is a huge market that is under-industrialized. When the market is open to value addition, projects like NLNG and NLPG will serve as the most effective means of enhancing the economy”.

Similarly, according to participant R1, the Nigerian government is attempting to monetize the gas commodity, which serves as the foundation or framework for the value assessment. Participant R6 echoed this perspective, affirming that these are the initial steps the government should take from a value proposition perspective. However, participant R7 stated that it has been extremely difficult to monetize the massive, high-investment gas resource in the country, and from participant R8's perspective, most of the gas produced in Nigeria is exported.

Furthermore, participant R10 stated that *“the viability of the gas project and its potential to drive output lies in its expansion into countries and regions that have the market potential to utilise the gas”*. The federal government of Nigeria should take these steps to enhance the value proposition.

In a similar vein, participant R9 expressed the opinion that *"investment in gas is focused on the European market as the target market, and investors would like to ascertain whether their investment is for the domestic or exports. If investing in the domestic market, how is the gas transported from the point of production to transmission and the end users?"*

Participant R3 focused on value addition and connected it to the indigenisation policy of the government, which requires investors to engage Nigerians for a specific role unless there is no Nigerian that can hold that position. Also, a significant proportion of the people employed for a project must be within the operating area, either to understudy, train, or support the contractors working on the project.

Engaging people within the operations area is more cost-effective than hiring workers from outside the country, which may require applying for an expatriate quota. Given the current PIA and the desire to develop gas resources, the industry is undergoing increased training to ensure the presence of qualified personnel.

Moreover, manpower requirements tend to be highly skilled for the project, and the quality of manpower is low because adequate skill is a major challenge, technically skilled hands in the industry are getting older, and the young ones coming up with expertise are limited. A better education system is necessary to produce graduates of higher quality who can manage the operations.

5.4.8 ESG Considerations

In what way do environmental, social, and corporate governance issues impact FDI decisions in the LNG sector in Nigeria?? (RQ7)

This section examines the influence of environmental, social, and corporate governance on FDI, considering variables such as community participation, corruption, environmental issues, and social issues. According to the literature, better corporate governance improves organizations by increasing access to funding, lowering capital costs, improving performance, and treating all stakeholders more favourably (Claessens & Yurtoglu 2013). Also, ESG

performance provides significant benefits to businesses. It can assist businesses in reducing 'compliance costs' associated with environmental and social development, thereby lowering operational costs. Also, it helps to decrease operational costs by avoiding taxes, lowering the cost of capital, and lowering compliance costs related to environmental and social development.

5.4.8.1 Community Participation (Finding 1)

The issue of community participation and how it impacts FDI in the LNG sector are discussed. According to Waiganjo (2019), public participation is a two-way political notion or practice in which an organisation works with interested parties to make more constructive and acceptable decisions. Also, recognized as a legitimate method of involving stakeholders, it seeks the participation of interested entities and the opinions of potentially affected persons in a crucial decision-making process about development projects. In this regard, participant R3 claimed that

“If there are political issues in the community where a company operates, it becomes even more difficult to operate in that area. Most operators attempt to manage these issues by implementing community-based contracts, which are contracts for the people within the area where the company operates”.

Also, developing the community through scholarship schemes, training schemes, and corporate social responsibility (CSR) projects is crucial to ensure its development. Moreover, the government is engaging with the stakeholders, listening to their questions and complaints, and the company needs to engage a significant number of people in the host community to join the contractor and get the job done. Supporting R3's submission, participant R6 proposed the *“creation of a community liaison officer role to foster inclusivity, particularly in community-related matters. This role would involve engaging the host community, ensuring their full integration, and comprehending their challenges”.*

Similarly, companies need to establish a framework and arrangements to assess the risk and attractiveness of host communities or countries. In addition, participant R9 asserted that companies should *“implement global memorandums of understanding with each entity negotiating with the host communities, wherein*

the Memorandum of Understanding (MOU) will typically contain obligations, responsibilities, rights of the communities, and the investing company".

Additionally, the company's leadership and other internal stakeholders should establish relationships with external stakeholders following the completion of a stakeholder assessment. However, certain stakeholders can adversely affect the situation and complicate the process of sourcing materials from external vendors or suppliers. Additionally, companies must implement a proper stakeholder mapping and management strategy for each of their stakeholders, focusing on individual assets.

According to participant R2, *"community participation promotes political cohesion among the diverse groups, interests, and stakeholders in Nigeria"*, while participant R10 opined that stakeholder mapping defines the relationship between potential investors and the host community, as well as the risk and attractiveness of any host communities.

5.4.8.2 Corruption (Finding 2)

This segment highlights the impact of corruption on Foreign Direct Investment (FDI) and the overall growth of investment companies in the LNG sector. Diverse opinions exist regarding the impact of corruption on FDI. Some literature indicates that there is currently no consensus on how corruption influences business investment decisions. Conversely, some scholars asserted that corruption raises the expenses of conducting business by acting as a grabbing hand in an economy (Aidt 2003; Bliss & Di Tella 1997) while Bjorvatn & Søreide (2005) and Saha (2001) declared that corruption has the potential to boost the economy. They demonstrated this through a variety of theoretical frameworks, arguing that corruption may serve as an effective "lubricant" for bureaucratic and strict economic regulations rather than acting as a barrier to business. This may be particularly relevant to foreign companies doing business in less developed economies. Also, foreign companies can circumvent laws and bureaucracy by bribing host governments, giving them access to a near monopoly of power or a full monopoly (Tanzi 1998). In this regard, the opinion of participant R1 points out

“Corruption is legally wrong, morally wrong, and economically indecent. It creates a hostile environment for investors”.

In addition, the corrupt tendencies of a person in a position of responsibility can impact gas investment projects, and the correlation between an organization's bottom-line growth and its level of corruption is well-established.

However, participant R2 asserted that *“Nigeria is not lagging, as anti-corruption agencies such as the EFCC (Economic and Financial Crime Commission) and ICPC (Independent Corrupt Practices & Other Related Offences Commission), along with other institutions, are responsible for combating and curbing corruption. We should enhance the policy-wise performance of these institutions in combating corruption and also need to enhance the framework for limiting corruption and its implementation”.*

Additionally, participant R3 believed that *“anti-corruption efforts are very important and play a major role in determining whether it's difficult for you to get approvals from regulators or not”.* Similarly, merely emphasizing that employees should not be corrupt is not sufficient; the company must adhere to the law to prevent employees from taking shortcuts. Equally, investors cannot be viewed as corrupt, as their pursuit of finance can impact the effectiveness of the company's anti-corruption policies.

In close alignment with the perspective of participant R3, participant R5 highlighted that *“anti-corruption measures could include the implementation of robust internal control and due diligence procedures to ensure adherence to corruption laws and regulations”.* Companies operating in regions affected by corruption must carefully consider potential risks and take steps to mitigate them, as corruption poses a significant risk to production. Additionally, government officials and others siphon off funds that should support gas project investment, leading to the misallocation of resources. In fact, corruption has a very significant impact on everything.

Specifically, participant R11 stated that *“corruption is the biggest killer of gas investment”.* The findings reveal that no one benefits from a corrupt system, and

even when a few individuals earn substantial amounts of money, they often use that money to uphold their status. So, if the head of any organisation seems to be corrupt and always seems to aid and abet corruption, then it will be hard to eradicate it in the organisation. Participant R12 averred,

..... *“Corruption is wrong and a hindrance to economic growth. Corrupt practices by a person in a position of authority could act as a tax on investment income, thereby creating a hostile environment for investors. This, in turn, could impact gas investment projects.*

5.4.8.3 Environmental Issues (Finding 3)

This section explains the impact of environmental issues on the FDI inflow into the LNG sector. On this note, Grossman & Krueger (1991) and Arif et al. (2022) believe FDI affects receiving countries' environmental quality through size, technology, and composition effects. It could have both negative and positive impacts on the environment; the degree to which environmental quality is influenced by it causes economic activity to shift towards industries that are often less damaging to the environment (Wang & Jiayu 2019). The perspective of participant R1 indicates that *“although gas projects offer cleaner alternatives to oil and coal, some environmental issues can still arise, that can cause obstacles”*, and companies are focusing on cleaner energy ideas to secure FDI for gas projects. Participant R5 asserts that *“regulators must implement strict environmental and safety protocols, as environmental risk can lead to production reduction and hinder exploration and production”*. Moreover, participant R6 opined that *“environmental policies need to be examined and carbon footprint targets discussed vis-à-vis the consideration of three other major factors, which are political, economic, and environmental”*. The assertion made by R6 is confirmed by participant R10 that *“investors need to look at the environmental policy, especially the most recent one in the country, about carbon footprint targets, environmental law, and ownership of the entities”*. The viewpoints of participant R9 and participant R3 align; gas flaring-related regulations by the government are very important because gas flaring and knocking out the flares will help the environment. Everyone can see that global warming is a significant

issue, and the provision of sufficient, environmentally friendly energy is crucial to keep life moving forward. Also, participant R12 claimed that *“to make the environment friendly, there is the carbon market; purchasing this carbon and encouraging investments will not only lead to more investments in gas projects but also take care of the environment”*.

5.4.8.4 Social Issues (Finding 4)

Another key issue under ESG consideration that affects FDI inflow into the LNG sector is social issues. Specifically, Hecock & Jepsen (2013) claimed that growth in GDP per capita is a key indicator of economic progress, but it is not sufficient in and of itself to achieve other development goals such as reducing absolute poverty, improving human well-being, and providing more options and chances for people to reach their potential. However, participant R2 claimed that *“if the standard of living is higher in Nigeria, it would be a more attractive place for gas sector investment and energy-related projects”*.

The low standard of living prevents most people from affording certain services, thereby restricting the inflow of capital into the country's energy sector. For participant R5, the viewpoint suggests that *“the socio-economic conditions in the country affect gas production because they create social and economic tension leading to protests and vandalism, like what you experienced in the Niger Delta region.”*

So, the government's ability to invest in infrastructure and social programs will have a wide range of social and economic conditions that can impact gas production positively. Fortunately, the ESG policy ensures that companies' operations align with global standards, which are not available in third-world countries. Furthermore, reputable multinational companies such as Total, Shell, or Chevron prefer not to operate in environments where there are significant human rights violations. Furthermore, participant R9 asserted that *“an increasing number of individuals are becoming interested in ESG issues, particularly in terms of gender balance, equity, governance processes, and corporate governance”* etc. In addition, participant R11 asserted that the government must ensure the provision of energy to its population, particularly through an efficient

energy network. This issue is not solely the responsibility of the operator, but rather a societal and governmental concern. Also, participant R3 stated that the political climate in any environment is such that it will support the physical, legal regime, social-cultural issues, and all other matters, including social, technical, economic, community, operational, and political risks, especially the social aspect in terms of education. A good educational system plus healthcare issues, income matters, and unemployment all narrow down to social and economic issues.

5.5 Semi-Structured Interview Compendium

The semi-structured interview data analysis reveals that factors such as political stability, macroeconomic conditions, geopolitical issues, government efficiency, and the availability of natural gas resources in the country play a crucial role in attracting and retaining foreign direct investment in the LNG sector. Moreover, the concept used for analysing the factors can be applied to other sectors, industries, businesses, and even other nations that are interested in learning more about the factors driving foreign direct investment in the LNG sector, thereby making a valuable contribution to knowledge.

6: Focus Group Discussion

6.1 Preamble

Focus groups help participants explore a wide range of ideas and opinions, and they are especially helpful for learning different viewpoints on the same subject. Members of the group can also challenge and reevaluate their understanding and experiences through interaction with one another (Sargent et al. 2016). Additionally, focus groups provide insights that other methods may find challenging to obtain.

Furthermore, if focus groups are used, they can generate enormous amounts of data from a large number of participants in a relatively short period (Duggleby 2005). Similarly, focus groups are widely used currently in research as a means of gathering data (Webb & Kevern 2001) and are currently regarded as an important qualitative research tool (Jowett & O'Toole 2006). Moreover, focus group data are the consequence of group interactions (Morgan 1996), these interactions can have either positive or negative effects on the data (Owen 2001; Wooten & Reed 2000). The goal of the focus group discussion in this thesis was to get as much information from experts in the gas field as to analyse factors driving FDI in the Nigerian LNG sector. As seen in Figure 6-1 below, the primary steps of the focus group process are recruiting, preparing, moderating, analysing, and reporting (Blackburn & Stokes 2000). In the planning phase, the researcher used a focus group methodology and conducted a review of the literature to determine the criteria that should be considered when analysing factors driving FDI in the LNG sector.

6.2 Focus Group Discussion Method

The advantage of the qualitative method over quantitative data is that it can explain the degree of input and phenomena that are difficult to quantify (Almalki 2016). In the context of factors driving FDI into the LNG sector, we must address numerous unquantifiable attributes such as appropriate technology, political and economic effects, capacity, stakeholder engagement, host community acceptance, etc. In addition, understanding the roles of industry stakeholders can

facilitate a greater understanding of these intangible factors driving FDI in the LNG sector. Additionally, participants are selected from the Nigerian gas industry based on their experience in project investment, execution, and implementation.

The assumption was that different stakeholders in the gas industry could share their ideas and opinions on factors driving FDI in the LNG sector in Nigeria. However, employing a quantitative method to incorporate all of their feedback would be less beneficial than using a qualitative one. This PhD research also employs the focus group discussion (FGD) method. Moreover, the FGD method was selected because it facilitated the systematic and simultaneous inquiry of numerous questions from various individuals (Ganesha & Aithal 2022), specifically the stakeholders in Nigeria's gas industry. Also, FGD can be based on structured, semi-structured, or unstructured interviews (Harrell & Bradley 2009), and can yield data that is both descriptive and explanatory (Hancock et al. 2009; Nyumba et al. 2018). Similarly, researchers use the FGD method as a qualitative tool to gain a comprehensive understanding of complex issues (Nyumba et al. 2018; Van Eeuwijk & Angehrn 2017). Furthermore, Krueger & Casey (2015) assert that the focus group method has both advantages and disadvantages. However, the obvious advantage of FGD is that it can collect real-life data in a social setting (Earthy & Cronin 2008). In addition to its inexpensive cost, it provides high flexibility, good face validity, and a quick outcome (Phillips & Stawarski 2008). However, when moderating a Focus Group Discussion (FGD), it is important to exercise caution as different opinions within the group may arise, leading to significant difficulties in evaluating the results. Also, purposely kept the number of participants at a minimum to ensure a conducive forum atmosphere for all attendees, allowing for the free exchange of opinions. Furthermore, FGD was used in this thesis for gaining specific insight and useful knowledge from the viewpoints of all stakeholders, as well as obtaining feedback and suggestions for the factors driving FDI into the LNG sector in Nigeria.

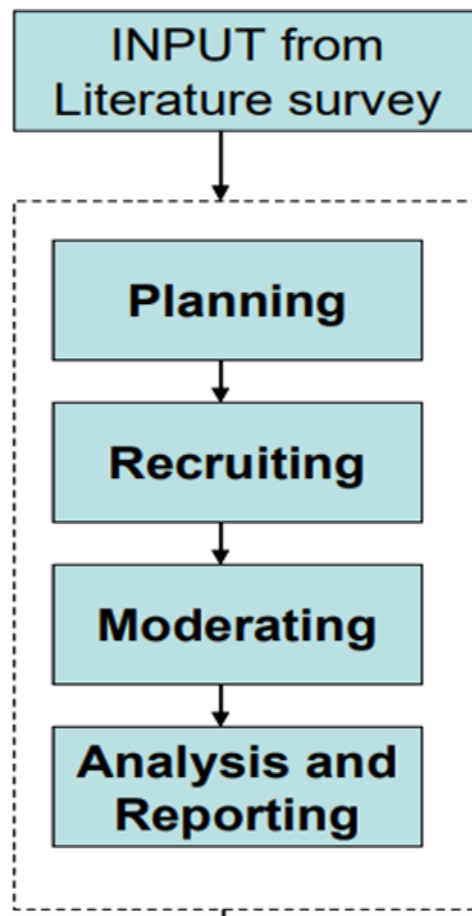


Figure 6-24 Focus Group Process

6.3 Planning and Recruiting

For a focus group to be successful, the moderator or facilitator must play a crucial role (Blackburn & Stokes 2000). Moreover, a moderator's duties include stating the goal, controlling the conversation, and explicitly highlighting group expectations (Nyumba et al. 2018), and outlining the topics for discussion (Gibbs 1997). According to Hutt (1979), the moderator is the conversational controller who encourages free discussion by posing open-ended questions and delving further into the reasons behind statements made by the participants (Gibbs 1997). Additionally, the moderator ensures that the group stays focused on important topics without deviating from the main topic (Blackburn & Stokes 2000). Indeed, focus groups involve lengthy, free-form conversations held within groups. This implies that focus groups are somewhat unstructured (Robinson 1999). So, semi-structured focus groups are preferable to highly structured ones (Hutt

1979). Also, experts recommend that focus group participants use an interview guide or a list of questions to limit the number of inquiries (Blackburn & Stokes 2000; Hutt 1979; Robinson 1999). In addition, a particular application will determine how structured the interview process will look (Parker & Tritter 2006). Also, During the planning phase, a presentation was made to explain the focus group's purpose to the attendees. The proposed structure of the focus group is shown in Table 6-1 below.

Table 6-39 Focus Group Process Structure

S/No	Description
1	Purpose of the study
2	Rationale
3	Methodology
4	Factors Identification
5	Factors Classification
6	Factors primary ranking

Additionally, key factors (both qualitative and quantitative) identified by the literature review during the planning stage, and responsible for the FDI inflow into the LNG sector in Nigeria are listed in Table 6-2.

Table 6-40 Factors Discovered In Literature Review

Item	Quantitative Factors	Qualitative Factors
i	Economic Effect	Political Backing
ii	Capital flow projection	Host Community Participation
iii	Operational Cost	Security Issues
iv	Bottom line	Technological Advancement
v	Gas Reserves/ Assets	Environmental Impact
vi	Production Capacity	Corruption
vii	Socioeconomic Conditions	Corporate Governance
viii	Projects Approved	Bureaucracy
ix	Pricing Regime	Policies
x	Profitability	Regulations
xi	Funding Risk	Legislation
xii	Project Financing	Geopolitical Activities

Certainly, there isn't much agreement in the literature regarding the ideal focus group size, but suggestions for focus group sizes ranged from four to fifteen (Gibbs 1997), six to ten (Blackburn & Stokes 2000), and up to fourteen people

(Ouimet et al. 2004). Also, having more than eight people in a group makes it harder to manage (Blackburn & Stokes 2000). Indeed, the number of focus groups can range from three to fourteen people, and small groups might be helpful when working with specialists or on complex topics. In addition, it is important to select a diverse group of people so that they can feel safe sharing their views (Gibbs 1997). Furthermore, a focus group can last between one and two hours (Gibbs 1997; Robinson 1999) or 75 to 90 minutes (Ouimet et al. 2004). Therefore, the focus group for this PhD research took place in an informal setting, lasting for two hours. Additionally, after the moderator's introduction, the participants engaged in free discussion about the research, employing a nominal group technique to identify and categorise the factors. Undoubtedly, the nominal group technique is a group meeting method that is designed so that participants produce ideas, which are then debated by the group (Nyumba et al. 2018). This ensures that all participants have an opportunity to express themselves and that no single participant's ideas dominate them all. This thesis employed a combination of the nominal group technique and the focus group method (Ouimet et al. 2004) to reduce some of the previously mentioned limitations.

The ethical standards of the focus group were met following the guidelines of CURES. In addition, provided participants with detailed information about the research's goal and objectives in advance (Gibbs 1997). Also, for ease of data analysis, focus group sessions should be tape-recorded (Blackburn & Stokes 2000; Gibbs 1997; Robinson 1999), but permission from the participants must be secured first (Hutt 1979). Similarly, the confidentiality of participants must be protected by not identifying them in any media or publications (Blackburn & Stokes 2000). Thus, with the consent of the participants, a tape recording of the focus group meeting was made. Additionally, the group must choose a neutral venue, or if a pre-existing group already exists, they can use their usual meeting place (Gibbs 1997). Hence, the focus group was held in a hotel meeting room in Lagos Nigeria, because all participants were familiar with the location.

6.4 Data Gathering and Analysis

6.4.1. Panel Selection

Pre-existing groups can serve as focus groups if they possess the requisite expertise (Parker & Tritter 2006). Major stakeholders in the gas industry, involved in project investment and execution, comprise the six panel members selected for the FGD. We contacted this group of industry players to gather insights for the research. The planning process began in May 2023, with a scheduled meeting for July 2023. In the end, two parties were unable to attend, resulting in only four (4) participants in the focus group discussion, out of the six (6) who were initially contacted and agreed to participate. This scenario could be explained by the fact that these individuals are high-profile gas industry players with busy and tight schedules. The two attendees who did not participate in the FGD were OF and NE. The list of panel members contacted in Table 6-3 is below, but two of them were unable to attend.

