AN EXAMINATION OF TRANSACTION COST ECONOMICS IN CONTRACTING AND PROCUREMENT PRACTICES IN OIL AND GAS PROJECTS IN SOUTH SUDAN :A CASE STUDY OF NILE PETROLEUM CORPORATION JUBA SOUTH SUDAN

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DECLARATION

I, Mawal Mangar Chol, hereby declare that this dissertation is my work, and it has not been submitted before to any other institution of higher learning for fulfillment of any academic award.

Signature: _____

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APPROVAL

This is to certify that, this proposal entitled “An Examination of Transaction Cost Economics in Contracting and Procurement Practices in Oil and Gas Projects in South Sudan: A Case Study of Nile Petroleum Corporation, Juba, South Sudan" has been done under my supervision and now it is ready for submission.

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LIST OF ACRONYMS/ABBREVIATIONS

1. **TCE**: Transaction Cost Economics
2. **C&P**: Contracting and Procurement
3. **OGP**: Oil and Gas Projects
4. **NILEPET**: Nile Petroleum Corporation
5. **SS**: South Sudan
6. **APA**: American Psychological Association

ABSTRACT

This study investigated the influence of transaction cost economics on contracting and procurement practices within South Sudan's oil and gas sector, focusing on Nile Petroleum Corporation in Juba. The research aimed to assess the relationship between regulatory frameworks and contracting efficiency, evaluate the impact of market conditions, and examine the moderating effect of external economic factors, such as global oil prices and exchange rates, on these relationships. A mixed-methods approach was employed, combining quantitative data from 331 respondents with qualitative insights from interviews. Data analysis included descriptive statistics, correlation, and regression analyses. Key findings indicated moderate satisfaction with regulatory elements like transparency (mean = 3.15) and adaptability (mean = 3.13), but weak correlations among regulatory variables, with minimal interactions observed. Regression results showed a modest influence of both regulatory frameworks (R-squared = 0.011) and market conditions (R-squared = 0.021) on contracting efficiency. External economic factors, however, had a slightly stronger impact (R-squared = 0.027), highlighting their significance in shaping contracting practices. The study concluded that while regulatory frameworks and market conditions are important, their direct influence on contracting efficiency in South Sudan's oil and gas sector is limited. Key recommendations included strengthening regulatory frameworks to be more adaptable, improving transparency and compliance, and developing strategies that account for external economic factors.

Keywords: *Transaction Cost Economics, Contracting Efficiency, Procurement Practices, Oil and Gas Sector, South Sudan, Regulatory Frameworks, Market Conditions, External Economic Factors.*

CHAPTER ONE

1.0 Introduction

This chapter outlines the study on Transaction Cost Economics in the Oil and Gas sector in South Sudan. It sets the stage with background information, identifies the problem, and explains the study's purpose and objectives. Research questions and hypotheses are presented, followed by the scope, justification, and significance of the study. Lastly, the theoretical framework guiding the research is discussed. The chapter serves as a roadmap for the entire study.

1.1 Background to the Study

The background to this study is presented in four subsections, each focusing on different facets: historical, conceptual, contextual, and theoretical. By exploring Transaction Cost Economics (TCE) within South Sudan's Oil and Gas sector, the study aims to offer a comprehensive view of contracting and procurement practices. These subsections collectively provide a well-rounded foundation for understanding how to optimize transaction costs in this unique environment.

1.1.1 Historical Background

The adoption and adaptation of Transaction Cost Economics (TCE) in the global oil and gas sector have been significantly informed by historical contexts, particularly within developed nations like the United States and key European countries. In the United States, the shale revolution was a defining moment for TCE. Initiated in the early 2000s, this movement dramatically increased the complexity of the American oil and gas landscape. Companies such as ExxonMobil and Chevron had to rethink their contracting and procurement strategies to navigate the complexities introduced by hydraulic fracturing technologies (Graeber, 2021; U.S. Energy Information Administration, 2019).

In Europe, the experiences of Norway and the United Kingdom offered contrasting but enlightening insights into the role of TCE. Norway, with its rich offshore resources in the North Sea, had companies like Equinor (formerly known as Statoil) that utilized TCE principles to maximize efficiency. Regulatory frameworks were tailored to minimize transaction costs, encouraging foreign investment and technological innovations (IEA, 2021; Norwegian

Petroleum Directorate, 2019). The United Kingdom faced different challenges. The privatization of British Petroleum (BP) in the 1980s and its subsequent expansion into the North Sea introduced complexities in contracts and procurement processes. BP, along with other companies like Shell, had to navigate a web of government regulations and a mix of foreign and domestic investors. TCE became indispensable in streamlining the contractual relations and procurement processes (Monbiot, 2019; Oil & Gas UK, 2020).