Table 6-41 Focus Group Participants

Attendees	Company	Area of Interest
OE	Seplat	E&P
OF	Walter Smith Petroman	E&P
CM	NCDMB	Regulator
AA	IEAGHG	Carbon Capture
NE	First Hydrocarbon	E&P
EO	Total Energies	E&P

6.4.2 Focus Group Session

Also, the agenda for the focus group meeting is displayed in Table 6-4 indicating the duration of each of the steps taken during the focus group discussion.

Table 6-42 Focus Group Session Agenda

Item	Description	Duration	Input
1	Purpose of Research	10 minutes	Moderator
2	Research Rational	5 minutes	All Attendees
3	Research Methodology	5 minutes	All Attendees
4	Identification of Factors	40 minutes	All Attendees
5	Classification of Factors	40 minutes	All Attendees
6	Preliminary Ranking of Factors	20 minutes	All Attendees

6.4.3. Purpose, Rationale, and Methodology of the Research

Previously prepared presentations were given to the focus group attendees, to highlight the background of the research. Also, with the attendees' permission, the focus group was tape-recorded.

6.4.4. Factors Identification

Components driving FDI in the LNG sector were identified using the nominal group technique. This method instead of the interacting group method was applied because it fosters creativity and produces superior ideas (Duggan & Thachenkary 2004). Furthermore, this section highlights the use of the nominal group technique during the focus group. Each attendee was given pieces of paper to list the factors driving FDI, prioritising the most important ones. In addition, members were asked to individually list the major factors they believed were most essential for driving FDI in the LNG sector. Furthermore, contributors were instructed to work independently and refrain from sharing their thoughts with others. However, before the participants began this assignment, the subject of how FDI is attracted to the LNG sector in Nigeria was discussed. Equally, before the attendees started this assignment, they discussed the planning of a sustainable LNG project, aiming to determine whether the projects would persist beyond their execution phase, generate profits, and adhere to environmental standards. Following that, each participant listed the dominant factors, and the moderator (researcher) checked the results of the factors listed by attendees. The group later discussed and explained each factor. So, any new factors that emerged throughout the discussion phase were written down and classified on a new piece of paper. The factors were discussed and completed a tentative factor

categorisation. Following the review of the initial factors, the attendees were allowed to individually identify any additional factors they believed were missing. After the initial factors were reviewed, attendees were given the option to individually write down any further factors they felt had been overlooked. In conclusion, attention was drawn to factors discovered in the literature and incorporated factors that the attendees deemed important were then included. The final factors, which incorporate the factors identified by the attendees, are listed below.

- i. Gas Reserves (Raw Material)
- ii. Political Stability
- iii. Macroeconomic Conditions
- iv. Favourable Tax Rates
- v. Export Promotion Policy
- vi. Investment Promotion Agency
- vii. Anti-Corruption Laws
- viii. Good Governance
- ix. Legal Framework
- x. Social Stability
- xi. Effective Regulatory Functions
- xii. Favourable Legislations
- xiii. Government Transparency Index
- xiv. Effective Transportation System
- xv. Good Infrastructural Networks
- xvi. Low/ Weak Currency Exchange Rates
- xvii. Low-Income Rates

- xviii. Available Labour Skills
- xix. Economic Size & Growth Rate
- xx. Free Market Economy
- xxi. Investment Promotion Agency
- xxii. Domestic Financial Market Reforms.
- xxiii. Technological Development
- xxiii. Infrastructural Development
- xxiv. Host Community Participation
- xxv. Independent Judiciary
- xxvi. Rule of Law
- xxvii. Law and Order

6.4.5. Classification of Factors

A preliminary classification of factors was created during the identification process using thematic analysis in NVivo software. Some of the themes were joined to classify the factors. The final categories are as follows:

1. Political Factors
2. Economic/ Financial Factors
3. Social factors
4. Technological Factors
5. Institutional Legal & Regulatory Factors
6. Environmental Factors

6.4.6. Preliminary Ranking of Factors

Responses of the attendees were analysed after each attendee ranked the factors numbered one to six, and they were instructed to attach next to the factors

they thought were most significant, as shown in Table 6-5, for a first-order indicator of the importance of factors.

Table 6-43 Preliminary Factors Ranking

Importance	Attendee (OE)	Attendee (CM)	Attendee (EO)	Attendee (AA)
1	Political Stability	Effective Regulations	Good Governance	Technology and Innovation
2	Abundance of Gas Reserves	Transparent Political Leadership	Good Macroeconomic Conditions	Political Issues
3	Macroeconomic Conditions	Domestic Financial Market Reforms	Regulatory Quality	Infrastructural Development
4	Effective Regulatory Functions	Favourable Tax Rates	Favourable Legislative Functions	Host Community Participation
5	Good Infrastructural Networks	Social Stability	Nationwide Infrastructural Networks	Free Market Economy
6	Host Community Engagement	Labour Skills Availability	Technological Advancement	Economic Size & Growth Rate

So, the four attendees (OE, CM, AA, and EO) who participated all indicated different important factors; this was not the final response but rather a preliminary indication of the important factors.

6.5 Attendees Shared Perceptions

The moderator briefed participants on the general topic before the FGD commenced. Every participant was given the opportunity and time to recount their experiences and perspectives regarding FDI inflow into the LNG sector in Nigeria, including the barriers and suggestions for advancing and resolving these obstacles. After the debate, attendees assessed Nigeria's LNG sector and the factors driving FDI. The FGD forum analysed a variety of secondary data and research materials, evaluating the factors in terms of their effect, present constraints, and prospects of driving FDI into the LNG sector, with the primary goal of charting the effect of factors driving FDI. Unlike the semi-structured interview method, which involved a one-on-one interaction between the researcher and participant, the focus group discussion meeting allowed everyone to offer their opinions and constructively rebut each other in an open conversation. Following the introduction, the moderator brought up the topic of

several LNG projects in Nigeria that failed to secure final investment decisions and discussed the factors that contributed to this situation. Also, what are the major drivers of FDI in Nigeria's LNG sector? The moderator then invited FGD attendees to use this opening statement to express their opinions and share their insights on the questions raised. The outcome of this session will be used to identify the factors driving FDI into the Nigerian LNG sector and understand the reasons behind the failure of some conceptualised projects over the years.

6.5.1 Key Factors

What are the key factors which are specific incentives or policies that have encouraged FDI in the LNG industry in Nigeria? (RQ1)

In the first stage, specific incentives or policies that have encouraged FDI in Nigeria's LNG sector were discussed in detail. OE, the Executive Director of an independent E&P company, made important observations

“.....regardless of the massive global demand for gas, the LNG sector in Nigeria is not receiving the expected capital inflows. Despite Nigeria's 200 TCF of gas assets and an estimated 600 TCF of undiscovered gas, the sector remains highly attractive for investment. Additionally, the presence of large gas reserves, such as those in Australia, Qatar, Nigeria, and now Mozambique, drives energy investment in these regions. In line with this, Nigeria's gas investment history has been largely successful, although there have been a few notable failures. Additionally, the government has implemented various incentives such as taxes and royalties to promote midstream gas development.....”

Attendee AA, Technology Analyst at IEAGHG stated that,

“...there are factors that make Nigeria an attractive destination for FDI in the LNG sector. Nigeria has some of the largest natural gas reserves in the world, which is essential for producing LNG. Furthermore, the availability of this resource is the primary attraction for investors interested in LNG projects. In addition, LNG is gaining traction as a major energy source because of the need for cleaner fuels, climate change, and energy transition. Therefore, Nigeria

could capitalize on this expanding market by exporting LNG to global markets. Furthermore, Nigeria has been exporting LNG for a long time, establishing itself as a reliable supplier in the international market. This track record can therefore encourage potential investors. Additionally, the Nigerian government has implemented measures to foster an investment-friendly environment, including reforms that aim to improve business ease, streamline regulatory procedures, and reduce bureaucratic obstacles".

The next speaker was CM, Senior Investment Advisor at NCDMB, a government regulatory agency,

"...Nigeria possesses the ninth largest gas reserves in the world, making it a desirable destination for LNG from a commercial standpoint. Before the recent disruptions in the LNG market dynamics, Nigeria held appeal due to its strategic location, enabling easy shipping of LNG to major global LNG markets such as the Atlantic and Pacific. This location has consistently piqued the interest of two planned LNG projects, Brass and Olokola, which ultimately failed to come to fruition. On the policy side, Nigeria enacted the Petroleum Industry Act (PIA), which replaced the Petroleum Act of 1969. It had a provision for gas processing such as LNG, giving recognition of the tax pioneer status category, meaning that they are exempt for at least three years of tax, and the new PIA improved upon that by raising it to five years. That is a huge incentive for an investor. Similarly, Nigeria has over the last few decades, tried to present a very strategic vision of its agenda for the gas sector, even though all of that has not been actualized for political reasons, but that position, which is evident in the gas master plan, which was then morphed into the national gas policy and then eventually, most recently the decade of gas initiative. The Nigerian government is sending a signal to the global community that it is interested in developing the gas. The development of natural gas resources and futuristic projections demonstrate similarities between the LNG sector and the future hydrogen economy. Although hydrogen is still in its infancy, there is a potential for the transfer of know-how and technology from the LNG sector to the hydrogen space. This implies that those interested in building future hydrogen

projects will likely want to follow in the footsteps of the LNG sector. Also, having produced from Train 1 to Train 6 and then Train 7 now, as mentioned before in the Bonny NLNG project, Nigeria is likely going to be a potential future destination for hydrogen projects which are produced from steam methane reformation, so you see it tie back to our huge gas reserves as well.....”

The final speaker in this segment is EO, Senior Projects Advisor from an IOC operating in Nigeria who submitted that,

“...Nigeria should be a highly attractive domain for energy investment due to its abundant gas reserves, availability of human capital, skilled labour, and huge market potential. However, a thorough assessment of the gas sector reveals Nigeria's lack of attraction as a destination. A few years ago, we conceptualised the Olokola LNG and Brass LNG projects, but all of them failed, except for the successful Bonny NLNG project in 1999 and the Greenfield LNG project, which began operations in 2018. Even though additional trains have been added to the Bonny NLNG plant, which makes it appear that the Nigerian gas sector is great for investment, there are inhibitions everywhere, deterring investment.

. Even though additional trains have been added to the Bonny NLNG plant, which makes it look like the Nigerian gas sector is great for investment, there are inhibitions everywhere deterring investment. Certainly, the potential to make Nigeria an attractive destination is there. Unfortunately, it is expensive to do business in Nigeria. Most investors seek opportunities where they can maximize their return on investment. But the seemingly social-political instability is also not far from one of the reasons why this is not happening in the country.....”

Attendee OE's perspective on Nigeria's vast gas reserves aligns with that of Attendee AA, who argues that the country's vast gas reserves attract foreign direct investment (FDI). Attendee CM asserts that the country's vast gas reserves serve as an incentive for investment, while Attendee EO argues that Nigeria's abundant gas reserves should attract energy investment, but the country's capital inflow is restricted.

6.5.1.1 Key Factors Findings

Significant results were examined, and lessons learnt were used to derive the conclusions indicated below in this section.

- i: Nigeria boasts abundant gas reserves, ranking ninth globally, which significantly attracts foreign investors.
- ii. The Nigerian government intensified efforts to attract investment into the gas sector through different policy initiatives and incentives offered to investors. The country enacted the Petroleum Industry Act 2021, which recognised the tax pioneer status category for gas sector investors and aimed to enhance the value of natural gas.
- iii: Due to seemingly intractable political instability and socio-economic conditions on a downward spiral, the cost of doing business is extremely high and the country cannot be considered an attractive investment destination.

6.5.2 Political and Economic Stability

How does the political and economic stability of Nigeria impact FDI in the LNG sector? (RQ2)

First to respond was OE from the independent E& P company, who claimed that

“...political stability is a significant factor, if not the primary one, that drives foreign direct investment in the LNG sector. To illustrate how important political stability is as a factor that drives FDI in the LNG sector, the Rovuma LNG project in Mozambique is a classic example. It was a \$20 billion project with 13 MTPA of output. The development of the project was put on hold when violence erupted in Cabo Delgado Island, located in the northern part of Cabo Delgado Province, forcing Total Energies, the operator, to declare force majeure in 2021. That is a classic example of how political stability or instability affects FDI in the LNG sector. Additionally, geopolitical stability becomes crucial when significant investments, such as LNG projects, range from \$10 to \$30 billion, depending on the plant size. The investment recovery is expected to persist for another 20 years and the plant expansion to last for another 20 years. Therefore, operating in an atmosphere of political stability is important

to make a return on investment (ROI). Back in the day, in the 1950s and 1960s, Nigeria was a darling to foreign investors, but so difficult now to attract investors because of myriad geopolitical issues. In particular, there was a year of production lockdown for about 2 years when the export pipeline was bombed by Niger Delta militants. Therefore, if capital is brought in for two years without production, it will undoubtedly impact the cost of capital, just as insecurity and geopolitical issues do. Political stability is a crucial factor that guides the location of capital. Similarly, investment has options to flow anywhere globally; capital follows where there is an attractive value proposition, where there is political stability and long-term clarity around fund repatriation. It is not just about having a higher return on average capital employed but also the ability to invest in a place where there is predictability. In particular, Nigeria's political landscape has become chaotic and highly unpredictable due to numerous challenges such as militancy and insecurity in the Niger Delta. These are the concerns that make it quite difficult to attract investment in Nigeria. Nonetheless, some investors have an appetite for more high-risk kinds of investments. However, the issue lies in their desire for higher returns on investment, which in turn drives up the cost of sourcing capital for project execution. From an economic perspective, conducting business in Nigeria can be costly, particularly when beginning anew. Nigeria is a challenging environment. Also looking at demand-supply imbalances and judging global energy trends, the geopolitical conflict between Russia and Ukraine caused chaos in the entire gas market, which caused LNG prices to fall and led to real big imbalances in the global market. It affected everyone, the NLNG plant in Nigeria missed almost half of its cargo for that period in 2021”.

The attendee who responded next was CM.

“...political stability has a significant impact. Political stability inextricably links to all the other challenges previously mentioned. From a critical perspective, the crisis in the Niger Delta historically has been linked to political agendas. When infrastructures lack the level of safety and security that a typical investor requires, it act as a deterrent, starting from the pipeline that delivers gas to the

facility under attack. So, the political landscape has a significant influence on FDI flow. Second, NLNG initially focused on import-export rather than the domestic market, but it has now restructured its strategy to sell a significant portion of its cargo in the domestic market. If the market supports it, it intends to grow over time. Based on the previous events, they have brought on board approximately three companies capable of off-taking LNG for domestic sales. That is an indication that the market size is growing domestically and may attract more players into the space. Also, NLNG is shipping cargo to all parts of Nigeria, so the market size will continue to be an even better incentive, especially considering that the population growth in Nigeria is expected to reach 400 million in the next few years. Also, NLNG is shipping cargo to all parts of Nigeria, so market size will continue to be an even better incentive given the demographic projection, population growth in Nigeria is expected to reach 400 million in a few years. The size of the market serves as an incentive and presents a significant opportunity for the natural gas sector. Additionally, Nigeria faced the challenge of limited capital flow as it competed for FDI with new players and more recent basins such as the Rovuma and Golfinho projects in Mozambique, as well as upcoming gas projects in Tanzania. Even in the West African region, there are planned projects in countries with stronger, better regulatory frameworks or incentives for LNG. Given that they are late arrivals; most of them, starting from Ghana down to Senegal and Mauritania, are using Nigeria as a learning curve to build an attractive framework for LNG in their countries that will attract investors. All large-scale projects that are coming up in the West African region have significantly distorted or limited the funds that were meant to come to Nigeria for all of the planned or proposed projects. In addition, potential foreign investors could move elsewhere because of emerging markets in the region, and development in those markets has significantly changed the landscape for global LNG trade, which presumably affected Nigeria to some extent.”

Participant AA went further that,

“...for every investor, political stability is a critical factor in every industry, including the LNG sector. Also, foreign investors love to seek assurance from host governments that investment will be safe, agreements will be upheld, and operations won't be hampered by political instability or changes in policies. Furthermore, long-term commitments and increased investor confidence are fostered by a stable political climate. In addition, project lifespans and significant capital expenditures are common in LNG projects; therefore, maintaining political stability is essential to protecting these investments. Moreover, investors may be discouraged by political instability, such as civil unrest, upheaval, or frequent changes in government. Likewise, security issues or geopolitical crises in some parts of Nigeria, especially the Niger Delta region, have traditionally affected the gas industry. Similarly, security concerns and conflicts disrupt operations, lead to supply interruptions, and pose risks to personnel and assets. Another key point, foreign investors evaluate risks thoroughly, taking geopolitical issues into account and assessing the possible effects on their investments of regional conflicts and political upheavals”.

For the respondents, political stability is the biggest factor driving FDI. Attendee OE states that capital flows where there exist value propositions and political stability is one of the most important and biggest factors guiding capital location. For attendee CM, political stability affects project investment significantly, and the upheaval in the Niger Delta is tied to political issues. Furthermore, AA states that political stability is a critical factor in every industry, and the LNG industry is no exception. All investors will be happy to seek assurances from the host government, that their operations will not be hampered.

6.5.2.1 Political and Economic Stability Findings

The moderator evaluated significant findings and lessons learned to reach the conclusions, which are listed below.

- i. Political stability is one, if not the biggest, factor driving FDI in the LNG sector. Thus, operating in an atmosphere of political stability is important to make a return on investment in any executed project.

ii. Nigeria is a challenging environment, and doing business in the country is expensive, especially when you are starting from scratch, but it is a lucrative market due to its size. The LNG project in the country wasn't built to address the domestic market; it was export-focused, but now, with a reworked strategy to look inward and sell a significant portion of its cargo in the domestic market, it will grow.

iii. Nigeria is currently experiencing a limited flow of capital and competing for FDI with new players in the Sub-Saharan Africa region. Currently, there are planned projects in some countries in the region with stronger, better regulatory frameworks or incentives for LNG projects. These countries used Nigeria as a yardstick and learning curve to perfect and build an attractive framework that will attract investors.

6.5.3 Regulatory Environment

How would you describe the regulatory environment for foreign investors in Nigeria's LNG sector, are there any regulatory challenges or issues that foreign investors, commonly encounter in this sector? (RQ3)

In response to the poser raised, attendee CM stated

“...it is preferable to divide it into distinct regulatory and fiscal regimes. For decades, Nigeria operated its hydrocarbon industry under laws that experts deemed outdated and unclear. The Federal Government of Nigeria replaced that law in 2021 with the more appropriate Petroleum Industry Act (2021). The new governance framework is diligently addressing past ambiguities. In the past, some investors may have found the somewhat confusing pricing mechanism for natural gas to be a disincentive or a deterrent. However, the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), the Nigerian Upstream Petroleum Regulatory Commission (NUPRC), and the Nigerian Content Development Monitoring Board (NCDMB) have recently shared regulatory clarifications on this matter. These efforts are commendable as they aim to clarify and sanitize the regulatory landscape for the hydrocarbon industry in Nigeria”.

On the part of OE, there is an issue around the time element that made

“...Investors began investing in NLNG approximately 20 years ago. But from a timeline perspective, the timing may have changed, and factors like political issues, security, and all that make Nigeria a challenging spot. So, the regulatory environment has changed significantly, and it's changing for good, judging from interactions with NUPRC, and the NMDPR on the midstream side of gas, which is where this falls with new regulations being developed post-PIA to attract investments. Therefore, daily interactions with regulators are welcoming and flexible. Conversely, there is bureaucracy in the industry because you have to engage different regulators, which include NUPRC on the upstream side, NMDPR on the midstream side, and NCDMB around local content, with overlapping jurisdictions and functions. For instance, the NMDPRA and the NUPRC have been engaged in a dispute over the boundary delineation between upstream and midstream areas in the past. However, the gas industry globally has not attracted much investment in the past fifteen (15) years, and this is not limited to Nigeria. There is a growing demand for ESG, energy transition, green energy, and solutions to climate change. Overall, regulators are eager to encourage investments, and there is a push to enact new regulations based on PIA. Despite the bureaucratic nature of multiple regulations, the government is actively working to streamline them....”

For participant AA,

“...over the years, the regulatory environment for foreign investors in the natural gas sector has evolved, and while there have been improvements, some challenges and issues persist. Also, laws and regulations, including the Petroleum Industry Act and Petroleum Profit Tax Act, govern the primary regulatory framework for the industry in Nigeria. The country implemented the local content policy, which mandates foreign investors to collaborate with local companies and involve them in projects within the LNG sector. This includes the use of local labour, goods, and services. Additionally, the fiscal regime that governs tax and royalty payments by LNG operators in the country can vary depending on the specific project and the agreements negotiated with the

government. Furthermore, LNG exports are subject to export quotas and regulations set by the government. These regulations have the potential to impact the export volume of LNG. Unfortunately, due to the multiple regulatory agencies and their overlapping functions, lengthy bureaucratic processes, such as obtaining permits and approvals, can occur, leading to delays and increased project costs. Streamlining these processes is an ongoing task, and full compliance with environmental regulations and standards is critical. Therefore, foreign investors must frequently seek legal guidance, undertake rigorous due diligence, and engage with appropriate government officials and stakeholders to address issues proactively and successfully navigate the country's regulatory environment...