In Libya, the state-controlled National Oil Corporation (NOC) has historically overseen oil and gas contracts. The high level of government involvement created unique transactional dynamics, especially given the additional complexities of international sanctions and security concerns (El-Katiri & Fattouh, 2015; Attia *et al.*, 2020). In contrast, Nigeria's oil sector presented a disparate set of challenges. Companies like the Nigerian National Petroleum Corporation (NNPC) and Shell have navigated an environment plagued by corruption, necessitating a more cautious and nuanced application of TCE to mitigate risks related to unethical practices (Ezeibe *et al.*, 2020; Okonjo-Iweala, 2018). Angola, another major oil producer in Africa, saw its oil industry significantly affected by the civil war that ended in 2002. Companies like Sonangol, the state-owned oil firm, have been pivotal in attracting foreign investment, but the post-conflict environment made TCE particularly challenging due to issues like capital flight and unstable governance (Hodges, 2004; Croese, 2018). In Algeria, the state-owned enterprise Sonatrach has been instrumental in oil and gas production since its establishment in 1963. The company's history with foreign partnerships, nationalization efforts, and market liberalization offered a complicated terrain for TCE. Efforts to reduce transaction costs were often complicated by regulatory changes and political volatility (Aïssaoui, 2001; Messersmith, 2019).

In East Africa, the role of Transaction Cost Economics (TCE) in the oil and gas sector is gaining prominence due to new discoveries and increasing foreign investments. In Uganda, the discovery of substantial oil reserves around Lake Albert in the early 2000s has attracted international oil companies such as Tullow Oil and Total. The Ugandan government and these corporations have had to navigate complex contractual relationships, including revenue-sharing agreements and licensing fees. Tanzania, another emerging player in the East African oil and gas landscape, has made significant natural gas discoveries off its southern coast. The Tanzanian Petroleum Development Corporation (TPDC) collaborated with international firms like BG Group and Statoil, now known as Equinor. The coexistence of public and private

stakeholders necessitates a nuanced understanding and application of TCE to optimize contracting and procurement processes, particularly with regard to the country's Liquified Natural Gas (LNG) project (Bofin *et al*., 2014; Magoti *et al*., 2021). Kenya is also noteworthy, given its discovery of oil in the Turkana region in 2012 by Tullow Oil. Since then, various contracts and procurement deals have been signed, each requiring meticulous planning to balance the needs of the local communities, environmental considerations, and the economic goals of both the government and foreign investors. TCE has become critical in these negotiations to manage the transaction costs associated with such complex, multi-stakeholder agreements (Lindelöw *et al*., 2015; Oxfam, 2016).

South Sudan, which became an independent nation in 2011, has had a complicated journey in its oil and gas sector, making the application of Transaction Cost Economics (TCE) both challenging and essential. The nation inherited about 75% of the formerly united Sudan's oil reserves, bringing to the forefront companies like Dar Petroleum, Sudd Petroleum, and most prominently, the Nile Petroleum Corporation (NILEPET). Initially, the oil sector was largely controlled by foreign companies such as China National Petroleum Corporation (CNPC) and Malaysia's Petronas, setting the precedent for how oil contracts and procurement were managed (Patey, 2014; Walraven, 2015). Post-independence, the Comprehensive Peace Agreement (CPA) initiated a transition towards national management of oil resources through NilePet. However, this shift has not been smooth due to issues such as corruption, political instability, and a lack of institutional capacity (Crumpton & McPherson, 2018; Lual, 2019). For example, NILEPET has been embroiled in allegations of financial mismanagement, which further complicates the contractual agreements and procurement processes within the company (African Union Commission, 2018).

The role of TCE within NILEPET has been somewhat ad hoc. The need for a more systematic application of TCE principles has been apparent, particularly when negotiating contracts with service providers and managing the procurement of crucial equipment and technologies. Despite various attempts to utilize TCE as a guiding framework for decision-making, there has been a notable absence of comprehensive research that could offer insights into how to optimize these processes effectively (Arop & Gala, 2017). Understanding the historical complexities of TCE in South Sudan's oil and gas sector, particularly within the context of NILEPET, provides a foundation for the present study. This focus on historical background

aims to fill the existing research gap and contribute to the ongoing efforts to improve contracting and procurement practices in South Sudan's oil and gas industry.

1.1.2 Conceptual Background of the Study

The study presents the complexities of contracting and procurement practices by focusing on a selection of seminal concepts within Transaction Cost Economics (TCE). One of the cornerstone concepts underpinning this study is that of *transaction costs*, a term that encapsulates a variety of expenses incurred in the process of making an economic exchange. These costs go beyond the simple cost of goods or services to encompass the expenditures tied to searching for a partner, gathering relevant information, negotiating terms, and enforcing a finalized contract (Coase, 1937; Williamson, 1981). The detailed understanding of transaction costs is critical because it goes to the heart of why companies opt for certain types of contracts over others and helps in revealing the invisible costs that often go unnoticed but substantially affect the profitability and efficiency of projects.