EO, the attendee who reacted last, observed this.

“...The issue of local content in the gas industry may deter investors from investing, given that EPC contractors haven't undertaken many projects in Nigeria in the past decade. Furthermore, the implementation of local content regulations often increases the cost of projects. However, given the extreme poverty and joblessness in Nigeria, it is more prudent to invest locally and pay a premium for the inclusion of significant local content in projects. One example is carrying out the fabrication, construction, commissioning, and integration processes domestically...”

The responses from the attendees indicate a consensus on the revised regulatory regime in the country. Attendee CM noted that the regulations in Nigeria are outdated and unclear, but the government is making efforts to rectify this. Attendee OE asserts that the regulatory environment has undergone significant positive change, primarily due to the revision of various government agencies' overlapping functions. Attendee AA asserts that the local content policy mandates foreign investors to collaborate with local content partners in their projects. However, attendee EO argues that local content often escalates project costs and could potentially hinder investment.

6.5.3.1 Regulatory Environment Findings

The moderator went over key findings and lessons learned to reach the conclusions in this portion, with summaries listed below.

- i. All the government regulatory agencies are making commendable efforts towards clarifying and sanitising the regulatory landscape for the hydrocarbon industry in Nigeria.
- ii. Investors must obtain legal advice, do rigorous due diligence, and communicate with appropriate government authorities and stakeholders to resolve issues proactively to successfully navigate the regulatory environment in Nigeria.
- iii. Though interactions with regulators are seamless and engaging, having to deal with multiple regulatory authorities like NUPRC on the upstream side, NMDPR on the midstream side, and NCDMB around local content with overlapping jurisdictions and functions can lead to bureaucratic bottlenecks. These agencies need to be streamlined for effective regulatory functions.

6.5.4 Infrastructural Development

How does infrastructural development in Nigeria affect foreign direct investment in the LNG sector? (RQ4)

Participant EO stated that

“...gas transportation system in Nigeria is inadequate. One example of this is the pipelines used to transport gas. Each operator will have to build its pipeline or get a sister company or alliance companies to transport the gas through, compared to pipeline networks in the Gulf of Mexico, where you can easily tap into and transport the gas. It is a big factor. Because all the co-venturers are not ready to recount their experiences in transporting gas produced. Already, there is the challenge of field development to now add pipeline construction to transport gas, the cost of constructing pipelines and regulatory issues around them, and social-political issues around pipeline networks in Nigeria become a challenge coupled, with the problems associated with acquiring land, kidnapping and all the insecurity issues. So, building pipelines is a big factor.

Pipeline infrastructural problems may not stop; they may delay or deter potential investors from investing. Another issue that has been brought up is the lack of emphasis on domestic gas consumption due to inadequate infrastructure for gas transportation to end users. Therefore, if an investor plans to invest in any market, the dual option of domestic consumption and foreign exports provides an incentive and increases the impetus to invest. Equally, the availability of plants in the country will allow the effective use of gas as feedstock to generate power. At present, the country's installed power generation capacity stands at less than 20,000 megawatts, which accounts for more than 90% of the required electricity deficit. Therefore, the gas-to-power project will significantly boost gas investment in the country..."

CM submitted that

"...when discussing LNG infrastructure, we should not solely focus on hydrocarbon-specific infrastructure, but also take into account the maritime infrastructure that is crucial for the successful delivery of LNG to the market. The main challenge is the traditional shipping business interests and the security of vessels in Nigeria's coastal waters. Depending on the size of the operation, a suitable waterbed for LNG carriers at a cargo jetty is very important. It is a critical project component, and its cost can distort economics. Inadequate maritime infrastructure, such as dredging of the terminals, has impacted the majority of failed LNG projects in Nigeria, and this practice appears to be ongoing at a cost that doesn't fully account for the anticipated project cash flows..."

OE responded that,

"...upstream gas producers such as Shell, Chevron, AGIP, and Total send their gas to processing plants for processing, which then feed it into the GTS 1234 pipeline network. This is the fundamental infrastructure model. The basic infrastructure we currently possess is essentially locked into place. The basic infrastructure we have is pretty much locked in. Furthermore, constructing gas processing facilities or building pipeline networks is massive, and pipelines are sabotaged plus theft, making it very complex. For now, the country's

infrastructure is quite precarious. Despite this, the government is making efforts to address security issues, enlisting the support of the host community for projects and allocating community funds. This could potentially lead to an increase in FDI in the LNG sector.”

AA believed that

“...infrastructure plays a significant role in attracting or deterring FDI. Also, when making investment decisions, investors consider the availability and quality of infrastructure. Similarly, the presence of well-developed LNG terminals is crucial for LNG export projects, as investors tend to gravitate towards countries that either have existing terminals or have the potential to develop them. In fact, LNG liquefaction, storage, and loading onto ships for export depend on these terminals. It is also essential to have efficient transportation networks with access to ports and pipelines. Additionally, transportation networks also guarantee the seamless flow of natural gas from production fields to liquefaction facilities and the delivery of LNG to global markets. Equally important is access to deep-water ports, which is crucial for LNG export. These ports facilitate the loading and unloading of LNG tankers in an efficient manner. Moreover, investors benefit from adequate port infrastructure because it lowers logistical obstacles. Equally, inadequate infrastructure, such as a lack of LNG terminals, pipelines, or port facilities, can discourage investment since investors may be required to invest in costly infrastructure development, which can lengthen project deadlines and increase project costs. Additionally, the endless bureaucratic procedures and red tape associated with infrastructure development can complicate the process of obtaining permits and approvals, thereby impacting operations. Furthermore, securing funding for infrastructure development is crucial for the quick and affordable transportation of LNG, as any delays or inefficiencies can significantly impact the project's economics....”

During the focus group, attendees interacted, and EO stated that gas transportation is inadequate with each of the operators building their pipeline networks. Attendee OE maintains that the cost of constructing gas processing facilities and building pipeline networks is substantial. Attendee AA believes that

infrastructure plays an important role in attracting or deterring FDI, and every investor considers the availability and quality of infrastructure when making investment decisions. Finally, CM asserted that maritime infrastructure is crucial for exporting LNG, and the emphasis should not solely be on hydrocarbon-specific infrastructure.

6.5.4.1 Infrastructural Development Findings

i. The presence of well-developed LNG terminals is crucial for LNG export projects because investors are attracted to countries with existing terminals or those that have the potential to develop.

ii. When discussing LNG infrastructure, we should not only focus on hydrocarbon-specific infrastructure but also extend our consideration to maritime infrastructure, which is crucial for the successful delivery of LNG to the market. However, the primary challenge in Nigerian coastal waters is ensuring vessel security due to the prevalence of sea piracy.

iii. Inadequate infrastructure, such as a lack of LNG terminals, pipelines, or port facilities, can discourage investment, as investors may be required to invest in costly infrastructure development on their own, which can lengthen project deadlines and increase project costs. Additionally, funding infrastructure development will significantly contribute to the timely and cost-effective transportation of LNG.

6.5.5 Challenges & Risks

What are the challenges and risks associated with foreign direct investment in the Nigerian LNG sector? (RQ5)

In this segment, EO responded and preferred to focus on the political and social risks.

“...For unknown reasons, certain risks persisted in Nigeria's gas industry. Investors mitigated their risk by slowing down their investments, which resulted in delays in project delivery and a decrease in foreign direct investment inflow into the country. *Therefore, as long as the environment remains unstable, the inflow of capital will be limited, leading to either a delay or a decrease in*

investment in the country. The incessant interference and sabotage of gas facilities is another challenge. Regrettably, the IOCs are not fulfilling their gas supply quota to NLNG, posing a risk that investors need to consider in their risk management strategy. These challenges seem unabated; armed militants are still sabotaging gas transport, which will translate to deferment, and will further translate to not meeting the gas supply quota. Therefore, it is prudent to incorporate this issue into the design of vessels and commercial agreements with customers. Secondly, the global demand for LNG is expected to rise due to the uncertainty surrounding the duration of the conflict between Russia and Ukraine. If this conflict persists, there will be a heightened demand for LNG originating from Nigeria. So, there will be a need to increase production output. However, how fast this will happen will depend on our ability to be able to mitigate all the challenges that have been highlighted. Additionally, Nigeria as a gas producer, should stop basking in the euphoria that we are a blessed country. Nigeria's political leadership believes that we can attract FDI without putting our house in order and implementing necessary measures and policies. In particular, the global trend indicates an increase in demand for natural gas and LNG, highlighting the importance of having an efficient regulatory framework and streamlining procedures to encourage investment.”

CM observed that

“...Nigeria presents a unique set of challenges for the typical investor that transcends the hydrocarbon industry; it covers pretty much every sector of the economy. In the gas industry, there are risks and challenges, and over the years, operators have found ways to mitigate some of them. Firstly, the risk of delays in government agencies' licensing permits and approvals can deter investment. Globally, a one-stop shop streamlines the process for all regulations, approvals, licensing, and permits. However, in Nigeria, the complexity of licensing, permits, and approvals can lead to fragmentation and duplication among various government agencies, posing a challenge for investors. For example, if there is a pre-development agenda planned for the next 18 months or 24 months, issues around delays in permits and approvals can extend project execution further. When we delve deeper into the LNG

sector, we encounter issues related to civil construction and fabrication risk, which are primarily related to local content. Even though the LNG sector is a mature industrial basin, we still haven't sorted it all out because we didn't develop optimally, and some of the skills that we should have domesticated in the country have not been for years, which translates to another challenge. In addition, you also faced the challenge of coordinating projects from outside Nigeria, sometimes in multiple faraway locations, thus complicating project execution. Furthermore, the reliability of gas supply poses a significant risk, as unsecured gas pipelines can lead to disruptions in supply. From a regulatory perspective, Nigeria needed to effectively separate the gas sector from the oil industry. Before PIA, the existing law was ambiguous; it didn't recognise natural gas as a resource, and stakeholders focused on developing oil to the detriment of gas. A significant portion of the gas produced in Nigeria is associated gas, as opposed to non-associated gas, and its supply is tied to the oil production agenda, which carries significant technical risks. On the commercial side globally, there are issues around price volatility, which is pretty much a recent development because there are upcoming sources or suppliers of LNG, including shale gas, in America that have made America an exporter in recent years, which has distorted what was known to be a predictable and well-understood pricing mechanism for LNG in the global market. So, investors in Nigeria need to deal with that and then bring it back to local realities. Another challenge is the uncertainty surrounding product demand and regulatory requirements. Predicting Nigeria's future as an investment destination is somewhat challenging. Despite the challenges and issues raised, there are positive expectations and projections for the future. So, in risk management, Nigeria should begin to seriously consider sovereign participation as a means of reducing risk in projects. When the government, as a sovereign entity, participates in potential projects with some equity, it significantly conveys to investors the seriousness with which the government is committed to attracting foreign direct investment. Frankly, in the downstream sector, the Petroleum Industry Authority (PIA) establishes a fund known as the Gas Infrastructure Fund (GIF). Its primary objective is to reduce the risk

associated with both public and private sector projects, either by providing internal loans to operators or by taking minimal equity as a signal to encourage government support. But that can only happen in small-scale projects. However, large-scale projects remain feasible through other instruments such as the Sovereign Wealth Fund (SWF). The issues that have been highlighted hold significant importance, alongside essential reforms such as legislative and policy reforms, and a broader enhancement of the macroeconomic landscape, all of which will contribute to the ease of conducting business in a country like Nigeria.”

Participant OE responded and mentioned the above-ground risk in Nigeria. The participant reckons that

“...Nigeria has fantastic reservoirs and a fantastic subsurface resource base. However, when it comes to assigning strategies, large multinational corporations receive the majority of project awards. These are the companies that are awarded major projects, and they subcontract some other scope to local companies to satisfy local content requirements. However, a big concern that is emerging now is the divestment of the IOCs from Nigeria, which will affect the inflow of FDI. Additionally, IOCs, as partners in the NLNG project, found comfort in the fact that SPDC, ENI, or Total also provided the upstream gas supply. However, the recent divestment of IOCs poses a significant risk to the energy sector. Therefore, part of the risk mitigation strategy for gas supply to the LNG terminal involves delineating a portion of the gas acreage for the IOCs and the remaining for independent local companies. The final risk mitigation measure involves implementing a premium finance bond, which adds a premium to the capital or financing costs. Overall, there is significant potential for future trends, but it remains uncertain whether we will realise this potential. Because gas is discovered all over the world daily, it is becoming more competitive. The most significant discovery recently occurred in Turkey, and as these large resource basins are being discovered in countries more conducive to investor attraction, Nigeria faces significant challenges. Although there is potential for gas investment in Nigeria, the challenges are significant,

and it is not just a policy issue. Because Nigeria has enacted a variety of policies, the issue is not with the policies themselves, but rather with their implementation, which in turn affects the country's overall perception as an investment destination. Also, one other thing that needs to be done is to reduce NNPC equity and influence in projects. For instance, the success of the NLNG project can be attributed to NNPC's role as a project partner, rather than its direct driving force. Equally, the country has significant potential for mini-LNG projects, but they also require infrastructure. To transport LNG from one part of the country to another, we need roads. So the entire infrastructure must be developed; otherwise, it will be difficult to transport LNG on our road by truck. However, the government has made significant strides in implementing policies, such as passing the PIA into law and lowering royalties and taxes.. So, investors have a chance of making more money now. Sadly, PIA came in 20 years late. But the challenge is how to overcome the psychological barrier about Nigeria not being safe with insecurity issues so prevalent. Additionally, concerns arise regarding funding and the ease with which investors can repatriate their funds....”

AA is the participant who responded last, sharing the opinion that,

“...these risks encompass a wide range of factors, from political and regulatory risks to operational and market risks. In addition, investors conduct political risk assessments to assess government stability, assess regulatory frameworks, and foresee potential policy changes that may impact projects and their investments. They are concerned about political instability, policy changes, expropriation, contract breaches, and regulatory uncertainties that could affect their investments. In addition, security issues, particularly in the Niger Delta region, disrupt operations, endanger public safety, and undermine investor confidence. Therefore, investors analyse the security situation in locations where LNG plants are sited, considering issues such as armed groups, piracy, and abduction. By addressing underlying social and economic challenges, establishing interactions with local populations can help lessen security vulnerabilities. Indeed, security concerns in the Niger Delta region

have the potential to interrupt operations and deter investment. To address these threats, enhanced security measures and community involvement are required. Furthermore, market risks that investors consider include volatility in LNG pricing, changes in demand, and competition from other LNG-producing countries. Spreading LNG contracts among customers and regions might help to lessen market risk exposure.”

In the course of the focus group, EO states that risk management involves mitigation, and slowing down investment, which can lead to delays in project delivery and the attraction of FDI. Another attendee states that the risks in the Nigerian gas industry arise from different factors like political, market, and operational risks. For OE, the challenges in Nigeria are huge, and it's not an issue of policy formulation but of its implementation. The delays in licensing permits and approval by government agencies can deter investment, as stated by attendee CM.

6.5.5.1 Challenges & Risk Findings

i. Nigeria has fantastic reservoirs and a subsurface resource base. But in terms of strategies to designate, projects are awarded to the big IOCs. However, a bigger concern is the divestment of IOCs from Nigeria due to issues related to risks and challenges in the industry.

ii. Delays in licensing, permits, and approvals by government agencies can deter investment. These processes are streamlined on a global scale. But in Nigeria, issues around permits and approvals are complicated, fragmented, and sometimes duplicated by different government agencies.

iii. Nigeria presents a unique set of challenges for a typical investor that extends beyond the hydrocarbon industry. Militancy, kidnapping, piracy, and hostage takings, particularly in the Niger Delta region, can disrupt operations, endanger public safety, and undermine investor confidence.

6.6 Focus Group Discussion Recap

We have identified, classified, and assessed the most important variables to consider while analysing factors driving FDI in the LNG sector. The most

important variables that must be considered while analysing factors driving FDI in the LNG sector have been identified, classified, and assessed. In addition, numerous factors discovered during the literature review were enlarged in the focus group discussion.

FDI inflow is very critical in the LNG sector, and LNG projects are capital-intensive. For example, the existing LNG project footprint in Nigeria comes with a huge capital outlay, plus the full realisation of local financial institutions' lack of capacity to finance large-scale energy projects because they are limited to a certain degree. So, capital projects in the LNG sector, which are mostly starting at 1 billion USD, will make it tough to rally local capital for project execution.

FDI significance is huge, and the government is thinking about how they can attract FDI because Nigeria, at one point in time, was no longer an attractive destination for investors. Also, the significance of FDI inflow is massive in the sense that when you attract, you can execute projects, and increase citizens' employment opportunities. A typical LNG plant has a massive employment base with a massive positive impact on the host communities in terms of economic benefits and lifting people out of poverty. Likewise, the government also makes revenue from the post-investment phase when the LNG plants start to pay taxes and royalties. The financial impact of the project is significant. After the FID was made on the NLNG project Trains 1 to 6, the impact on the Nigerian economy was significant. Additionally, the new Train 7 project, estimated to cost about \$15 billion, will significantly impact the economy. Such an amount attracted to the economy will have a tremendous and quadruple effect on the economy. The Bonny NLNG plant is the only successful mega-plant operating in the country with foreign involvement. Indeed, NNPC the state-owned company, is the only foreign company among the partners and co-venturers, and these IOCs can leverage their global influence to secure the necessary funding for such a substantial investment.

FDI provides much-needed funding for the construction and development of LNG infrastructure. Also, large-scale investments in liquefaction plants, pipelines, storage facilities, and shipping terminals are necessary for the LNG industry, and these might be costly for the host nation. In this sector, foreign investors

frequently provide cutting-edge technology and experience that raises operational effectiveness and safety requirements. Nigeria has traditionally relied heavily on oil exports, but FDI inflow into the LNG sector will diversify the country's economy and encourage the development of non-oil sectors. This economic diversification reduces total reliance on fluctuating global gas prices. Also, LNG exports have the potential to generate significant revenue for Nigeria through the sale of LNG in global markets. Nigeria could use these proceeds to fund infrastructure projects, social programs, and economic development initiatives.

After analysing data gathered from the focus group discussion, it specifies the factors driving foreign direct investment in the LNG sector in Nigeria. The method used in gathering data and method analysis was novel and had not been applied before in understanding factors driving FDI in the Nigerian LNG sector. Therefore, the focus group discussion method also contributed to the advancement of knowledge.

7: Discussion & Contribution

7.1 Preparatory Phase

This chapter discusses the findings of quantitative and qualitative analyses presented in Chapters 4 Questionnaire-Based Survey, 5. Interview Data Analysis, 6: Focus Group Discussion of this PhD research, and also crystallised the literature review in Chapter 2 to align with the data gathered. Furthermore, this chapter discusses the limitations, implications, contributions, and impact of the research. The discussion section in this chapter illustrates how the qualitative findings help to understand quantitative results and to test the effect and impact of factors identified as drivers of FDI in the LNG sector.

7.2 Discussion

The theoretical frameworks and literature used for the study are considered the discussion section summaries and combine discussions between the quantitative and qualitative findings. As outlined in Chapter 1, this thesis looked into factors driving FDI into the Nigerian LNG sector. In addition, and to recap the research questions, empirical research examined factors driving FDI in the LNG sector. Although previous studies emphasised how FDI is attracted and retained in the LNG sector. However, there appear to be scant research analysing factors driving FDI in the LNG sector in Nigeria. This specific PhD research raises important insights into factors driving FDI, using the successful Nigeria Liquefied Natural Gas Bonny project to examine the causes of the Olokola LNG and Brass LNG projects conceptualised that failed to achieve final investment decisions.

This PhD research sought to determine factors driving FDI in the LNG sector; see section 1.2. As a result of the research aim and objectives, the research questions listed below evolved from them: i. What are the key factors influencing foreign direct investment in the Nigerian LNG sector? ii. How does the political and economic stability of Nigeria impact foreign direct investment in the LNG sector? iii. What role do government policies, legislation, and regulations play in attracting or deterring FDI in the Nigerian LNG sector? iv. How does infrastructural development in Nigeria affect FDI in the LNG sector? v. What are the challenges

and risks associated with FDI in the Nigerian LNG sector? vi. How can Nigeria enhance its attractiveness for FDI in the LNG sector? vii. In what way do ESG issues impact FDI decisions in the Nigerian LNG sector?

In Chapter 2, the research examined pertinent literature on the factors that drive foreign direct investment in the LNG sector. The literature review also achieved the following objectives: comprehending and summarizing the current research on the factors that drive FDI in the Nigerian LNG sector and deciphering the reasons behind the success of one project and the failure of the other two. Additionally, the review aimed to compare the feedback from stakeholders with the current research and provide a summary of the key issues that influence foreign direct investment and its impact on the Nigerian liquefied natural gas sector. Furthermore, evaluate the efficacy and efficiency of the conducted research. Moreover, the results of the literature review indicated the need for an appropriate theoretical framework. Therefore, theoretical assumptions formed the basis for the research. Additionally, a combination of aggregate themes was employed to identify the results of the archival study. After conducting the archival study, the researcher utilized semi-structured interviews to collect and assess fresh data from industry stakeholders, which could potentially validate the results of previous studies. Likewise, focus group discussion was used as another qualitative research method. The qualitative method delves into the thesis by using a multi-criterion lens to examine the factors that drive foreign direct investment in the LNG sector. Similarly, a questionnaire-based survey was conducted as the quantitative method of the research, guided by the research paradigm, to present an objective perspective on the factors driving FDI in the LNG sector. Furthermore, the following section elucidates the results of the mixed-method approach employed in the research, thereby reinforcing the research objective. The chapter examines the results in the context of the current literature, deductively describes each theory, and interprets the combined results to generate suggestions for execution. Additionally, the theory tests are conducted with the knowledge of whether the hypothesis is null or alternative. In addition, null hypothesis H^0 argues that no statistical significance exists between

two variables, whereas alternative hypothesis H^1 states that statistical significance exists between two variables.

7.3 Dominant Factor 1- Political Stability

H^1 : Effect of political stability in form of legal framework, political system, political unrest, and social unrest on FDI in the LNG sector.

The first theory concentrated on the impact of political stability on FDI inflow into the LNG sector in Nigeria. It sought to investigate the effect of the legal framework, political system, political unrest, and social unrest on FDI in the LNG sector. The goal was to uncover the variances and commonalities in opinion among stakeholders in the gas industry. After theory testing, results indicate there is a statistically significant relationship between political stability and FDI inflow. Therefore, alternative hypothesis H^1 is accepted, indicating that there is a relationship between the dependent variable FDI and political stability, and the null hypothesis H^0 is rejected.

7.3.1 Outcome Inferences

Nonetheless, the majority of respondents shared the same opinions, making generalisations based on the mode of responses made by each of them plausible. Additionally, the contrasts and parallels illuminate the impact of political stability on FDI. Similarly, low-risk and stable nations attract more FDI in their LNG sector (Du et al. 2014). Likewise, political stability encourages long-term investment because it ensures continuity and reduces volatility, as referenced earlier in Section 2.2.

The legal framework is a subset and has a favourable impact on political stability (Aisen & Veiga 2013), which has benefited FDI inflow in the LNG sector. However, there were statistically significant differences in opinions among the respondents. Existing theory in literature supports this viewpoint, stating that the primary objectives of the legal framework are to draw in capital, knowledge, and technical input, and to strive for the conversion of potential economic resources into tangible economic power. Additionally, the Nigerian government has implemented regulations to encourage the inflow of foreign direct investment into

the country. One of the legal frameworks was the Nigerian Investment Promotion Commission Act 1995, which is the primary law governing foreign investment. Its goal is to encourage both domestic and international investment. A plethora of other laws, such as the Foreign Exchange Monitoring and Miscellaneous (FEMM Act 1995), the Nigerian Export Processing Zones Decree No. 63 of 1992, the Investments and Securities Decree No. 45 of 1999, and the Mineral and Mining Act 1999, supplement the NIPC Act in regulating FDI in Nigeria.

Domestic politics plays a major role in determining energy policy (Phillips & Newell, 2013). Additionally, FDI inflow requires a sophisticated system to assess a country's desirability, and investors heavily consider the political conditions of a country when making their assessment. In addition, democratic nations are more likely to defend property rights, have independent judiciaries, and have more efficient dispute-resolution processes for businesses (Gradstein 2007) all of which increase their ability to attract foreign investment. In contrast, according to some studies, nations with less developed democratic institutions are more appealing because they can provide preferential treatment in the form of tax breaks (Li & Resnick 2003), a compliant labour sector, and less stringent anti-competitive laws all increase return rates. Nonetheless, the majority of research consistently finds a favourable correlation of some kind between democracy and FDI inflow. Also, politically developed countries with democratic institutions attract considerably higher FDI.

Countries with a history of turbulence received less FDI than their more stable counterparts (Brada et al. 2006). According to respondents, capital is susceptible to future uncertainty. Consequently, markets with a high likelihood of political unrest tend to raise investors' suspicions (Servén & Bank 1998). In contrast to economies without violence, those experiencing violent upheaval tend to receive less FDI flows. Compared to economies where there is no violence, FDI flows are less into those where there is violent upheaval (Schlesinger & Tomashevskiy 2024). In addition, violence is a significant indicator of market risk because it increases the likelihood of sustained instability. Investment experts believe that risky markets struggle to attract foreign direct investment, with FDI flowing less

into countries experiencing political unrest (Lacroix et al. 2021). From the following, it can be inferred that foreign direct investment is susceptible to a variety of risks that could potentially jeopardise its production, efficiency, and profitability. Assuming companies want to maximize investment returns, they must reduce their risk exposure.

Social unrest, which is a subset of political stability, has a great impact on FDI. Furthermore, social unrest is known to displace people and severely disrupt the country's economies (Collier 2006). Overall, the disruptive and destructive repercussions of civil disturbance have been major causes for concern. Additionally, disruptive events like protests, civil wars, and politically motivated violence can impede a country's socioeconomic progress (Nafziger & Auvinen 2002). In addition, social unrest has led to an increase in the frequency of civil disturbances, which has significant implications for global social, political, and economic advancement. Furthermore, domestic strife is another issue linked to political risk and foreign capital (Rafat & Farahani, 2019). According to studies, host nations experiencing political unrest increase investor risk and receive fewer FDI inflows, while violent conflict raises uncertainty and risk, contributing to lower FDI. Also, terrorism, which typically entails violence, reduces FDI.

7.4 Dominant Factor 2- Government Efficiency

H¹: Exploring how government efficiency through economic performance, fiscal responsibility, regulatory quality, and judicial system impact FDI in the LNG sector in Nigeria.

This illustrates the influence of government efficiency on foreign direct investment (FDI) in the LNG sector, taking into account factors such as economic performance, fiscal responsibility, regulatory quality, and the judicial system. The purpose of this study was to identify the differences and similarities in the opinions of stakeholders in the gas industry. Findings show that there is a statistically significant relationship between government efficiency and FDI inflow. As a result, alternative hypothesis H¹ is accepted, showing a link between the dependent variable FDI and government efficiency, while null hypothesis H⁰ is rejected.

7.4.1 Results Interpretations

Participants shared similar viewpoints, and the similarities and contrasts underscore the impact of government efficiency on foreign direct investment. Until recently, there was a consensus that multinational corporations invest in specific locations primarily because host countries have strong economic fundamentals, such as huge market size and stable macroeconomic conditions. Also, government policy can increase and diminish market imperfections, increasing or decreasing FDI inflows.

Economic performance is a function of government efficiency, which impacts FDI inflow in the LNG sector, boosting economic growth and providing a solution to the economic issues of developing countries. Moreover, FDI is considered a crucial element of a nation's economic integration and a significant source of capital investment (Gao 2005). Furthermore, developed nations' functional economic systems play a significant role in FDI inflows (Khan 2007), suggesting that policies aimed at attracting FDI should also focus on improving these nations' economic systems. For developing nations, FDI is a crucial driver of economic growth (Sabir et al. 2019). This is because countries with a lack of capital and technological know-how are more likely to experience slower growth rates than those with an abundance of both. Equally, uncertainty over economic policy plays a major role in FDI inflows (Canh et al. 2020). Furthermore, gains from FDI inflows may not materialise in an uncertain environment, which is characteristic of most African countries.

Government fiscal responsibility impacts FDI inflows. Also, countries can use fiscal policy instruments as strategic tools to influence the inflow of FDI up to a certain level (Göndör & Nistor 2012). Equally, nations can encourage FDI by lowering corporation tax rates or investing in greater production of public inputs that may be useful to investors (Andersen et al. 2017). Financing these measures requires optimal fiscal policy. Countries typically differ in their optimal strategies. Also, fiscal policy is an essential tool that the government can use to impact the economy. Most countries, regardless of their economic development stage, use a range of fiscal policy incentives to attract FDI (Göndör & Nistor 2012). Similarly,

governments can regulate macroeconomic factors such as aggregate demand, disposable income, and overall economic activity through fiscal policy (Arestis 2012), which deals with potential market inconsistencies and redistributive objectives to determine economic growth and implicitly, the business environment.

Regulation is critical for implementing project investments. Generally, the implementation of regulatory frameworks influences the establishment of new strategic projects and their efficiency (Wagner & Fain 2018). Similarly, regulation affects the viability of new gas projects from an economic standpoint (Zhao et al. 2020). Further findings from the qualitative study indicate that the country is home to numerous regulatory agencies, which can pose significant challenges. Moreover, government regulations haven't always been positively received by certain investors because of policy somersaults. On a positive note, the Petroleum Industry Act, a recent policy that provides a clearer fiscal framework and licensing regime for upstream gas development, is the most significant achievement in the Nigerian energy industry. Additionally, the regulatory agency has issued regulations that require producers to convert their gas reserves into monetary value. Moreover, an investor-friendly, transparent, and supportive regulatory environment with efficient procedures attracts FDI (Khakimovna, 2024). Also, the OECD report underscores the importance of a supportive regulatory environment in maximizing the benefits of FDI. Moreover, ineffective implementation of regulations affects the efficiency of projects, leading to potential delays or even project cancellations. Some experts suggest that Nigeria's energy sector has the least regulation globally due to its lax regulatory structures.

Research findings reveal that judiciary independence impacts FDI inflows. Furthermore, legal issues and barriers frequently accompany foreign investments in Nigeria, which, if left unaddressed, could restrict or hinder the investment in gas projects. Additionally, both external and internal factors like procedural justice, moral accountability to stakeholders, and economic freedom can positively influence the effectiveness of an organisation (Shin et al., 2015).

Additionally, the quality of the legal framework positively correlates with the number of economic returns within an organisation (Cormier et al. 2005). Therefore, improved access to justice enhances the positive impact of democracy on foreign direct investment.

7.5 Dominant Factor 3- Corruption Levels

H¹: To examine Nigeria's corruption levels through the effect of government accountability, policy credibility, and sovereign ratings affect FDI inflow into the LNG sector.

The impact of corruption on FDI in the LNG sector was examined through government accountability, credibility, and sovereign ratings. The goal was to explore the variances and similarities in the perspectives of gas stakeholders. Additionally, the results of the theory testing show a statistically significant relationship between corruption and FDI inflow. Consequently, alternative hypothesis H¹, demonstrating a relationship between dependent variable FDI and corruption is accepted, while null hypothesis H⁰ is rejected.

7.5.1 Results Explanations

Corruption can impact the inflow of FDI into the LNG industry. This section looked at how sovereign ratings, government accountability, and credibility affected FDI in the LNG sector. Additionally, the test results show that there is a statistically significant correlation between corruption and FDI inflow. In addition, the aim was to identify the differences and similarities in the opinions of stakeholders in the gas sector. Furthermore, parallels and differences highlight how corruption impacts FDI inflow. Similarly, policies govern FDI inflow and the operations of foreign companies, and corruption complicates and disrupts these policies (Panigrahi et al., 2020). The qualitative findings from the respondents suggest that corruption is not only wrong but also a hindrance to economic growth. It could potentially act as a tax on investment income, thereby creating a hostile environment for investors. Some respondents also regarded it as legally wrong, morally wrong, and economically indecent. Additionally, corruption fosters a hostile environment for investors. Moreover, the corrupt inclinations of decision-

makers influence gas investment projects, and the level of corruption in an organisation impacts its overall growth (Ejiogu et al. 2019). Some researchers have stated that corruption has a statistically significant and relatively large negative impact on foreign direct investment. More significantly, corruption has a greater detrimental effect on FDI than it does on other forms of capital inflows (Hossain 2016).

Government accountability, as an indicator of corruption levels, plays a crucial role in energy investment issues. Additionally, accountability can be achieved by making budget documents available to the public and ensuring timely access to high-quality information. By making the past, present, and future status of public finance more predictable, fiscal information disclosure serves to increase the trustworthiness of a country's fiscal policies and can help underpin market confidence and market perceptions of fiscal solvency. Additionally, fiscal transparency enhances the political and economic atmosphere of a country, rendering it more conducive to foreign investment (Sambharya & Rasheed 2015). Also, government openness, or straightforward access to information about governmental operations, increases a nation's appeal to foreign investors (Groh & Wich 2012). Furthermore, investment security positively impacts FDI, while expropriation risks and corruption levels negatively impact it, creating a risky business climate.

Government credibility encourages investment in energy projects. Moreover, respondents reckon that in attracting FDI, democratic countries have an edge over authoritarian countries because they are better able to make credible commitments to foreign investors (Chuen & Teo 2014). Once made, FDI is difficult to recover, and it exposes host governments to a commitment dilemma in which government credibility is required. Whatever the initial agreements are between host nations and foreign investors, once investments are made, host countries have a dominant position since they can breach the initial arrangements. The qualitative data reveals that foreign investors encounter policy changes and expropriations in host countries, and they are cognizant of the potential for contract breaches by host governments. Therefore, the host

government must credibly pledge to protect the interests of investors. According to theories espoused by respondents, governments seeking to attract FDI can improve the environment for foreign investors by improving political institutions and economic policies that encourage FDI inflows. Also, foreign investors are constantly seeking investment opportunities where the institutional climate is supportive and conducive (Jude & Levieuge 2017; Li & Resnick 2003). Furthermore, investors choose to invest in host nations with transparent institutional frameworks and well-defined policies (Keeley & Matsumoto 2018). In addition, democracy has an institutional advantage over autocracy in attracting FDI because institutional checks are essential for long-term policy credibility. While policy credibility holds significance, it's not the sole institutional element that shapes foreign investors' choices.

The country's sovereign ratings influence FDI and encourage investment in energy projects. Also, sovereign ratings combine all the risk factors that rating agencies deem important. Therefore, third-party sovereign credit ratings serve as a valuable information resource for foreign investors (Sandleris 2008). One of the most challenging problems in FDI flows is information asymmetry for investors. Hence, third-party sovereign credit ratings are an essential source of information for foreign investors, combining risk characteristics deemed important by rating firms. Additionally, most foreign investors utilise government credit ratings as a benchmark before making investments in any given environment (Ammer et al. 2000). Additionally, factors such as a country's per capita income, GDP growth, inflation, external debt, level of economic development, and default history determine its sovereign credit rating (Afonso et al. 2011; Erdem & Varli, 2014). Similarly, most corporate clients use sovereign ratings as a rating ceiling (Vu et al. 2022), and there is a significant correlation between capital outflows from downgraded countries and sovereign downgrades. Likewise, comparable data on global bank transfers demonstrates that news of downgrades impacts a country's currency, bond, equity, and credit default swap markets, thereby impacting project investment.

7.6 Research Limitations

Key research methods used in this study were questionnaire-based surveys, interviews, and focus group discussions to obtain primary data. When conducting either a questionnaire-based survey, semi-structured interview, or focus group discussion, it is customary to recognise inherent limitations. These limitations include the potential for misleading responses, non-response bias, participants who may not be qualified but may present as qualified, and the potential bias or sincerity of participants, all of which can impact the outcome of the study. For instance, some respondents may conceal relevant information that their company considers classified.

However, all practical steps were taken to minimise these constraints by carefully selecting reliable individuals with a high degree of competence and integrity. At the same time, the benefits of certain research methods outweigh the drawbacks. Furthermore, a relatively small number of people participated in the interview, whereas a larger sample size could yield additional information for the research. Another constraint was the time it took for the majority of respondents to complete and return the questionnaires. More than four weeks were required to complete the questionnaires, with some respondents never returning them and others submitting incomplete responses. To resolve the issue of an incomplete questionnaire, which results in missing answers, Missing Completely at Random (MCAR) tests were used.

The survey-based questionnaire was a huge success, with a very high response rate. Also, the high rate of return was attributed to the constant follow-up with respondents and their interest in the raised topic. However, there are a few issues with the questionnaire, primarily due to its small sample size of only 150 responses. A larger sample size would have produced more results and improved the findings' reliability. In addition, because respondents are mostly stakeholders in the gas industry, the results supported the viewpoints of major stakeholders in the industry globally. Plus, a more equitable distribution will boost research validity.

The Cronbach alpha score indicated that the questionnaire was credible, but it was rather low. Plus, a higher score would have indicated more dependability of findings. Also, non-probability tests were used due to Likert data responses, even though a probability test would have been more convincing. Moreover, to check for relationships, other tests were applied to the questions, such as Pearson's chi-square test. However, the small sample size necessitated the use of Fisher's exact tests, as the lack of demographic information requirements limited further data testing.

During the purposive sampling process of selecting participants, the risks of bias need to be minimised. Also, the purposive sampling process reduces the potential for bias by restricting the number of respondents from the same organisation to two and selecting only senior representatives. Also, there is a chance that some respondents might not respond truthfully to the questions, which might be attributed to a variety of factors, such as lack of time, the belief that their experience was insufficient, or lack of authorisation. This was mitigated by the promise of anonymity. Therefore, social desirability bias was prevented.

During this PhD research, care was taken to prevent leading questions and phrasing biases. It was inevitable that there would be some bias towards results when coding qualitative data. As an alternative, factor analysis might have produced more dependable decisions regarding shared experiences, viewpoints, and suggestions. Although the open-ended questions yielded valuable insights, the space constraints in this thesis hindered the inclusion of detailed results.

7.7 Research Contributions

The fundamental value of research lies in empirical data gathered and conclusions drawn from primary data analysis presented in Chapters 4 FINDINGS- Questionnaire-Based Survey 5. FINDINGS- Interview Data Analysis 6: Focus Group Discussion. Furthermore, the mixed-methods research approach (questionnaires, semi-structured interviews, and focus group discussions) provides a more reliable way to analyze complex and dynamic phenomena related to factors driving FDI in the LNG sector. Equally, this PhD research demonstrates the effective application of research methodologies to tackle

challenges in the LNG sector and issues related to FDI. Additionally, this thesis contributes to the literature by utilizing numerous theoretical frameworks to interpret and explain empirical data, while also addressing research questions using terminology rooted in formal theory. As a result, this PhD research used multiple theories on factors driving FDI in the LNG sector, and it will help researchers apply them to other sectors, businesses, industries, and countries to understand the strategies used.

Theoretical underpinnings of this thesis show that the research concept is transferable to other businesses, industries, sectors, and even nations, being that it shows factors driving FDI in the Nigerian LNG sector and lessons learned through the study. Also, the research employs a unique combination of three mixed-methods, such as a questionnaire-based survey for quantitative analysis, a semi-structured interview, and a focus group discussion for qualitative analysis, to examine the factors influencing FDI in Nigeria's LNG sector. Furthermore, there has been no prior publication of the data collected from relevant stakeholders. Similarly, previous research did not combine all three aforementioned methods to gather data.

Firstly, the research outlines major factors driving FDI in Nigeria's LNG sector, providing insight into what motivates foreign investors to invest. Additionally, policymakers, investors, and other industry players can also use the insights it offers to make well-informed decisions about investments, policies, and strategies used to attract and retain FDI in Nigeria's LNG sector. Equally, the thesis can enhance the competitiveness of Nigeria's LNG industry by identifying factors that attract FDI, potentially leading to increased investment. In addition, the PhD research utilises Nigeria's LNG sector as a case study, offering practical insights and lessons that other countries seeking to attract FDI in their LNG sector can implement. The government should address and implement the issues listed below.

The inferences indicate that implementing good government policies is a major factor driving FDI in the LNG sector. Also, provable and recoverable gas reserves and assets are key drivers of FDI in the LNG sector. However, the cost of entry

is five times higher in Nigeria than in other gas-producing countries for similar projects, so why would any investors come to Nigeria? (That is the begging question). As a result, policymakers and political leaders need to address and reduce the cost of entry for foreign investors.

Geopolitical risk as a whole, with the uncertainty it introduces, affects FDI inflow into the LNG sector. If political stability is unachievable, investors will tend to move to more stable countries. Both politics and business are interrelated, and acknowledging this relationship allows for a better understanding of political risk and how it impacts FDI inflow.

It is imperative for the government to eliminate taxes in the early years for companies investing in the gas sector, and tax holidays should be provided for companies that are bold enough to invest in the Nigerian LNG sector. In addition, the fiscal policy aims to protect the value of the home currency, maintain favorable foreign reserves, and promote price stability in the domestic economy. This demonstrated the degree of consistency, as well as the impact of volatility and currency rate changes on FDI inflow.

Security is crucial because political instability makes investment decisions more challenging. No investor wishes to invest in a region where political power struggles are prevalent, and the presence of political issues further complicates operations within that jurisdiction.

If regulations such as labour regulations and legal frameworks become solid legal structures that can be tweaked and made more effective, the implementation of an agreed-upon legal framework does give investors the impetus to invest. Nigeria has numerous regulatory zones, a challenge that government must address. Additionally, the government should prioritise the advancement of gas transport rights at the transportation level, given that the majority of incoming investments are currently focused on storage.

Also, government should ensure the forward development of gas transport rights at the transportation level, as the majority of incoming investments are currently focused on storage.

The key challenge for FDI inflow into Nigeria's LNG sector is the impact of the investment barriers. Additionally, the absence of established standards and quality control for both locally produced and imported technologies significantly hinders the growth of Nigeria's gas business. Another barrier is the impact of corruption, which can act as a tax on investment income, reduce the quality of investments, and divert resources from their intended use into payoffs, thereby impeding the bottom-line growth of an organisation.