Also the *asset specificity*, which alludes to the degree of specialization attributed to assets in a transaction. Physical assets like customized machinery, or intangible ones like specialized skills or proprietary software, exhibit varying degrees of asset specificity (Williamson, 1985). These assets, tailored to meet the unique needs of specific transactions, become less versatile and often costly to repurpose. As a result, asset specificity can drive up transaction costs, necessitating long-term contractual relationships that also require stringent governance mechanisms to ensure mutual benefits and minimize risks.

The concept of *bounded rationality* also underpins the study's focus on contracting and procurement practices. Initially introduced by Simon (1957), bounded rationality acknowledges the cognitive limitations that humans possess, making it impossible to foresee every future contingency when drafting a contract. The idea recognizes that individuals often employ heuristics or simplified mental models to tackle complex problems. As a result, this concept has major implications on how contracts should be designed, advocating for adaptable clauses that can accommodate unforeseen circumstances and thus minimize future transaction costs.

Additionally, the study pays special attention to the concept of *opportunism*, a form of self-interest seeking that may include deceit. Within the contexts of incomplete or ambiguous contracts, opportunism can manifest as parties exploiting gaps to serve their interests,

sometimes at the expense of the other party (Williamson, 1975; 1985). The concept of opportunism becomes crucial in identifying vulnerabilities in contracting and suggesting governance structures that can mitigate such risks effectively.

Governance structures is another concept of primary concern. Governance structures refer to the various organizational forms parties may adopt to manage transaction costs. These structures could be market-based, where transactions are governed by arms-length contracts, or hierarchical, where an organization internally manages transactions. Understanding the benefits and downsides of each type of governance structure can provide actionable insights for companies to adapt and, thereby, minimize their transaction costs (Williamson, 1979; Menard, 2004).

The conceptual frameworks elucidated in this study offer an elaborate understanding of the multi-dimensional factors that influence contracting and procurement practices, particularly in industries that are subject to high transaction costs and complex governance structures. As the study ends its critical discourse, it is crucial to emphasize the application of these core concepts to the specific realm of Procurement Practices in Oil and Gas Projects in South Sudan. Given the unique socio-political and economic complexities that characterize South Sudan's oil and gas sector, the study's conceptual insights serve as valuable analytical tools for identifying inefficiencies and recommending actionable strategies. Essentially, this tailored application aims to bridge the gap between theoretical rigor and practical exigencies, thereby contributing to both the academic discourse and the operational optimization of oil and gas projects in South Sudan.

1.1.3 Contextual Background of the Study

Situated in the specific context of South Sudan's emerging oil and gas industry, the study zeroes in on the Nile Petroleum Corporation, South Sudan's state-owned enterprise, as its focal point. The choice of this particular entity offers an enriched layer of contextual understanding, considering Nile Petroleum Corporation’s key role in the nation's economy and its contributions to the broader energy landscape. The study endeavors to scrutinize the complex interplay of transaction cost economics (TCE) within the ambit of Nile Petroleum Corporation’s contracting and procurement practices. The significance of this focus emanates from a multitude of factors that are deeply entrenched in South Sudan's socio-political and economic realities.

Nile Petroleum Corporation stands as a microcosm of South Sudan's broader geopolitical and economic concerns. The organization functions at the intersection of international oil politics, national development goals, and local community expectations. Understanding the role of transaction costs in shaping Nile Petroleum Corporation's contracting and procurement practices, therefore, becomes a multidimensional endeavor. This involves assessing not only economic aspects but also geopolitical relations, historical legacies, and social dynamics (Williamson, 1991; North, 1991).

Transaction costs within the realm of Nile Petroleum Corporation are exacerbated by the volatile political landscape of South Sudan. The political climate brings its own sets of challenges, such as the uncertainties tied to changing government policies, the complexities of international sanctions, and the pressure of social expectations (Klein *et al.*, 1978; Stigler, 1961). Each of these elements adds layers to the transaction costs incurred in contracting and procurement, thereby making the study's contextual inquiry both timely and relevant.

Moreover, Nile Petroleum Corporation operates within a legal and regulatory framework that is still in its formative stage. The emerging regulatory landscape presents its own set of complexities and challenges. With an evolving set of rules and guidelines, the organization is constantly negotiating its strategies to adapt and comply (Coase, 1937). These negotiations entail a variety of transaction costs, such as those related to legal consultations, adjustments to operational processes, and internal restructuring. Here, the relevance of TCE becomes even more accentuated, guiding Nile Petroleum Corporation through its labyrinth of challenges.