Investors will benefit from the host country's policy framework, as it aids in decision-making by assessing the risk and appeal of each host country.

Funding risk and securing finance to execute projects are high in Nigeria. It is evident that if the economy of a country is unstable, it will affect FDI and surely have a significant effect on project development, which affects production and potentially discourages investment, making it harder for companies to finance conceptualised LNG projects.

Due to risk exposures and uncertainty in the Nigerian investment climate, economic risk can be mitigated by investing in insurance and hedging activities against exchange rate fluctuation, which will prove worthwhile to mitigate the risk.

Gas sector monetisation is important so that gas producers can produce and supply the domestic market in Nigeria. Furthermore, Nigeria is a huge market, but it is under-industrialised. When the market is open to value addition, projects such as NLNG and NLPG and other upcoming ones; like conceptualised LNG projects; Brass and Olokola, that failed to achieve final investment decisions will serve as value additions to the economy.

Manpower requirements for LNG projects typically require a high level of skill, and the quality of manpower in Nigeria is currently low due to major challenges such as the aging of technically skilled hands in the industry and a shortage of young individuals with relevant expertise. Better education systems and programs are necessary to produce high-quality graduates who will manage LNG operations shortly.

Nigeria's high cost of doing business makes it an unattractive investment destination because of its seemingly unresolvable political instability and deteriorating socio-economic conditions.

Examining environmental policies and discussing carbon footprint targets is crucial, taking into account all other significant factors. Furthermore, to promote environmental sustainability, there exists a carbon market. By purchasing this carbon and encouraging investments in it, we can increase investments in gas projects and contribute to environmental protection.

In the development of natural gas resources and futuristic projections, there is evidence of a similarity between the LNG sector and the future hydrogen economy. Despite the immaturity and infancy stage of the hydrogen economy, there exists an opportunity for knowledge and technology transfer from the LNG sector to the hydrogen space. This implies that those interested in building future hydrogen projects want to follow the LNG footprint.

Nigeria is currently experiencing a limited flow of capital and is competing for FDI with new players in the Sub-Saharan Africa region. Some countries in the region have planned projects with saner and better regulatory frameworks or offer incentives for LNG projects. These countries used Nigeria as a yardstick and learning curve to perfect and build an attractive framework that will attract investors. Therefore, Nigeria needs to rework its regulatory frameworks to align with best global practices and standards.

Contributions from senior-level executives provided the research with the necessary real-world information, strategic viewpoints, and insight into the past, present, and future developments in Nigeria's LNG sector, as well as perceptions of how laws and regulations affect FDI in the LNG sector. Additionally, the research demonstrates a comprehensive understanding of the practical challenges associated with LNG projects, including logistical, environmental, and technological obstacles. It also highlights methods used by companies to reduce the risks associated with LNG investments. They shared viewpoints on macroeconomic stability, inflation, and exchange rates that either encourage or

discourage foreign investment in the country. Furthermore, the research explains the financing of LNG projects, including the sources of funding, investment requirements, and the role of financial institutions, while incorporating an understanding of the cost structures and economic feasibility of LNG projects. Additionally, the article discusses the influence of CSR initiatives on investor decisions in the LNG industry, the effects of LNG projects on local communities, and the strategies used by investors to manage these relationships.

7.8 Research Implications

Research may provide investors, industry participants, and policymakers with useful information, promoting the long-term development of Nigeria's LNG market. Currently, this PhD research has identified factors driving FDI in the LNG sector. Section 2.10 above captures the unanswered questions in research gaps. Moreover, Chapter 3's analysis of the collected data reveals the research implications, enumerated below, which policymakers can utilize to formulate focused strategies for FDI attraction and retention. For example, if the regulatory framework is highlighted as very restrictive, the government should prioritise reducing regulations and establishing an investor-friendly climate.

Equally, this thesis can help investors gain a better understanding of the factors driving FDI in Nigeria's LNG sector. It can help them establish effective investing strategies by identifying appropriate entry points, distinguishing risk considerations, and matching investments with identified driving factors.

It could provide insight into the potential risks associated with FDI in Nigeria's LNG sector. This knowledge can help policymakers and investors design risk-mitigation measures. Whether it is political unrest, security issues, or regulatory hurdles, a thorough grasp of these risks can help inform decision-making.

The thesis assesses how Nigeria's LNG sector competes globally for foreign investment. So, understanding the Nigerian LNG sector's competitiveness in comparison to other global competitors can help drive ideas for improving its global market position. Given the growing emphasis on sustainable investments, this thesis investigates how sustainability practices influence FDI in the LNG

sector. This data can assist the LNG sector and policymakers in aligning their strategies with global sustainability goals.

The thesis provides information about the long-term growth trajectory of the Nigerian LNG market by identifying important FDI drivers. Therefore, industry stakeholders can use this information to plan for capacity expansion, predict trends, and make well-informed decisions on sustainable development.

Understanding the drivers of FDI can have significant implications for local populations, providing insight into how FDI influences local economies, job creation, and community development. This understanding is crucial to ensure that FDI has a positive social impact.

Finally, conducting comparative studies can enhance our understanding of global patterns of foreign direct investment in the LNG sector. This can stimulate additional local and international studies, revealing the differences in FDI drivers between Nigeria and other LNG-producing nations, as well as the unique challenges and opportunities that Nigeria presents. Therefore, the findings of the thesis on FDI inflow into the LNG sector can be applied to other sectors of the economy, and other countries, and align with previous literature. Three major factors are identified as the dominant ones: political stability, government efficiency, and corruption, each with its unique components. Previous research has not fully comprehended and explained the dominant factors that collectively drive foreign direct investment in the LNG sector. This is a new insight and contribution to knowledge.

Figure 7-1 below is the sketch and classification of factors driving FDI in the Nigerian LNG sector. They are classified into two categories: attractors or deterrents under different dominant factors. Therefore, policymakers, investors, and stakeholders should concentrate on enhancing the attracting factors, while reducing or eliminating the deterrent factors to attract and maintain foreign direct investment.

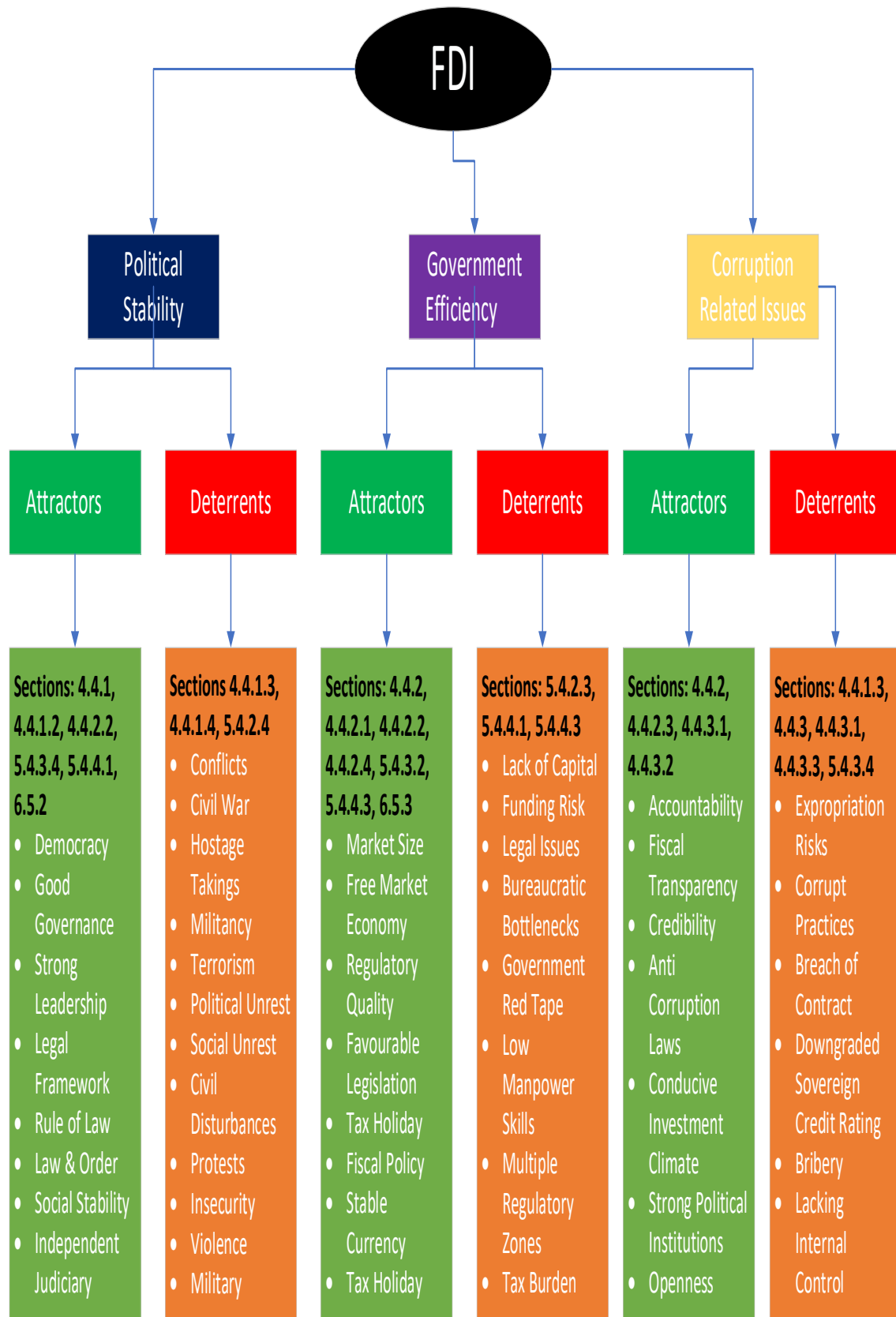


Figure 7-25 Classification of Attracting and Detering Factors

8: Conclusion & Recommendations

Research is concluded in this chapter. This chapter suggests areas for further research and guidance for policymakers. Additionally, the research aims to investigate the factors that drive foreign direct investment in the LNG sector, using Nigeria as a case study. In addition, the empirical research results demonstrate how these factors influence FDI in the LNG sector. Nonetheless, this chapter is organised as follows: 8.1 Conclusion, 8.2 Recommendations 8.3 Future Research Areas.

8.1 Conclusion

The goal of this PhD research is to analyse factors driving FDI in the LNG sector. The research objectives categorised and identified the key factors influencing FDI in the Nigerian LNG sector, using the institutional approach by analysing the impact of good governance, political stability, and how corruption and efforts to improve transparency influence FDI decisions. Another approach is the assessment of government economic policies and liberalisation reform initiatives and how infrastructure, economic growth, and market size all play a part in attracting FDI. This study sought to investigate the primary factors that influence FDI in Nigeria's LNG sector, with an emphasis on factors such as political stability, regulatory quality, legislation, gas reserves, and market scale, as emphasised in the existing literature.

The findings supported Farooq et al. (2023) and Kovacic & Di Felice (2019) conclusions that political stability is a key driver of FDI. However, this research also indicated that government efficiency is more important than previously thought and corruption hugely impacts the inflow of FDI into the LNG sector. Also, the findings validate Dunning's OLI paradigm, namely the Location advantage, as a crucial factor influencing FDI in the LNG sector. The findings will contribute to existing literature and offer a comprehensive understanding of the unique dynamics and challenges of attracting foreign investment in the Nigerian context. The results can inform policymakers, industry practitioners, and investors in Nigeria and other similar environments, enabling them to make informed

decisions and develop strategies to enhance FDI in the LNG sector. The research identifies political stability, government efficiency, and corruption as sufficient factors, and also identifies a few others as necessary factors. These are the gaps and challenges addressed in this thesis. This research revealed that in Nigeria's LNG sector, political stability, government efficiency, and infrastructural quality had a greater impact, contrary to conventional beliefs that the abundance of natural gas resources can be considered a major factor influencing FDI.

Additionally, the research yielded contributions derived from newly developed and gathered data on page 95, utilising innovative methods from paragraph 3.9, demonstrates how the knowledge gained from the theory can be applied and transferred to other studies, sectors, and countries. The acquired knowledge enables a fresh perspective on the research questions and issues.

This research addresses a critical gap in the literature by offering empirical evidence regarding the factors that influence FDI in the Nigerian LNG sector, a subject that has received inadequate attention in previous research. Novel contributions, like political and economic stability, addressed the research question. "What are the key factors influencing foreign direct investment in the Nigerian LNG sector? ii. How does the political and economic stability of Nigeria impact foreign direct investment in the LNG sector? Another novel contribution is how government efficiency plays a significant role in addressing the research question i. What role do government policies, legislation, and regulations play in attracting or deterring foreign direct investment in the Nigerian LNG sector? ii. How can Nigeria enhance its attractiveness for foreign direct investment in the LNG sector? Corruption is the last novel contribution that addressed the research question i. What are the challenges and risks associated with foreign direct investment in the Nigerian LNG sector? ii. In what way do environmental, social, and corporate governance issues impact FDI decisions in the LNG sector in Nigeria?

The discovery that political stability and government efficiency trump the abundance of natural resources in attracting FDI to Nigeria's LNG sector provides a new perspective that might inform both academic research and policymaking.

Following Soumalevris (2023), Shahnawaz (2022), and Mottaleb & Kalirajan (2010) recommendations, this research proposes that government should prioritise the improvement of regulatory quality, legislation, and political stability to attract more FDI.

In all, this research made significant thirteen (13) findings: political stability is key and if unachievable will drive investors away; the cost of entry is five times higher in Nigeria, and the cost of doing business is astronomical compared to other gas-producing nations; the funding risk and securing finance for LNG projects are high in the country, and corruption acts as a tax on investment income, hampering the bottom-line growth of an organization. Also, Nigeria is experiencing limited capital flow because other gas-producing countries in the SSA region have attractive frameworks; the regulatory zone in Nigeria is complex and should be tweaked to be effective; and there are investment barriers in the form of a lack of well-established and quality control of locally produced and imported technologies.

Though Nigeria is a huge market, it is under-industrialised, and the quality of manpower available for LNG projects is low in the country. However, there is evidence of similarity between the LNG sector and the future hydrogen economy, which offers an opportunity for knowledge and technology transfer from the LNG sector into the hydrogen space. In addition, inadequate infrastructure characterises the country's current energy market conditions.

The contributions are useful for academics and stakeholders in the gas industry, as well as relevant to the literature. Based on the empirical findings from primary data gathered through a questionnaire-based survey (quantitative method), semi-structured interview, and focus group discussion (qualitative method), we can adjudicate that the highlighted factors impact FDI inflow in the LNG sector. This study sheds light on Nigeria's LNG sector's complex landscape and the factors driving FDI. It is safe to assume that the research's conclusions adequately addressed its established goals.

A thorough examination also reveals the following key factors, which are crucial for attracting, sustaining, and retaining FDI in the LNG sector.

i. Nigerian government efforts in ensuring political stability, fostering social harmony, and providing a secure environment cannot be understated and must be top-notch. Thus, political stability is not just a necessary factor but also sufficient to attract FDI.

- Political stability, social harmony, and security measures heavily influence long-term investment commitments in the LNG sector. Therefore, the sociopolitical climate and security concerns in any jurisdiction heavily influence the decisions made by investors.
- Critical attributes determining investor perceptions and confidence, such as political stability, social harmony, and security measures, significantly impact the investment landscape.
- A politically stable environment that provides a stable and safe working environment is beneficial to investment. Investors also want to be assured that laws and regulations will not change suddenly and will remain consistent throughout the country.
- Politically stable environment encourages trust in the sustainability of investment plans, allowing companies to make long-term strategic decisions without worrying about disruptive political change.
- A stable political environment fosters a conducive environment for businesses to flourish. It reduces the likelihood of labour strikes, protests, or unrest, which can cause business disruption and damage investor confidence.
- A cohesive social structure fosters a highly effective labour force and a favourable atmosphere for business growth.
- Ensuring security is critical, and maintaining long-term investments necessitates employee, property, and operation safety. Consequently, it is imperative to have a strong security system in place in Nigeria that efficiently protects vital infrastructure, such as supply chains and LNG installations.
- Investors prioritise nations with strong security measures because they reduce the likelihood of theft, vandalism, or terrorist attacks that could interfere with business operations.

- Regional stability and geopolitical developments influence investor sentiment because global geopolitical events and political relationships with neighbouring countries can affect investors' risk perception.
 - Investors are concerned about security threats in the Niger Delta region. Thus, investors regard risk mitigation strategies as pivotal. This includes conducting comprehensive risk assessments, understanding the Nigerian geopolitical landscape, evaluating social and political stability in the country, and implementing contingency plans to mitigate potential risks.
- ii. Government efficiency is a sufficient and necessary factor for attracting FDI in the LNG sector, according to the list below.
- Economic performance is a function of government efficiency, which impacts the inflow of FDI in the LNG sector, thereby boosting economic growth.
 - FDI is considered a crucial element of a nation's economic integration and a significant source of capital investment. Additionally, functional economic systems play a significant role in FDI inflows in developed nations such as Nigeria.
 - The government can use fiscal policy instruments as strategic tools to influence FDI inflows up to a certain level in the country.
 - By lowering corporate tax rates, the Nigerian government can encourage FDI. Regardless of their economic development stage, most countries use a range of fiscal policy incentives to attract FDI.
 - Government implementation of regulatory frameworks influences the establishment of new strategic projects and their efficiency.
 - Some investors have not always viewed government regulations favourably due to policy reversals in the country.
 - The most important achievement in Nigeria's energy industry is the recent passage of the Petroleum Industry Act (2021), a significant piece of legislation that provides a clearer fiscal framework and licensing regime for upstream gas development.
- iii. Corruption and its components are significant, sufficient, and necessary factors in FDI attraction. They are highlighted below.

- Corruption is pervasive, and potential investors may perceive increased risks from bribery, fraud, and unethical business activities.
- Corruption can result in inconsistent policy execution and regulatory uncertainty. If regulatory authorities are prone to corruption, investors may struggle to navigate the regulatory landscape, reducing their trust in the system.
- It can disrupt market competitiveness, inhibit fair business procedures, and disfavour ethical investors who may not want to participate in corrupt activities.
- Investors may face extortion and bribery requests from corrupt officials. These illegal actions can increase the cost of doing business in the country, create uncertainty, discourage potential investors, and impede the growth of the LNG sector.
- Corrupt practices can penetrate legal and contractual systems, leading to disagreements and legal issues. This increases the risks for investors by altering contract enforcement and dispute resolution.
- Pervasive corruption in the LNG sector has the potential to tarnish Nigeria's global reputation, and negative perceptions can strain diplomatic relations, making it difficult for the government to attract credible foreign investors or create strategic alliances.

iv. While Nigeria's gas asset is a necessary factor, its natural resource endowment is not sufficient to draw foreign direct investment. Listed below are the attributes.

- Nigeria's abundance of natural resources, particularly its substantial natural gas reserves, attracts foreign investors
- Nigeria's capacity for large-scale LNG production and export makes it a desirable location for investments. Significantly, the abundance of natural gas resources in Nigeria is a major attraction for foreign investors.
- An abundance of gas resources will attract investors looking for profitable opportunities in the energy industry.
- Nigeria's substantial reserves place it in a favourable position in the global energy scene, particularly in the production and export of LNG.

- Nigeria's natural gas reserves are attractive due to their vast quantity and the untapped potential of the LNG sector
- The abundance of gas resources in Nigeria, presents a good investment opportunity to foreign investors hoping to profit from the rising demand for natural gas globally.
- Global demand for LNG continues to grow for a variety of reasons, such as rising energy demands, environmental concerns favouring cleaner energies, and LNG's flexibility in covering a wide range of energy needs.
- Nigeria's ability to produce and export LNG positions it to meet expanding global demand, making it an appealing investment destination for foreign investors looking to capitalise on the burgeoning LNG market.
- Nigeria's geographic advantage of being located along key Atlantic and Pacific shipping routes adds to its appeal for LNG exports.
- Nigeria's geographic advantage of being located along key Atlantic and Pacific shipping routes adds to its appeal for LNG exports.
- Access to international shipping routes promotes LNG shipment to the global market, thereby increasing the country's potential as a major player in the global LNG trade.

v. One other crucial factor is the regulatory framework that governs the LNG sector. It is a necessary factor in attracting FDI.

- Regulations that are clear, stable, and transparent boost investor trust, whereas inconsistencies or ambiguities may hinder FDI.
- The regulatory framework governing Nigeria's LNG sector influences FDI decisions and is critical in shaping investor opinions.
- Building investor trust and attracting long-term investments in the LNG sector requires a strong, open, and uniform regulatory framework.
- Investors can only operate in a predictable climate with clear and stable regulations.
- Investors reliably analyse risks, plan long-term investments, and make strategic decisions when policies and guidelines are clearly defined and

stable over time. Investors feel more confident and commit to large-scale projects in the LNG industry due to this stability.