On a related note, the sector-specific complexities in oil and gas, especially those concerning asset specificity and long-term contracts, become magnified within the realm of Nile Petroleum Corporation (Williamson, 1985). These complexities include the technical nuances related to drilling, the intricacies of international partnerships, and the long-term commitments often required in contractual agreements. The organization needs to carefully assess these complexities through the lens of TCE to optimize its operations and to align them with national developmental objectives.

1.3.4 Theoretical Background of the Study

The central framework guiding this research is Transaction Cost Economics (TCE), a foundational economic theory that initially gained prominence through the seminal works of Ronald Coase in 1937 and later was further developed and popularized by Oliver Williamson. At its core, TCE offers an analytical tool for understanding the internal and external costs associated with making and sustaining transactions in an economic setting (Coase, 1937; Williamson, 1979). Traditionally, economics focused on production costs, but TCE expanded this focus to include the costs related to making and enforcing contracts, thereby allowing for a more comprehensive analysis of economic systems (Williamson, 1981). These transaction costs are multifaceted, including, but not limited to, the costs for searching and obtaining information, the costs of negotiating contracts, and the costs incurred in monitoring and enforcing those contracts (Williamson, 1981).

In dissecting the hints of transaction cost economics (TCE) within contracting and procurement practices in the oil and gas sector, the study leans on established theoretical frameworks that have guided academic and industry-related discourse over the years. The pioneering work of Ronald Coase on the nature of the firm laid the groundwork for the field, elucidating why firms exist and how they function as alternatives to market mechanisms for coordinating economic activities (Coase, 1937). Oliver Williamson further developed this concept to offer a more nuanced understanding of the governance structures and the conditions under which organizations make internal or external transactions (Williamson, 1979; Williamson, 1985).

The theoretical lens of TCE provides the tools to systematically analyze several key economic factors that influence contracting and procurement practices, such as asset specificity, bounded rationality, and opportunistic behavior (Williamson, 1981). Asset specificity deals with the degree to which assets involved in a transaction are unique and cannot be easily redeployed for other uses. This becomes particularly salient in the oil and gas sector, where specialized equipment and technologies often involve large capital investments and long-term commitments (Klein *et al.*, 1978). Bounded rationality, on the other hand, refers to the limitations of human cognitive capacity to fully comprehend or anticipate all elements of complex transactions, requiring simplified contracts and governance mechanisms (Simon, 1957). Opportunistic behavior involves attempts by parties to a transaction to exploit the situation for personal gain, potentially at the expense of others. TCE provides guidelines to

mitigate such behaviors through appropriately designed contracts and governance structures (Williamson, 1993).

In addition to the foundational theories of TCE, the study incorporates insights from agency theory to understand the dynamics between principals (the firms or the state) and agents (contractors or suppliers) in the context of contracting and procurement practices (Jensen & Meckling, 1976). This theoretical perspective aids in understanding how contractual agreements can be structured to align the interests of both parties, thereby reducing agency costs (Fama & Jensen, 1983). Furthermore, game theory offers another valuable theoretical lens for the study, especially in scenarios involving multiple players with potentially conflicting interests. This is particularly relevant in the competitive environment of oil and gas contracting and procurement, where understanding strategic interactions can provide critical insights (von Neumann & Morgenstern, 1944).

The application of these theoretical frameworks allows for a comprehensive, nuanced investigation that not only scrutinizes the economic factors but also provides actionable insights that are theoretically sound and practically relevant for the complex setting of South Sudan's Nile Petroleum Corporation.

1.2 Problem Statement

Nile Petroleum Corporation (NILEPET), the national oil and gas company of South Sudan established in 2003, operates under a significant mandate to enhance the exploration, development, and production activities within the country’s oil and gas sector. Despite the implementation of regulatory frameworks such as the Petroleum Act 2012 and the NILEPET Act 2019, the corporation continues to grapple with inefficiencies in its contracting and procurement practices. These inefficiencies directly impact NILEPET's operational effectiveness, contributing to challenges such as cost overruns, project delays, and diminished competitiveness. This problem is further exacerbated by the complexity of joint ventures—currently, NILEPET operates with eight joint ventures—where streamlined procurement and contracting processes are crucial for fostering profitability and sustainability (IEA, 2023).

Given that the oil and gas sector represents the backbone of South Sudan’s economy, these inefficiencies in NILEPET's operations hinder broader economic growth and stability. The contracting and procurement challenges at NILEPET can be attributed to both internal factors, such as bureaucratic structures and inadequate management practices, and external influences,

such as fluctuating global oil prices, exchange rate volatility, and regulatory complexities (World Bank, 2022). These multidimensional challenges necessitate a more sophisticated understanding of how NILEPET can enhance operational efficiency within these domains.

The research problem addressed in this study is: What are the underlying factors contributing to inefficiencies in contracting and procurement practices at NILEPET, and how can Transaction Cost Economics (TCE) serve as a framework for addressing these challenges? By employing the theoretical lens of TCE, which examines the costs associated with transactions in an organization, the study seeks to explore how NILEPET can reduce transaction costs and improve contracting and procurement practices. This investigation is critical, as addressing these inefficiencies can enable NILEPET to fulfill its mission of becoming a competitive, integrated oil and gas corporation that promotes environmental sustainability and corporate social responsibility (OECD, 2021). The insights gained from this study will provide actionable recommendations for improving NILEPET's procurement strategies, potentially contributing to enhanced sector-wide performance and the economic development of South Sudan.

1.3 Objectives of the Study

The study was guided by a general objective and a list of specific objectives as presented below;

1.3.1 General Objective of the Study

The general objective of the study is to evaluate the efficacy of Transaction Cost Economics in shaping contracting and procurement practices at Nile Petroleum Corporation in South Sudan.

1.3.2 Specific Objectives

i. To determine the relationship between regulatory frameworks and contracting efficiency in the Oil and Gas sector in South Sudan.
ii. To assess the impact of market conditions on contracting efficiency in the Oil and Gas sector in South Sudan.
iii. To examine the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency.

1.4 Research Questions

The research questions for this study are:

i. What is the relationship between regulatory frameworks and contracting efficiency in the Oil and Gas sector in South Sudan?
ii. What is the impact of market conditions on contracting efficiency in the Oil and Gas sector in South Sudan?
iii. What is the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency?

1.5 Rationale of the Research

The motivation for conducting this research is rooted in the pivotal role that Nile Petroleum Corporation (NILEPET) plays in South Sudan's oil and gas sector. As a government-owned institution, NILEPET exerts substantial influence on both the national economic landscape and international energy markets. However, NILEPET is beleaguered by systemic inefficiencies in its contracting procedures, which serves as the dependent variable—'Contracting Efficiency'—in this study. These inefficiencies, measured in terms of speed, accuracy, and cost, not only constrain NILEPET's operational performance but also impede South Sudan's broader economic goals.

Two key independent variables are identified to scrutinize their impact on contracting efficiency: 'Regulatory Frameworks,' with dimensions of compliance and flexibility, and 'Market Conditions,' with dimensions of supply and demand. These variables are chosen due to their immediate relevance and potential influence over NILEPET's contracting efficiency.

Transaction Cost Economics (TCE) is employed as a theoretical underpinning for the study, and 'External Economic Factors'—such as inflation rate and exchange rate—are introduced as a moderating variable. These external economic factors are hypothesized to modulate the relationships between the regulatory frameworks, market conditions, and contracting efficiency.

The study aims to address a significant gap in the existing literature, particularly focusing on the application of TCE in a post-conflict state like South Sudan. The expected outcomes not only hold academic value but also offer pragmatic insights that could lead to policy

formulations for enhancing NILEPET's operational efficiencies and, by extension, positively affect the oil and gas sector at large.

1.6 Significance of the Study

This research holds substantial significance in several dimensions. First and foremost, it addresses the vital issue of inefficiencies in contracting and procurement within Nile Petroleum Corporation (NILEPET), a key player in South Sudan's oil and gas sector. By identifying and scrutinizing these inefficiencies through the lens of Transaction Cost Economics (TCE), the study aims to offer innovative and empirically-supported solutions.

The research contributes to the extant literature on TCE by applying the framework to an under-studied context, namely a state-owned oil and gas corporation in a post-conflict nation. Such a unique context provides fertile ground for examining the adaptability and efficacy of TCE principles, thereby broadening the scope and applicability of the theory itself.

Furthermore, the research has the potential to impact public policy and corporate governance strategies. The findings may lead to actionable recommendations that could optimize NILEPET’s contracting and procurement processes. These enhancements, in turn, would not only increase the corporation's operational efficiency but also significantly contribute to South Sudan’s economy, given the centrality of the oil and gas sector.

Lastly, the study serves as a model for similar research endeavors in other developing and post-conflict nations, thereby enriching the global discourse on efficient contracting and procurement in the oil and gas sector. Therefore, the significance of this study is multifold, making a robust contribution to both academic literature and practical applications in the field.

1.7 Scope of the Study

The was guided by three scopes as presented below;

1.7.1 Geographical Scope

The primary focus is on the Nile Petroleum Corporation, commonly known as NILEPET, whose operations are headquartered in Juba, South Sudan. The exact location of the NILEPET headquarters is situated at coordinates 4°51'37.1"N latitude and 31°35'51.7"E longitude. The site can be accessed via the Airport-Ministries Road, and it is positioned opposite Arkel

Restaurant in Juba. The specific address for the headquarters is P.O. Box 390, Plot 496-Block no. 3k.