- Decision-making and regulatory processes must be transparent, and clear regulations guarantee that investors can obtain information about government policies, licensing, and compliance requirements. This transparency promotes an atmosphere in which investors understand the rules, allowing them to effectively manage the regulatory landscape.
- Transparency by regulators in the gas sector in Nigeria also reduces the potential for favouritism or arbitrary decision-making, encouraging fairness and equal chances for all investors.
- Enforcing regulations consistently is crucial. The consistent enforcement of regulations by regulators such as NUPRC, NCDMB, and NMDPRA establishes a level playing field for all, enabling investors to anticipate the enactment and enforcement of regulations, thereby reducing the risk of unforeseen changes or disruptions that could jeopardise their assets.
- Inconsistencies or ambiguities in regulations can be significant barriers to FDI, and uncertain regulations or contradictory policies cause confusion, raise compliance costs, and question the rule of law obtainable in the country.
- Uncertainties may deter potential investors, who may choose to invest in more stable environments elsewhere if they perceive Nigeria to be fraught with regulatory uncertainties and functional difficulties.
- Simplified procedures, timely approvals, and minimal bureaucracy positively influence investor perceptions, making effective regulatory processes essential.
- Complicated regulatory processes, extensive red tape, and delays in getting relevant permits or licenses might discourage investors and impede the timely completion of LNG projects in the country.
- Prioritising regulatory reforms is necessary to attract and retain FDI in the LNG sector in Nigeria. This involves making efforts to enhance regulatory clarity, stability, and transparency. Regularly reviewing and refining the regulatory framework, which involves stakeholder discussions, ensures

that regulations remain relevant and align with the evolving demands of the LNG sector.

- By investing in capacity building, regulatory bodies such as NUPRC, NMDPRA, and NCDMB can enhance their efficiency and ensure the effective implementation of regulations.
- The regulatory environment in Nigeria has multiple layers with overlapping functions that must be streamlined for effective regulatory oversight. The regulatory environment in Nigeria has multiple layers with overlapping functions that must be streamlined for effective regulatory oversight.

vi. Global market trends are another important factor in attracting FDI to the LNG sector.

- Global market trends, such as price strategies, competition, and demand trends, significantly impact FDI. Therefore, understanding these market pressures is critical for the long-term viability of investments in Nigeria's LNG sector.
- Global market dynamics significantly influence and closely link FDI in Nigeria's LNG sector. So, ensuring the long-term viability and profitability of investments in Nigeria's LNG sector requires an understanding of and effective navigation of market constraints in the sector.
- Global LNG markets are susceptible to price fluctuations caused by energy policy, supply-demand dynamics, and geopolitical shifts. Consequently, investors in the LNG sector must pay close attention and react accordingly to price strategies, such as pricing mechanisms, long-term contracts, and spot prices.
- The profitability of LNG investments depends on investors' ability to manage pricing risks, negotiate favourable contracts, and adjust to shifting price trends.
- The LNG industry operates in a fiercely competitive global environment. Therefore, market demand is influenced by factors such as energy policy, economic growth, technological advancements, and environmental considerations. So, understanding LNG demand trends and consumer preferences is critical.

- Investors must anticipate and adapt to shifting demand trends, such as movements towards cleaner energy sources, global market demands, and changing consumer habits, to match their production and export strategies.

vii. Infrastructure development, as previously mentioned, is another crucial factor. The Nigerian government must immediately implement measures for infrastructure development to attract foreign direct investment.

- Adequate infrastructure fosters efficient LNG production, storage, and exports, thereby positively influencing investment decisions and significantly enhancing Nigeria's appeal to investors.
- For the LNG business to succeed, robust transportation infrastructure is essential, and strong rail systems, ports, and road networks that can manage the bulk transit of LNG and associated equipment are all part of this.
- Nigerian governments need to build ports with specialised LNG handling infrastructure that will facilitate exports more efficiently, making the country more competitive in international markets.
- For the LNG industry, storage facility infrastructure is crucial. Furthermore, sufficient storage capabilities, such as LNG-specific ports and tanks, ensure that the commodity is safely stored and handled efficiently.
- Reliable storage infrastructure enables strategic reserves, facilitating supply flexibility and effectively meeting shifting market demands.
- To enable LNG exports, it is essential to have developed infrastructure facilities.
- Deep-water ports that can handle LNG vessels facilitate exports to global markets.
- Investing in ship servicing facilities and infrastructure for LNG vessel loading and unloading speeds up export processes, lowers turnaround times, and boosts LNG exports' competitiveness.
- It is essential to integrate current energy infrastructure, and connectivity to distribution networks, pipelines, and power plants making it possible to

distribute and use LNG-derived energy products both domestically and internationally.

- Integrating energy infrastructure strengthens the value chain and broadens the possible applications of LNG, resulting in increased investment in the sector.
- When evaluating investment opportunities in the LNG sector, investors consider the infrastructure's adequacy and dependability.
- Infrastructure development decreases operating risks, improves efficiency, and lowers operational costs, making investment propositions more appealing.
- Dependable infrastructure instils confidence in investors' long-term viability and sustainability of their investments.
- Government initiatives in infrastructure development are critical to encouraging private-sector investment because private-public partnerships speed up infrastructure developments in the LNG sector.

In summary, a combination of these factors makes the Nigerian LNG sector more attractive for foreign direct investment. Correspondingly, policymakers, investors, and other stakeholders can benefit from the research's insights, which provide a thorough understanding of the factors driving FDI in Nigeria's LNG sector. Moving forward, strategic alignment and concerted efforts are critical, and effective utilisation of these factors will encourage the continued growth of the Nigerian LNG sector and its competitiveness in the global LNG market.

8.2 Recommendations

The results of the analysis are adjudged to have suitably addressed the research questions. However, we may conduct additional research on the factors that drive foreign direct investment (FDI) in the LNG sector, using the Nigerian LNG sector as a case study. In particular, this thesis brought to light important topics that may need special attention in the future. To begin, the factors driving FDI in the LNG sector have a significant impact and are equally important in attracting investment and achieving final investment decisions (FID). Furthermore, the general results of the thesis, which are supported by primary data gathered through

questionnaires, semi-structured interviews, and focus group discussions, indicate that the Nigerian LNG sector will attract FDI easily once all identified factors are implemented and some adverse issues are corrected. Further research comparing the factors driving FDI in the Nigerian LNG sector with those of other gas-producing nations is recommended. The comparison will highlight ways to enhance the factors driving FDI inflow in Nigeria.

Aside from the request for further research mentioned above, policymakers may use the recommendations listed below to effect positive change: However, to implement these ideas, Nigerian government agencies, industry players, and relevant stakeholders will need to work together. By addressing these highlighted issues, the Nigerian LNG industry may attract more FDI, promote sustainable growth, and make significant economic contributions to the nation.

- i. Firstly, it is important to ensure political stability and put in place security measures to foster long-term investment commitments. The Nigerian government's collaboration with security authorities to improve safety and mitigate risks for LNG investors will guarantee the security of lives and properties.
- ii. To boost FDI in the LNG sector, attractive incentives and guarantees for investors, such as tax breaks, investment protection systems, and expedited approval processes, are required.
- iii. Simplifying and improving the regulatory frameworks overseeing the LNG sector in Nigeria is crucial to ensure uniformity, clarity, and transparency. Also, it is necessary to put policies in place that streamline processes, cut down on red tape, and create a stable investment climate.
- iv. Public-private partnerships could play a pivotal role in infrastructure development initiatives. Also, to facilitate efficient production, storage, and LNG export in Nigeria, we should prioritize infrastructure development, particularly in transportation, storage facilities, and port logistics.
- v. Improving local capacity can reduce reliance on expatriate labor while encouraging indigenous employee engagement in the country, which is possible

by investing in education and training programs to produce qualified workforce relevant to the LNG sector's requirements.

vi. It is important to prioritize environmental sustainability in LNG production processes, adhering to global standards and applying environmentally friendly technologies. Also, adoption of sustainable practices can also help to improve Nigeria's LNG sector's reputation and attract environmentally friendly investment.

vii. Encouraging collaboration among government agencies, industry players, academics, and local communities to promote interest alignment, effective policy implementation, and long-term development in the country will lead to the attraction and retention of FDI.

viii. Decision-making processes, regulatory changes, and industry developments should all improve transparency. Equally, effective communication channels between government, investors, regulators, and industry stakeholders can foster trust and confidence.

ix. The Nigerian government must create tools for continuous policy monitoring, evaluation, and adaptation. Therefore, conducting constant and regular evaluations of the investment climate and LNG sectoral performance will facilitate informed changes and improvements in the country's LNG sector.

In light of the substantial influence of political stability on foreign direct investment (FDI), the Nigerian government should prioritise curbing corruption the enactment of effective legislation, improvement in regulatory quality, provision of good infrastructure, and the maintenance of a stable political environment, which the literature has identified as essential for maintaining investor confidence. Although valuable insights are offered by this research, the restricted availability of longitudinal data, as acknowledged in the literature, might restrict the applicability of the results.

8.3 Future Research Areas

Future research could investigate the influence of global LNG market dynamics on FDI in Nigeria, an area that has been identified as under-researched in the

literature. So, exploring future research areas and assessing factors driving FDI in Nigeria's LNG sector can lead to better knowledge and more informed decision-making. Similarly, studying these options for future research can help policymakers, investors, and industry stakeholders gain a better understanding of the factors driving FDI in Nigeria's LNG sector. These research directions can help create a favourable environment for long-term investments and the expansion of the LNG sector in the country. Here are some ideas for future research.

i. Geopolitical concerns significantly influence FDI in the liquefied natural gas sector. As a result, research in Nigeria provides insightful information about how geopolitical risks affect investment decisions. Moreover, political stability and regional conflicts are all considered geopolitical risks. Hence, it is critical to examine the impact of Nigeria's political stability or instability on investor confidence in the LNG sector. Future research can shed light on how political upheaval or changes in the status quo impact FDI decisions, which in turn influence investor commitments and project schedules. Also, research highlighting the importance of political stability and security measures in preserving a favourable environment for long-term FDI inflow into Nigeria's LNG sector amidst geopolitical uncertainty could provide a comprehensive comprehension of the influence of geopolitical risks on FDI.

ii. Comparative analysis of Nigeria's LNG sector and global LNG markets is critical for understanding how the country competes and attracts FDI. When compared to other major LNG-producing countries, Nigeria's market share, production efficiency, and scalability provide insights into its competitiveness and prospects for attracting FDI. Therefore, comparing Nigeria to other LNG markets and analyzing the investment climate and ease of doing business will provide significant insights. Hence, future research on the prospects and growth estimates of the Nigerian LNG industry in comparison to other international markets might provide valuable information about investment opportunities, and investors can assess the long-term viability of projects by projecting growth

trajectories and opportunities. It will also illustrate Nigeria's position in the global LNG landscape.

Future research into the factors influencing FDI in Nigeria's LNG sector will mostly depend on long-term market forecasts. Therefore, undertaking thorough long-term projections or future research provides priceless insights into the changing dynamics impacting FDI in this particular sector. Also, examine long-term trends in the LNG sector, including anticipated demand and changing consumer preferences. Similarly, study the influence of market forecasts on investors' decisions.

In the global LNG industry, sustainable development and technological advancements have been key drivers of FDI. So, analysing their effects on the Nigerian environment provides an important background for understanding how these factors affect FDI in the LNG industry. Moreover, technological developments in the areas of distribution, processing, and extraction have benefited Nigeria's LNG sector. Likewise, the country's LNG capabilities have increased due to innovations such as better liquefaction processes, better storage facilities, and effective shipping methods. Therefore, further research on these particular technological developments and how they affect production capacity, cost-effectiveness, and environmental sustainability would provide insight into how they attract foreign direct investment in the country.

In the LNG industry, infrastructure investment is crucial for attracting FDI. Therefore, studying how infrastructure investment drives FDI in Nigeria will offer a thorough grasp of its relevance and influence. Correspondingly, investments in enhancing the country's current LNG infrastructure, such as liquefaction plants, storage facilities, and transportation networks, significantly influence FDI. So, examining the Nigerian government's efforts in the construction of additional LNG infrastructure, including distribution networks, pipelines, and terminals, highlights the nation's commitment to increasing its LNG capacities. Therefore, further research on the development of new infrastructure to attract FDI illustrates the potential for growth and investment prospects.

Local content development is critical to attracting FDI in Nigeria's LNG sector. Therefore, future research can analyse the impact and significance of local content policies in attracting FDI, offering deep insights into Nigeria's approach and its influence on investment decisions. Also, researchers can investigate the effects of measures encouraging local content development on FDI attraction. Equally important is examining how enhanced local participation and capacity building affect investor decisions and the growth of the LNG sector.

To grasp the role of stakeholders and community dynamics in shaping investment decisions and industry sustainability, future research on factors driving FDI in the LNG sector in Nigeria must look at stakeholder engagement and community impact. Additionally, it must examine how social responsibility and stakeholder engagement affect FDI's attraction and retention in the country. Additionally, it can investigate the impact of LNG investments on host communities and identify methods to enhance their positive social effects.

Policy reforms primarily drive FDI in Nigeria's LNG sector. Therefore, future research could explore the impact and significance of policy reforms in attracting FDI, providing a comprehensive understanding of Nigeria's regulatory environment and its influence on investment decisions. Furthermore, we can analyse recent policy changes aimed at luring FDI into Nigeria's LNG industry. Plus, an evaluation of how regulatory changes may affect investor outlook and the growth trajectory of the industry.

To foster a deeper understanding of how risks impact investment decisions and how proactive management strategies can mitigate them, future research on the factors driving FDI in Nigeria's LNG sector must analyse risk assessment and management strategies. Equally, it can provide thorough risk assessment frameworks for prospective investors in the LNG sector, and examine efficient risk management methods to reduce market, operational, and geopolitical risks.

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APPENDICES



10 March 2021

Dear Mr Ogunsanwo ,

Reference: CURES/12848/2021

Title: Methods To Drive Growth and Foreign Direct Investment (FDI) Within Nigerian Gas Sector

Thank you for your application to the Cranfield University Research Ethics System (CURES).

We are pleased to inform you your CURES application, reference CURES/12848/2021 has been reviewed. You may now proceed with the research activities you have sought approval for.

If you have any queries, please contact CURES Support.

We wish you every success with your project.

Regards,

CURES Team



INFORMED CONSENT FORM

Project Title	Analysis of the Factors Driving Foreign Direct Investment in the Nigerian LNG sector: Case Study Nigeria
Researcher Name	Babafemi Ogunsanwo
Contact Details	B.Ogunsanwo@cranfield.ac.uk
Supervisors Details	P.J.Longhurst@cranfield.ac.uk Da.huo@cranfield.ac.uk
Participants Number	
Date	

Dear Participant,

To help you learn more about the research study and how you might participate in it, the following material is supplied. Carefully read this form, and feel free to ask any questions you may have regarding the research and the details provided below. You will be given a copy of this consent form.

Research Purpose:

FDI inflow is crucial for achieving final investment decisions in the oil and gas industry. Thus, this research survey will be used to collect data on the factors driving the inflow of FDI in the LNG sector using Nigeria as a case study. This research aims to analyse the factors driving FDI in the LNG sector using different methods.

Part 1: Consent To Participate and Ability to Withdraw

- i. I confirm that I have read and fully agree with the information provided in this form and therefore give my consent to take part in this research.
- ii. I understand that all personal information provided will be treated with confidence and my name will not be used in any report, publication, or presentation.
- iii. In responding to this survey, the participant is anonymized using a number. The researcher will record data against the participant number instead of using a name. The file linking the name to the participant number will be accessible only to the researcher and will be securely destroyed after three years.

**Part 2: Ensuring the Safety of Data Stored**

I understand that the information I supply will be used for research purposes by Cranfield University. In accordance with the UK Data Protection Act 2018, the data will be stored on the University's network and will be accessible only to permitted users.

Part 3 Datasets Produced and Their Respective Outcomes

Survey responses will be recorded and securely stored on the Cranfield University network as a document. These documents will be securely deleted as soon as they are no longer required.

- i. Survey responses are anonymised during data collection. These responses may be published in full, in support of research findings (e.g., in journal articles, conference papers). I understand that my response will be anonymised.

ii. Analytical software will be used to aggregate the results of the research. I understand that the aggregated data will be published in support of the research findings.

Risk Involved

There is no identifiable risk associated with the questionnaire survey. However, if participants experience any form of discomfort while answering the questionnaire-based survey, please do not hesitate to inform the researcher and suspend the process or terminate the exercise totally.

Disclaimer

You are not obliged to take part in this research by answering the questionnaire and should not feel coerced. You are free to withdraw at any time. Should you choose to withdraw from the study you may do so without disadvantage to yourself and without any obligation to give reason(s). It is also worthy to note that participants can withdraw their data prior to the analysis period. Participants are free to ask any question. If happy to continue you will sign a consent form before participating in the research. Please, kindly retain this invitation letter for future reference.

Participant's Signature		Date:	
Participant's Name			
Researcher's Signature		Date:	



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Commission Chief Executive (CEC)
Nigerian Upstream Regulatory Commission
7 Sylvester Ugoh Crescent
Jabi
Abuja

6th December 2022

Dear Sir

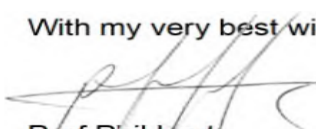
I supervise the research of PhD student Babafemi Ogunsanwo at Cranfield University in the UK. Femi's research is seeking to understand the drivers and pitfalls around investment in the natural gas industry in sub-Saharan Africa, and more specifically the influencing factors that result in positive or negative Final Investment Decisions (FID) being made.

His research so far has shown a wide variability in success of achieving FID across the continent. He has been successful in using a PESTLE strategic analysis approach to understand contributory influences. He is now doing deeper research into the characteristics and impact of regional political and economic environments, both of which appear to be the dominant factors for investors.

I would be very grateful if you and your team could assist him by completing a short anonymous survey, giving your personal and learned opinions of various aspects of these criteria. The survey will be electronic and should take no more than 15 minutes to complete. It will be followed up by semi-structured interviews of a smaller set of personnel across a wide set of organizations, where key topics that emerge from the analysis of the survey will be investigated further.

If you could support Femi in his work we will of course be delighted to acknowledge your assistance in publications and in his eventual PhD thesis. Your engagement in this work will add significantly to the rigor of the outcomes and would be very highly valued and appreciated.

With my very best wishes and thanks


Prof Phil Hart



REQUEST FOR RESEARCH PARTICIPATION

Dear Sir/Madam,

I am pleased to invite relevant personnel in your company to participate in the above research, which I am currently undertaking for my PhD research in Energy and Power at Cranfield University, Cranfield United Kingdom.

Detailed information regarding the project is contained in the information sheet attached. In a nutshell, I would like to request consent to interview two employees in your company. The purpose of the interview is to understand more about the factors driving foreign direct in the LNG sector with particular reference to Nigeria.

Each interview is scheduled to last more than an hour. I would be willing to interview them on Microsoft Teams in their spare time to minimize disruption to your service. The participants are not obliged to take part in this research and should not feel coerced.

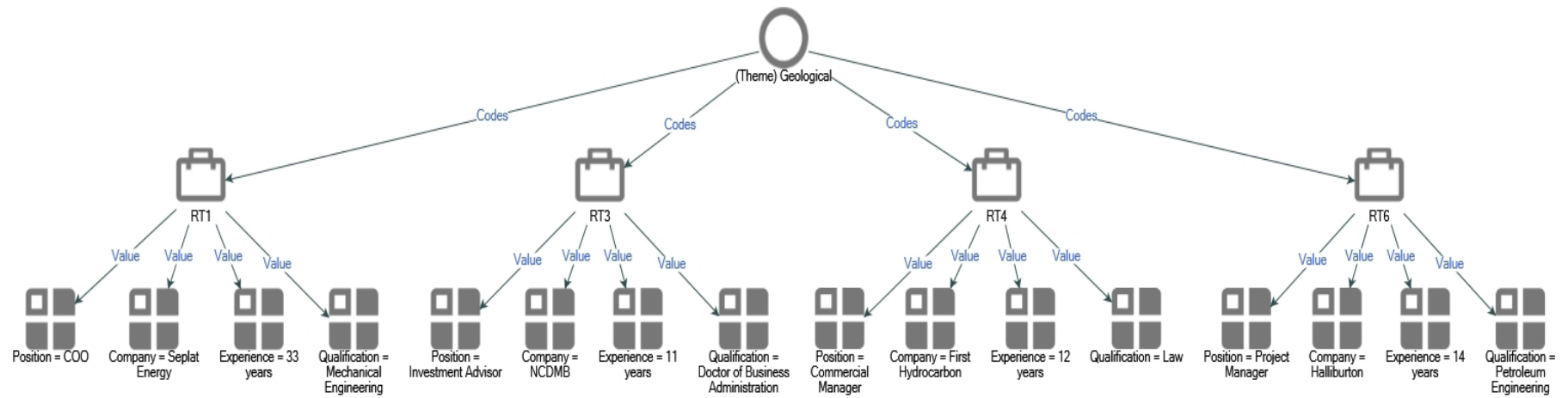
The interviewees are free to withdraw at any time, should they choose to withdraw from the study. All data will be anonymized, including the names of the companies taking part. The project was approved by Cranfield University Research Ethics (CURES).