1.7.2 Time Scope

This study utilized data and TCE scenarios that have ever happened in NILEPET from 2003 to 2023. This period is significant for capturing the effects of various dynamic factors that have impacted the oil and gas industry. These include fluctuating global oil prices, regulatory changes, and shifts in economic conditions, all of which have a bearing on NILEPET's contracting and procurement processes.

1.7.3 Discipline Scope

This research places special emphasis on the Transaction Cost Economics (TCE) theory as the lens through which the study examines contracting and procurement inefficiencies. This interdisciplinary approach incorporates elements from economics, business management, and public policy to offer a comprehensive understanding of the research problem.

1.8 Conceptual Framework

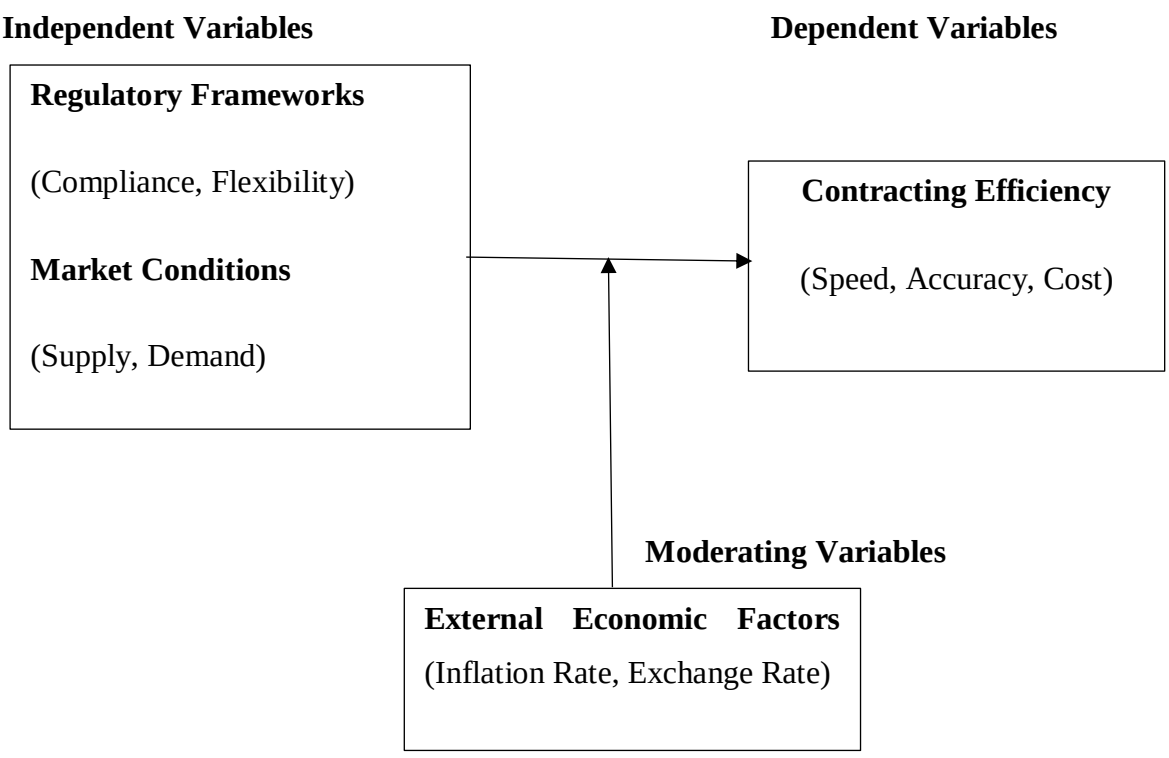

Figure 1. 1: Conceptual Framework

Designed and Molded by Researcher (2023)

The conceptual framework for this study reflects the dynamic interplay between independent variables (regulatory frameworks and market conditions), moderating variables (external economic factors), and the dependent variable (contracting efficiency). Regulatory frameworks, particularly regarding compliance and flexibility, significantly shape contracting processes by dictating legal and operational boundaries (Bwalya & Phiri, 2020). Market conditions, such as supply and demand forces, also directly affect contracting efficiency by influencing resource availability and pricing structures, which are crucial in high-demand sectors like oil and gas (Abubakar, 2021). External economic factors, including inflation rates and exchange rate volatility, serve as moderating variables that can either amplify or dampen the effects of the regulatory frameworks and market conditions on contracting efficiency. These factors introduce additional uncertainty and complexity, requiring adaptive strategies in procurement and contract management (Njuki et al., 2021). This interaction highlights the need for robust strategies that consider not only the direct impact of regulations and market dynamics but also the economic environment's moderating influence on operational outcomes in the oil and gas industry (Kakumba & Kayonde, 2022; Zaki et al., 2021).