I would be happy to share the findings of my PhD research if required upon completion. I hope the information provided answers any questions you may have, if not please do not hesitate to contact me.

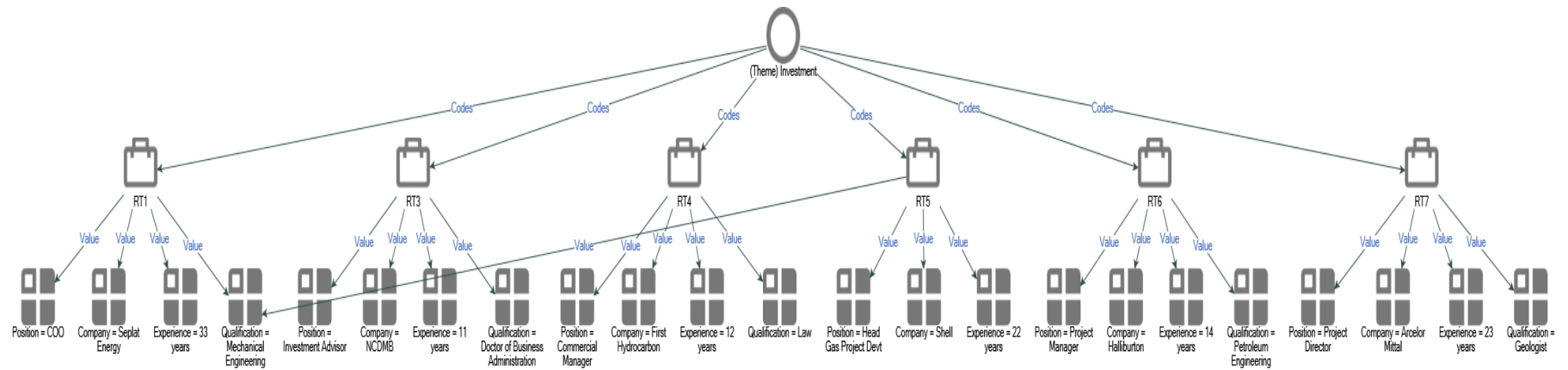
Yours sincerely,

Babafemi Ogunsanwo

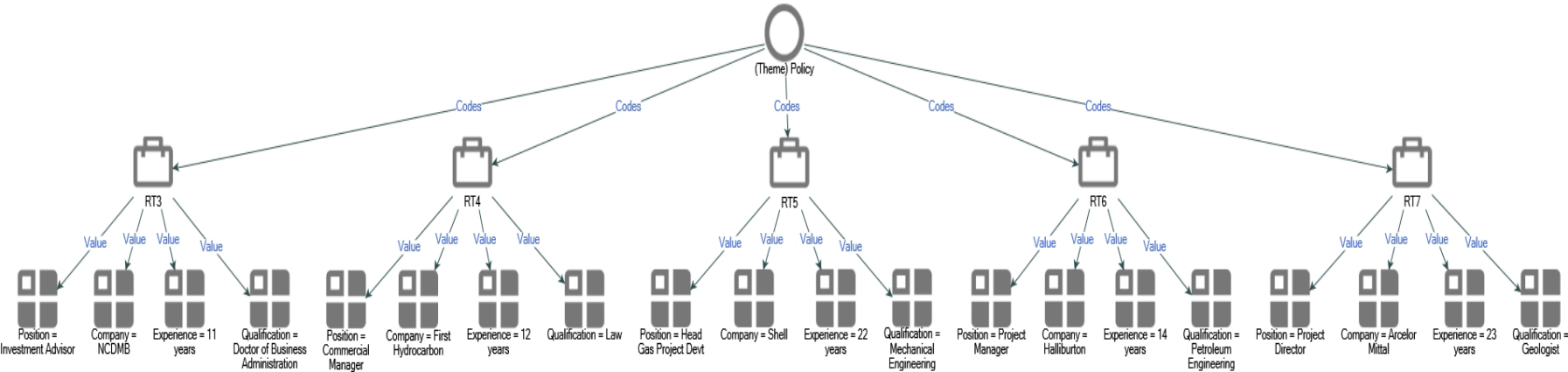
Research Question 1 Map



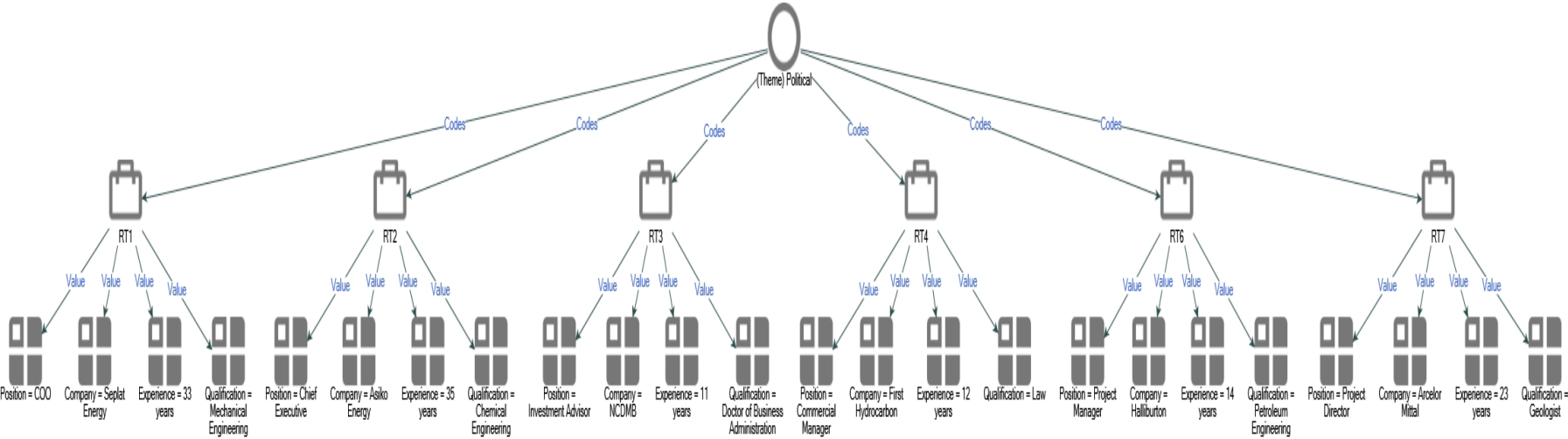
Research Question 2 Map



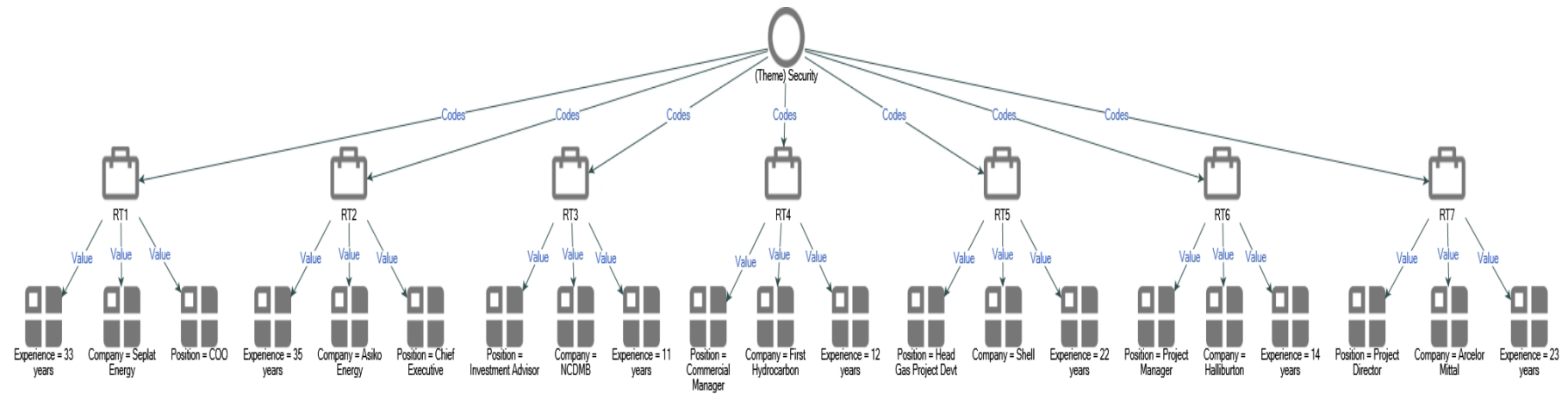
Research Question 3 Map



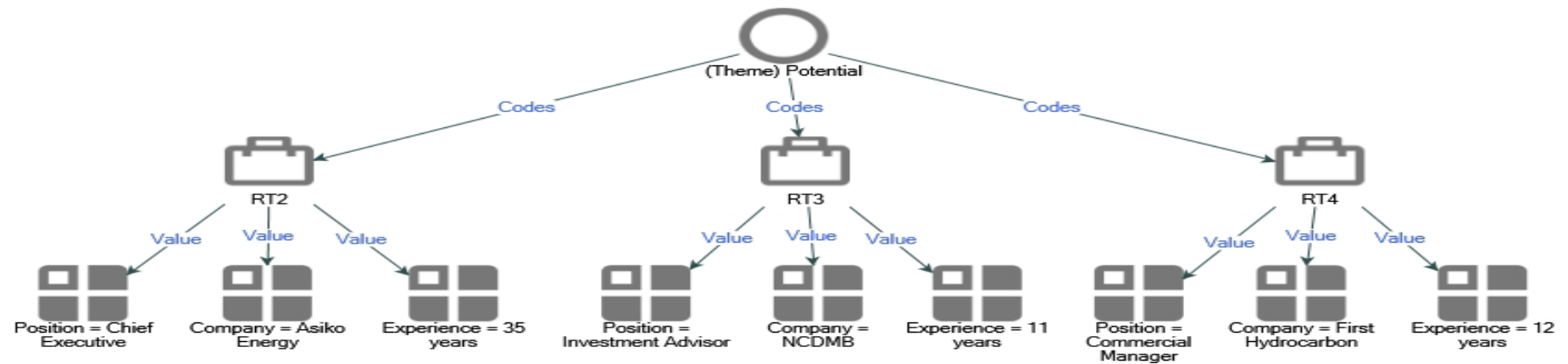
Research Question 4 Map



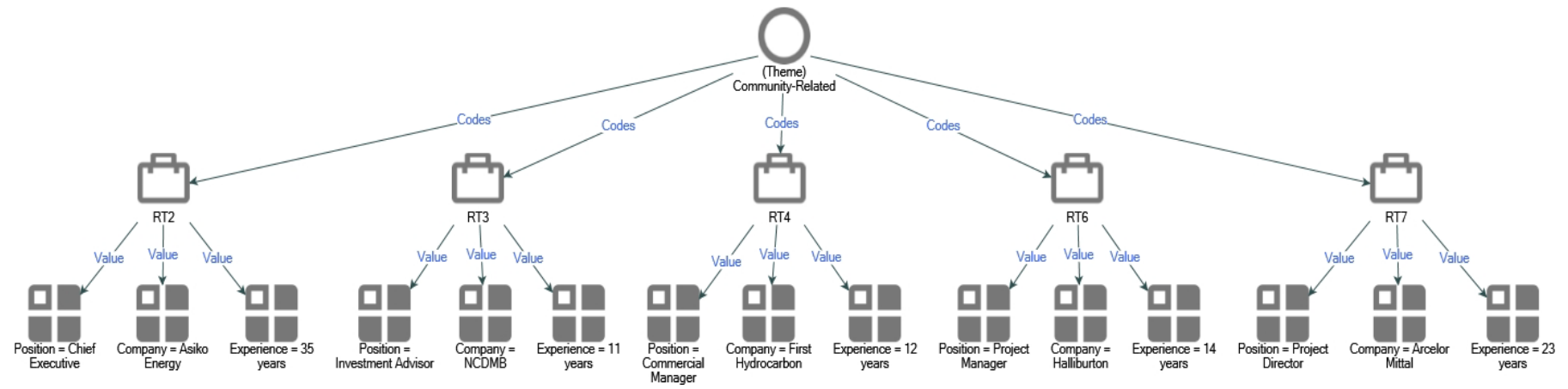
Research Question 5 Map



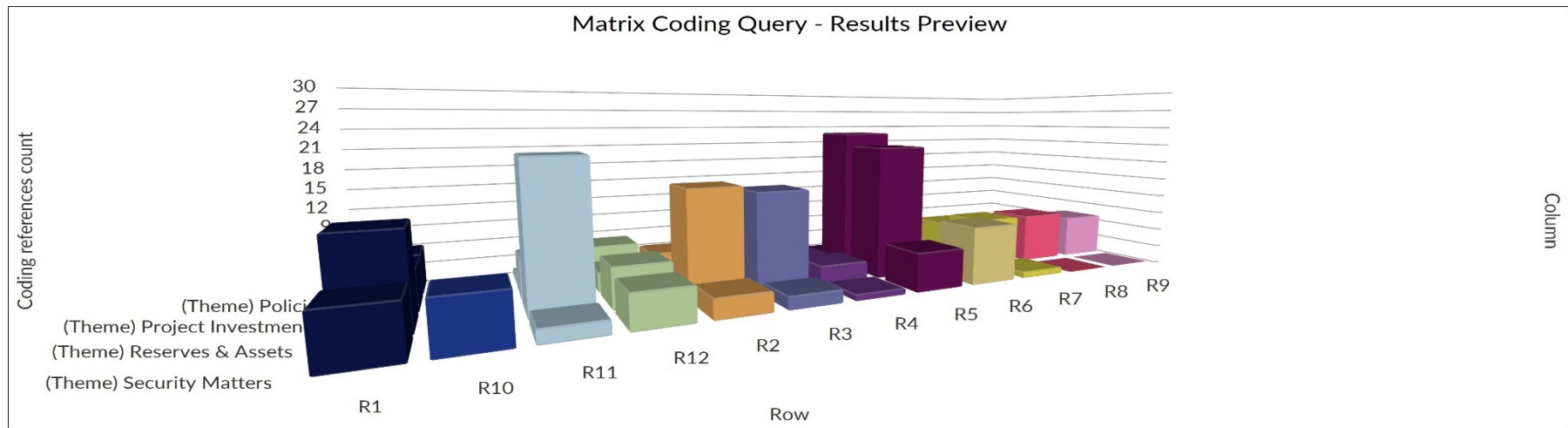
Research Question 6 Map



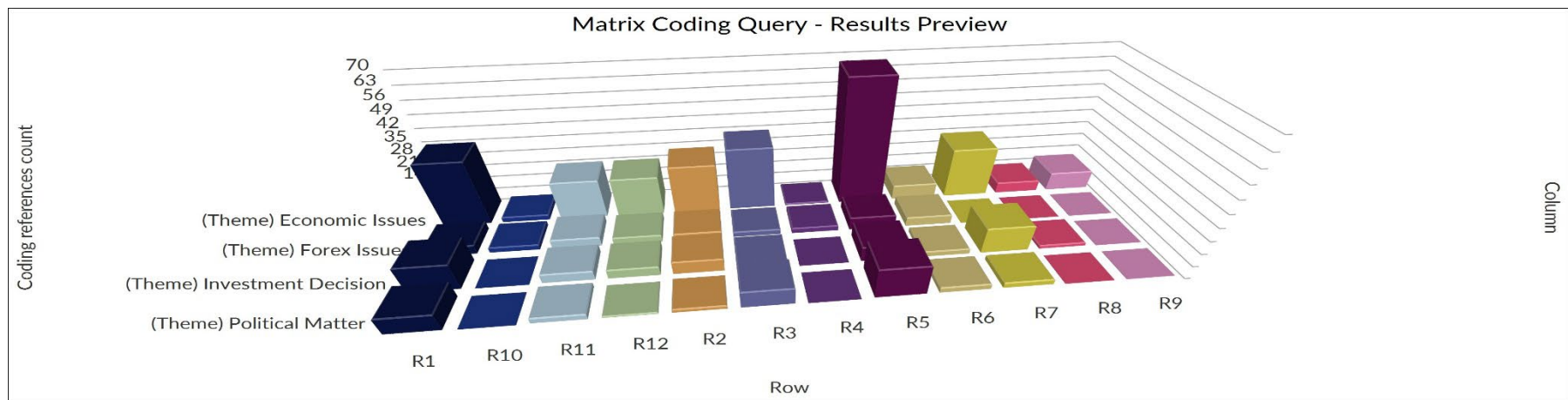
Research Question 7 Map



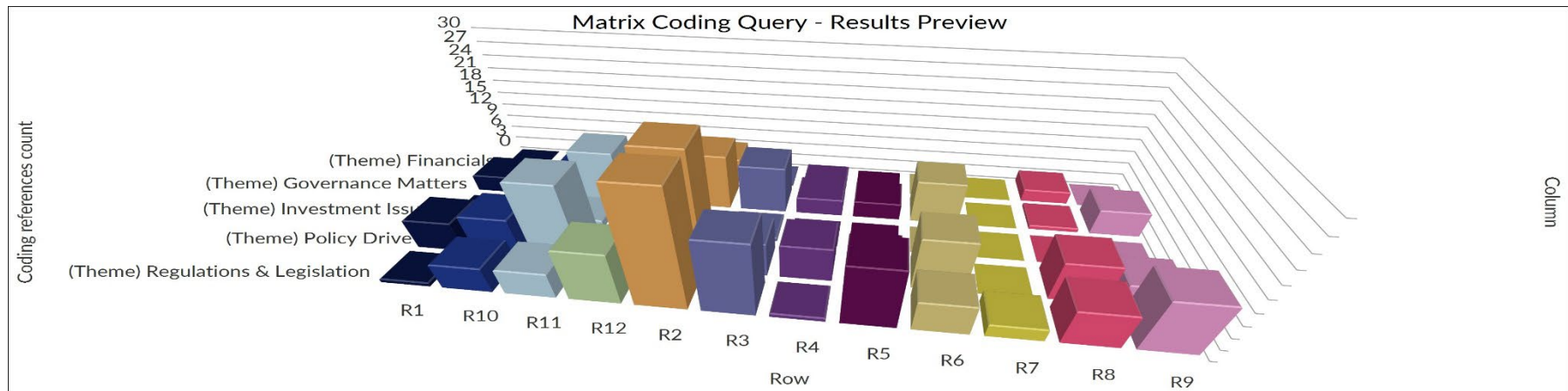
RQ1 Matrix Coding Chart



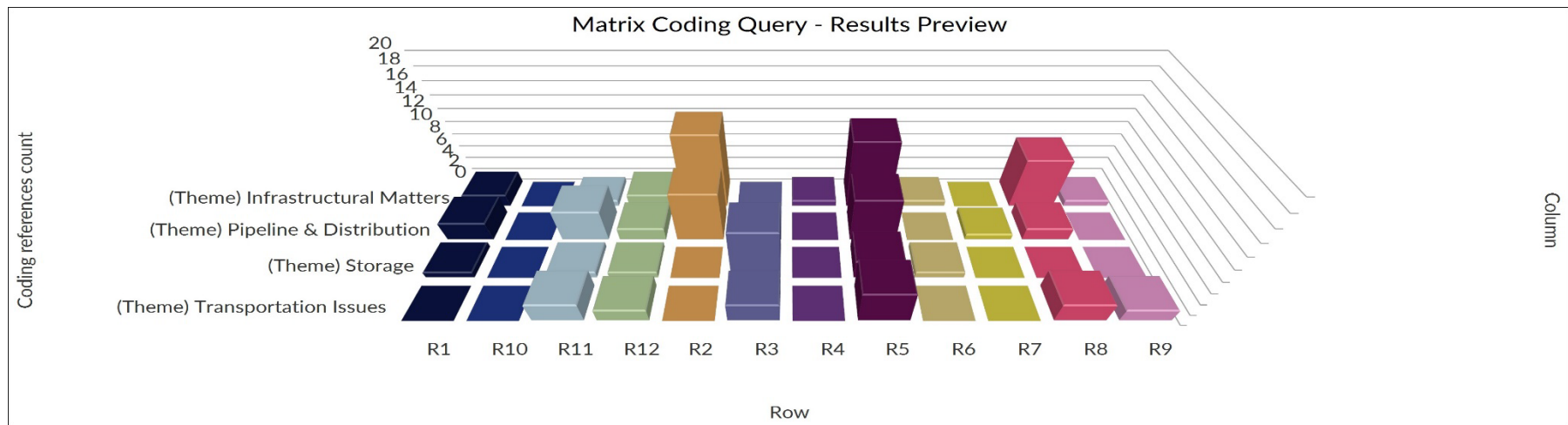
RQ2 Matrix Chart



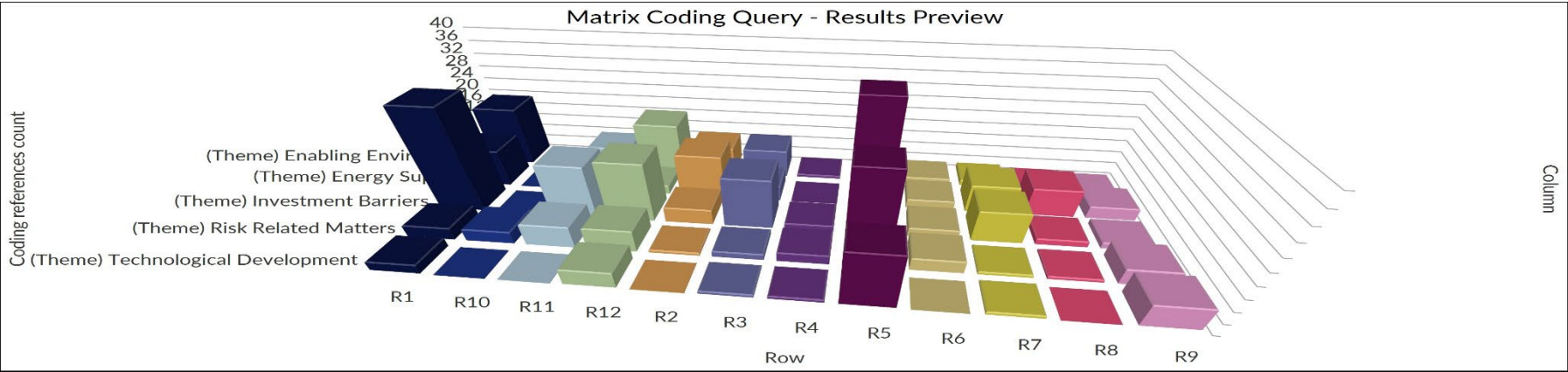
RQ3 Matrix Chart



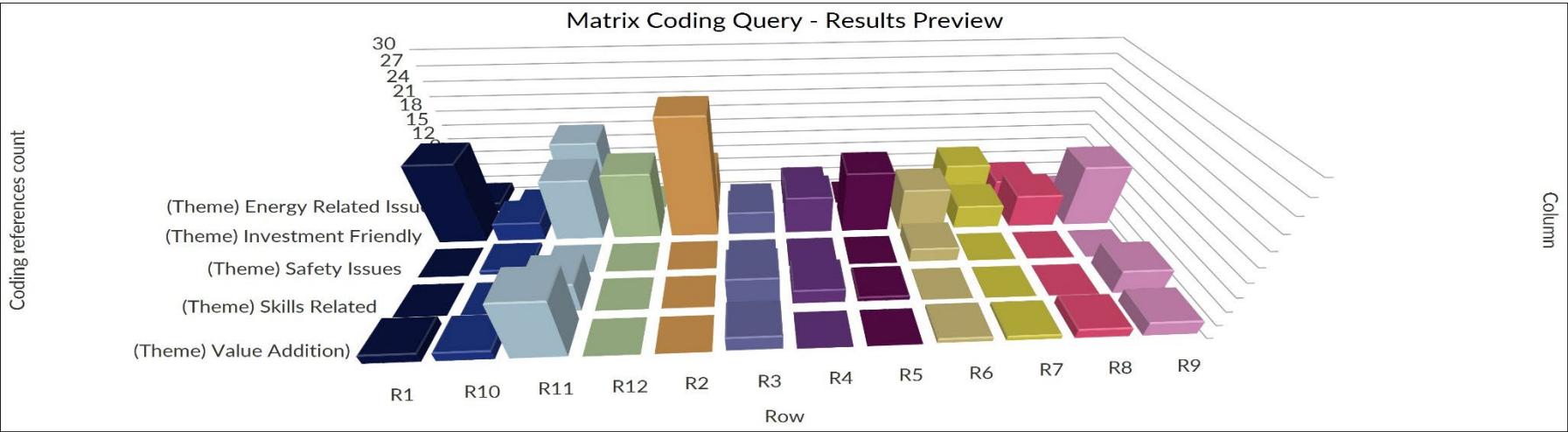
RQ4 Matrix Chart



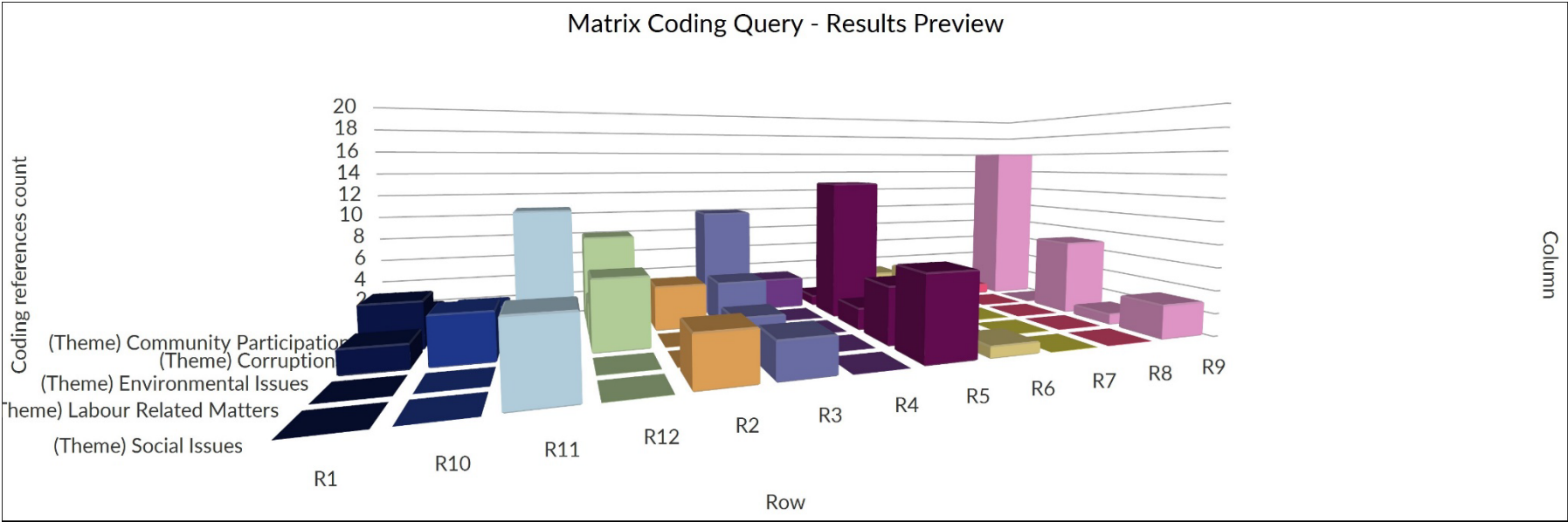
RQ5 Matrix Chart



RQ6 Matrix Chart



RQ7 Matrix Chart



APPENDIX G

ORGANIZATION	%	Count
1 Local Banks	2.59%	3
2 Foreign Banks	0.86%	1
3 Executive Arm of Government	1.72%	2
4 Legislature	3.45%	4
5 Ministry Department and Agencies	12.93%	15
6 Regulatory Agencies	1.72%	2
7 Start-Up	4.31%	5
8 Small Medium Enterprises	17.24%	20
9 Conglomerate	2.59%	3
10 Multinational Corporations	11.21%	13
11 International Financial Institutions	0.86%	1
12 Private Equity Firms	6.03%	7
13 Foreign Investor	1.72%	2
14 Local Investor	9.48%	11
15 Manufacturer	23.28%	27
16 Other Please Specify	0.00%	0
Total	100%	116

ROLE	%	Count
1 Entry Level	2.54%	3
2 Junior Role	1.69%	2
3 Middle Management	17.80%	21
4 Senior Management	24.58%	29
5 Executive Role	14.41%	17
6 Board of Directors	4.24%	5

7	Supervisor		5.93%	7
8	Coordinator		1.69%	2
9	Consultant		5.08%	6
10	Analyst		1.69%	2
11	Associate		4.24%	5
12	Shareholder		2.54%	3
13	Operations Engineer		5.08%	6
14	Researcher		1.69%	2
15	Other Please Specify		6.78%	8
16		16	0.00%	0
	Total		100%	118

TABLE A1: POLITICAL FACTORS

		Minimum	Maximum	Mean	Std Deviation	Variance	Count
The following political factors, do they have any impact on achieving final investment decision for gas projects?							
Answer							
1	Political Stability	1	5	2.1	1.42	2.02	111
2	Government Efficiency	1	5	2.25	1.35	1.81	112
3	Corruption Levels	1	5	2.47	1.54	2.37	114
4	Globalization	1	5	2.75	1.29	1.68	110
5	Social Stability	1	5	2.65	1.25	1.57	113

TABLE A2: IMPACT		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Do the following political factors: political stability, government efficiency, corruption levels, globalization, and social stability impact foreign direct investment and final investment decisions for LNG investment		1	5	4.46	1.09	1.2	114
Answer	%	Count					
1 Strongly disagree	5.26%	6					
2 Somewhat disagree	4.39%	5					
3 Neither agree nor disagree	2.63%	3					
4 Somewhat agree	14.04%	16					
5 Strongly agree	73.68%	84					
Total	100%	114					

TABLE A3: POLITICAL STABILITY		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Answer							
1 Legal Framework		1	4	1.75	0.97	0.94	114
2 Political System		1	4	1.97	0.98	0.96	111
3 Social Unrest		1	4	2.15	0.99	0.99	112
4 Political Unrest		1	4	2.09	1.01	1.02	113

TABLE A4: LEGAL FRAMEWORK		Minimum	Maximum	Mean	Std Deviation	Variance	Count
The constitution, legislation, and regulation are important attributes of the legal framework in any jurisdiction. Does it affect LNG sector investment decisions							
Answer		%	Count	3.99	0.85	0.73	117
4	Very effective	55.56%	65				
2	Slightly effective	2.56%	3				
1	Not effective at all	2.56%	3				
3	Moderately effective	13.68%	16				
5	Extremely effective	25.64%	30				
Total		100%	117				

TABLE A5: POLITICAL SYSTEM		Minimum	Maximum	Mean	Std Deviation	Variance	Count
A democratic culture is a political system that influences foreign direct investment inflow into any jurisdiction. Is the impact of this political system on LNG sector investment significant?							
Answer		%	Count	4.49	0.74	0.54	117
1	Extremely unlikely	1.71%	2				
2	Somewhat unlikely	0.85%	1				
3	Neither likely nor unlikely	1.71%	2				
4	Somewhat likely	38.46%	45				
5	Extremely likely	57.26%	67				
Total		100%	117				

TABLE A6: SOCIAL UNREST		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Do war, civil disputes, conflicts, and genocides deter LNG investment decisions?		1	5	4.55	0.9	0.81	118
Answer	%	Count					
1 Strongly disagree	2.54%	3					
2 Somewhat disagree	2.54%	3					
3 Neither agree nor disagree	5.08%	6					
4 Somewhat agree	16.95%	20					
5 Strongly agree	72.88%	86					
Total	100%	118					

TABLE A7: POLITICAL UNREST		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Political unrest in any environment will force capital outflows to other countries by foreign investors. Does it affect LNG investment decisions considerably?		2	5	4.73	0.52	0.27	117
Answer	%	Count					
1 Strongly disagree	0.00%	0					
2 Somewhat disagree	0.85%	1					
3 Neither agree nor disagree	0.85%	1					
4 Somewhat agree	23.08%	27					
5 Strongly agree	75.21%	88					
Total	100%	117					

TABLE A8: GOVERNMENT EFFICIENCY

The factors listed below-characterized government efficiency. Do they affect investment decision-making in the LNG sector

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1 Economic Performance	1	4	1.82	0.96	0.92	111
2 Fiscal Responsibility	1	4	1.93	0.9	0.82	107
3 Judicial System	1	4	2.09	0.96	0.93	111
4 Regulatory Quality	1	4	1.76	0.96	0.93	113

TABLE A9: ECONOMIC PERFORMANCE

GDP evaluates, the balance of payments indicates, and budget performance assesses a national economic performance. Is their effect on LNG sector investment noteworthy?

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Answer	1	5	4.1	0.93	0.87	116
	%	Count				
1 Strongly disagree	2.59%	3				
2 Somewhat disagree	3.45%	4				
3 Neither agree nor disagree	12.93%	15				
4 Somewhat agree	43.10%	50				
5 Strongly agree	37.93%	44				
Total	100%	116				

TABLE A10: FISCAL ISSUES		Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Is accrual of tax revenue crucial and government using its spending powers obligations important for LNG sector investment?	1	5	3.68	1.02	1.04	116
	Answer	%	Count				
1	Not at all important	6.03%	7				
2	Slightly important	6.03%	7				
3	Moderately important	18.97%	22				
4	Very important	51.72%	60				
5	Extremely important	17.24%	20				
	Total	100%	116				

TABLE A11: JUDICIAL SYSTEM		Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Does a nation with an independent judiciary and an efficient legal system promote LNG sector investment, where investors are protected, and investment protection is obtainable?	1	5	4.54	0.82	0.68	116
1	Strongly disagree	0.86%	1				
2	Somewhat disagree	3.45%	4				
3	Neither agree nor disagree	6.03%	7				
4	Somewhat agree	19.83%	23				
5	Strongly agree	69.83%	81				
	Total	100%	116				

TABLE A12: REGULATORY QUALITY

		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Does the oversight function which assesses, and monitors policies, plans, programs, and projects have an appreciable effect on LNG project investment?							
Answer		%	Count				
1	Definitely not	0.88%	1	4.29	0.93	0.87	114
2	Probably not	4.39%	5				
3	Might or might not	14.91%	17				
4	Probably yes	24.56%	28				
5	Definitely yes	55.26%	63				
Total		100%	114				

TABLE A13: CORRUPTION LEVELS

		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Corruption levels are evaluated by the listed factors below in any environment. Please categorize them according to their impact level							