1.9 Conclusion of Chapter One

In conclusion**,** Chapter One effectively lays the foundation for this study by detailing the core elements of the research, including the background, problem statement, objectives, and theoretical framework. Through its focus on Transaction Cost Economics (TCE) within the oil and gas sector in South Sudan, the chapter provides a roadmap for understanding how contracting and procurement inefficiencies impact Nile Petroleum Corporation. The outlined scope, significance, and research questions set the stage for an in-depth exploration of the factors contributing to these inefficiencies and how TCE can offer practical solutions for improvement.

CHAPTER TWO: LITERATURE REVIEWS

2.0 Introduction

Chapter Two of this study presented an extensive literature review. This chapter harnessed the wealth of knowledge from previous scholars, encompassing both theoretical frameworks and empirical studies pertinent to the field. The review scrutinized and synthesized existing literature to discern study gaps, particularly in the context of the South Sudan. This comprehensive analysis serves as the foundation for examining the relationship between regulatory frameworks and contracting efficiency, the impact of market conditions, and the moderating effect of external economic factors within the Oil and Gas sector, aligning with the study's objectives. The insights gained from this literature review were useful in contextualizing the study's findings within the broader scope of transaction cost economics in this sector.

2.1 Theoretical Reviews

In the theoretical review section of this study, it encompassed a critical examination of theories such as Transaction Cost Theory, Regulatory Focus Theory, Market Power Theory, and the Eclectic Paradigm, among others. By reviewing and synthesizing these theoretical perspectives, the section aims to establish a comprehensive framework that underlies the study's objectives, particularly in the context of South Sudan's oil and gas industry, providing a deeper understanding of the dynamics at play in this sector.

2.1.1 Transaction Cost Theory

For this study, a suitable theoretical framework can be the Transaction Cost Theory, initially proposed by Williamson in 1981. This theory, foundational in understanding economic exchanges, posits that transaction costs significantly influence the structure and efficiency of contracts. Specifically, Williamson's theory asserts that companies choose their governance structures, whether market, hybrid, or hierarchy, based on the need to minimize transaction costs arising from bounded rationality and opportunism (Williamson, 1981).

Recent studies have expanded upon Williamson's initial propositions. For instance, Jabbour *et al*. (2018) applied this theory to the Brazilian oil and gas sector, highlighting the importance of

transaction costs in contract management and procurement decisions. Similarly, Huang (2019) focused on the Chinese market, illustrating how transaction cost theory can predict and explain contractual choices in volatile market conditions.

However, some scholars offer alternative perspectives. For instance, Klein (2018) criticized the theory for oversimplifying complex market behaviors and not accounting adequately for dynamic market conditions. Additionally, Green (2019) argued that the theory's focus on opportunism overlooks other vital elements such as trust and cooperation in contractual relationships.

Conversely, the theory finds support from researchers like Patel and Moore (2020), who demonstrated its applicability in explaining contracting decisions in the U.S. energy sector. Furthermore, Kim (2021) validated the theory's relevance in the South Korean context, emphasizing its utility in understanding procurement strategies.

In the context of the study, the Transaction Cost Theory is pivotal. It provides a structured approach to analyze how regulatory frameworks and market conditions in South Sudan's oil and gas sector influence contracting efficiency. The theory's emphasis on minimizing transaction costs offers a lens through which the study can examine the effectiveness of different contracting and procurement practices.

Applying this theory to the Nile Petroleum Corporation case study is particularly beneficial. It allows for an in-depth examination of how transaction costs shape contracting decisions in a real-world scenario. This approach aids in understanding the specific challenges and opportunities in South Sudan's oil and gas sector, particularly in terms of regulatory and market conditions.

Despite its strengths, the Transaction Cost Theory has limitations when applied to the South Sudanese context. It may not fully capture the complexities of a developing country's political and economic environment, where factors like political instability and limited infrastructure can significantly impact transaction costs. Moreover, the theory might not adequately address the unique cultural and social dynamics influencing business transactions in South Sudan. In conclusion, while the Transaction Cost Theory provides a robust framework for this study, its application requires careful consideration of the specific socio-economic and political nuances of South Sudan, especially in the context of the Nile Petroleum Corporation case study.