Answer							
1	Accountability & Transparency	1	4	1.45	0.87	0.76	110
2	Credibility & Integrity	1	4	1.56	0.84	0.71	108
3	Human Development Index	1	4	2.13	0.94	0.89	110
4	Sovereign Ratings	1	4	2.17	0.95	0.91	110

TABLE A14: ACCOUNTABILITY

If malfeasance is exposed, and damaging policies are quickly corrected by the host nation government, will these issues support the LNG project investment decision-making process by investors?

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Answer	%	Count				
1 Definitely false	0.00%	0	4.39	0.68	0.46	115
2 Probably false	1.74%	2				
3 Neither true nor false	6.09%	7				
4 Probably true	43.48%	50				
5 Definitely true	48.70%	56				
Total	100%	115				

TABLE A15: CREDIBILITY

Does a situation where the government has a good reputation, is trustworthy, and public interests protected, contribute significantly to making LNG project investment decisions?

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Answer	%	Count				
1 Definitely not	0.87%	1	4.72	0.67	0.44	115
2 Probably not	1.74%	2				
3 Might or might not	1.74%	2				
4 Probably yes	15.65%	18				
5 Definitely yes	80.00%	92				
Total	100%	115				

TABLE A16: HDI		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Does having access to good education, good healthcare services, and citizens enjoying a high standard of living, impact LNG sector investment decisions in any jurisdiction?		1	5	4.1	1.03	1.07	115
Answer	%	Count					
1 Extremely unlikely	2.61%	3					
2 Somewhat unlikely	6.09%	7					
3 Neither likely nor unlikely	14.78%	17					
4 Somewhat likely	31.30%	36					
5 Extremely likely	45.22%	52					
Total	100%	115					

TABLE A17: SOVEREIGN RATINGS		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Does the government's ability and willingness to repay its public debt, both principal and interest on time influence investment decision-making in the LNG sector?		2	5	4.34	0.89	0.8	115
Answer	%	Count					
1 Strongly disagree	0.00%	0					
2 Somewhat disagree	6.09%	7					
3 Neither agree nor disagree	10.43%	12					
4 Somewhat agree	26.96%	31					
5 Strongly agree	56.52%	65					
Total	100%	115					

TABLE A18: GLOBALIZATION

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Do the following issues under globalization listed below have a considerable effect on energy investment decisions?						
Answer						
1 Capital Flow	1	5	1.61	1	0.99	109
2 Deregulation & Free Economy	1	5	1.72	0.95	0.9	108
3 Employment	1	5	2.27	1.15	1.33	106
4 Migration and Population Growth	1	5	2.59	1.23	1.51	107
5 Trade Liberalization & Protectionism	1	5	2.08	1.1	1.21	109

TABLE A19: CAPITAL FLOW

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Is LNG sector investment decision-making affected by capital flow which can be in form of loans, equity structure, foreign direct investment, and portfolio investment?						
1	2	5	4.47	0.65	0.43	112
Answer						
	%	Count				
1 Definitely not	0.00%	0				
2 Probably not	1.79%	2				
3 Might or might not	3.57%	4				
4 Probably yes	40.18%	45				
5 Definitely yes	54.46%	61				
Total	100%	112				

TABLE A20: DEREGULATION

Will investment in the LNG sector be encouraged when government regulations are reduced or eliminated which frees up enterprises, improves decision-making, and reduces corporate limitations?		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Answer		%	Count	4.17	0.92	0.84	112
1	Strongly disagree	1.79%	2				
2	Somewhat disagree	3.57%	4				
3	Neither agree nor disagree	13.39%	15				
4	Somewhat agree	38.39%	43				
5	Strongly agree	42.86%	48				
Total		100%	112				

TABLE A21: EMPLOYMENT

Will investment in the LNG sector have a positive and significant effect on employment creation across genders without barriers?		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Answer		%	Count	4.82	0.52	0.27	112
1	Extremely negative	0.00%	0				
2	Somewhat negative	1.79%	2				
3	Neither positive nor negative	0.89%	1				
4	Somewhat positive	10.71%	12				
5	Extremely positive	86.61%	97				
Total		100%	112				

TABLE A22: TRADE		Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Will the removal of restrictions on the free exchange of goods between nations and the abolition of the policy that protects domestic industries from unfair foreign competition positively support investment decision-making and impact investment in the LNG sector?						
	Answer	%	Count	3.98	0.98	0.96	112
1	Extremely negative	3.57%	4				
2	Somewhat negative	4.46%	5				
3	Neither positive nor negative	14.29%	16				
4	Somewhat positive	45.54%	51				
5	Extremely positive	32.14%	36				
	Total	100%	112				

TABLE A23: POPULATION GROWTH		Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Will migration and population growth with more people requiring energy access affect public finances and also impact LNG sector investment in the long run?						
	Answer	%	Count	4.32	0.9	0.81	111
1	Strongly disagree	0.90%	1				
2	Somewhat disagree	6.31%	7				
3	Neither agree nor disagree	5.41%	6				
4	Somewhat agree	34.23%	38				
5	Strongly agree	53.15%	59				
	Total	100%	111				

TABLE A24: SOCIAL STABILITY		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Poverty reduction, human rights issues, equity, fairness and justice, income distribution, and inequality are factors that underpin social stability. Do they have remarkable effects on LNG sector investment?							
Answer							
1	Human Rights Issues	1	4	1.98	1	1.01	107
2	Income Distribution & Inequality	1	4	2.06	0.86	0.74	105
3	Poverty Reduction	1	4	2.08	1.05	1.1	105
4	Equity, Fairness, and Justice	1	4	1.93	1.04	1.07	105

TABLE A25: HUMAN RIGHTS		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Will prevention and reducing actual and future negative outcomes lead to improved financial risk management and help align investors in the gas sector with the increasing demands of beneficiaries, clients, and regulators?							
Answer		%	Count				
1	Extremely negative	0.91%	1	4.24	0.8	0.64	110
2	Somewhat negative	1.82%	2				
3	Neither positive nor negative	11.82%	13				
4	Somewhat positive	43.64%	48				
5	Extremely positive	41.82%	46				
Total		100%	110				

TABLE A26: INCOME

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Will investment in LNG projects be affected if there exists high-income disparity along the ethnic line, groups, and races which leads to economic instability, financial crises, debt, and inflation?	1	5	3.9	1.08	1.16	110
Answer	%	Count				
1 Strongly disagree	2.73%	3				
2 Somewhat disagree	10.91%	12				
3 Neither agree nor disagree	14.55%	16				
4 Somewhat agree	37.27%	41				
5 Strongly agree	34.55%	38				
Total	100%	110				

TABLE A27: POVERTY REDUCTION

	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Can investment in the LNG sector be used as a powerful tool for alleviating poverty and improving living conditions in the host communities?	1	5	4.59	0.79	0.63	109
Answer	%	Count				
1 Definitely false	1.83%	2				
2 Probably false	1.83%	2				
3 Neither true nor false	2.75%	3				
4 Probably true	22.94%	25				
5 Definitely true	70.64%	77				
Total	100%	109				

TABLE A28: SOCIETAL VALUES		Minimum	Maximum	Mean	Std Deviation	Variance	Count
Should the decision-making regarding LNG investment entail fairness, equity, inclusiveness, and justice to ensure wider social acceptance		2	5	4.47	0.74	0.55	108
Answer	%	Count					
1 Strongly disagree	0.00%	0					
2 Somewhat disagree	1.85%	2					
3 Neither agree nor disagree	9.26%	10					
4 Somewhat agree	28.70%	31					
5 Strongly agree	60.19%	65					
Total	100%	108					