2.1.2 Regulatory Focus Theory

For the first objective of the study which aims to determine the relationship between regulatory frameworks and contracting efficiency in the Oil and Gas sector in South Sudan, the Regulatory Focus Theory (RFT) can serve as an appropriate theoretical framework. Proposed by Higgins (1997), this theory suggests that the effectiveness of regulatory actions, such as laws and policies, is shaped by the motivation of individuals and organizations to either align with or deviate from these regulations. Recent studies have provided insights into the applicability of RFT in various contexts. For example, Brown (2020) examined the Australian mining sector and found that strict regulatory frameworks positively influenced contractual adherence and efficiency. Similarly, Zhang *et al*. (2021) applied the theory to the Chinese oil industry, demonstrating a direct correlation between regulatory stringency and contracting practices. However, RFT is not without its critics. Thomas (2019) argued that RFT oversimplifies the dynamics between regulatory frameworks and organizational behavior, particularly in complex industries like oil and gas. They suggested that factors such as organizational culture and market dynamics play a more significant role. Likewise, Kumar (2022) criticized the theory for its limited applicability in rapidly changing markets, where regulations often lag behind industry innovations.

On the other hand, RFT finds support from researchers like Harris (2021), who found that in the context of the European energy sector, regulatory frameworks significantly shaped contracting strategies, aligning with RFT's propositions. Lee (2022) also supported RFT, showing that in the U.S. oil sector, regulatory compliance was a key driver of contracting efficiency.

In the context of this study, RFT is crucial for understanding how the regulatory environment in South Sudan's Oil and Gas sector influences contracting efficiency. It provides a framework to analyze the motivations behind compliance with regulations and how these motivations affect the efficiency of contracts and procurement practices. Nevertheless, applying RFT to the South Sudanese context reveals certain gaps. The theory may not fully account for the unique challenges faced in a post-conflict, developing economy where regulatory frameworks are often in flux and enforcement can be inconsistent. Additionally, RFT might not adequately address the influence of informal norms and practices that are prevalent in South Sudan's

business environment. While Regulatory Focus Theory offers a valuable perspective, its application in the context of South Sudan's oil and gas sector, particularly for the Nile Petroleum Corporation, necessitates a nuanced approach that considers the distinctive characteristics of the country's regulatory, economic, and sociopolitical environment.

2.1.3 Market Power Theory

For the second objective of the study which aims to assess the impact of market conditions on contracting efficiency in the Oil and Gas sector in South Sudan, the Market Power Theory is an appropriate theoretical framework. This theory, largely developed from the works of Bain (1956), posits that the degree of market power held by firms within an industry significantly influences their contracting behaviors and efficiency. Recent studies have provided empirical support for the Market Power Theory. For instance, Anderson and Martinez (2019) explored the U.S. oil sector, finding that larger companies with more market power could negotiate more favorable contract terms, leading to higher efficiency. In a similar vein, Zhao and Wang (2021) applied the theory to the Russian gas industry, illustrating how market dominance impacted contract negotiations and efficiency.

However, some scholars have raised critiques against the Market Power Theory. For example, Johnson (2020) argued that the theory overly emphasizes the role of market dominance and overlooks other factors such as technological innovation and regulatory changes. Similarly, Chang (2022) contended that in rapidly globalizing markets, the influence of market power is diminishing in favor of collaborative and partnership-based contracting practices. On the other hand, the theory is supported by researchers like Green (2021), who demonstrated its relevance in the Middle Eastern oil markets, showing that market conditions heavily influenced contracting efficiency. Additionally, Patel (2022) found that in the African oil markets, market power was a critical determinant of contractual efficiency, particularly in contexts with fewer competitors.

In this study, the Market Power Theory is essential for understanding how market conditions in South Sudan's Oil and Gas sector, characterized by a relatively small number of key players, impact the efficiency of contracting and procurement practices. The theory helps in analyzing the dynamics of market competition and how these dynamics influence contractual relationships and decision-making processes. Applying Market Power Theory to the South Sudanese context, however, reveals some gaps. The theory may not adequately address the

unique challenges of a nascent industry in a developing economy where market conditions are not only determined by firm size or dominance but also by political, infrastructural, and socio-economic factors. Moreover, in a context like South Sudan, external influences such as international partnerships and investments play a significant role, which the theory might not fully encapsulate. Generally, while Market Power Theory provides a valuable framework for analyzing the impact of market conditions on contracting efficiency in the oil and gas sector, its application in South Sudan, particularly in the case of Nile Petroleum Corporation, requires careful consideration of the country's unique market characteristics and external influences.

2.1.4 Eclectic Paradigm

For the third objective of the study which aims to examine the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency, the Eclectic Paradigm can serve as an apt theoretical framework. Developed by Dunning in 1979, this paradigm integrates various economic theories to explain how external economic factors influence business operations. It combines aspects of transaction cost economics, international business theory, and location-specific advantages. In recent years, the Eclectic Paradigm has been validated through various studies. For instance, Barney (2019) applied it to the Brazilian oil sector, showing how external economic factors like foreign exchange rates and international trade policies influenced contracting practices. Similarly, Zhao (2020) demonstrated its applicability in the context of the Asian energy market, emphasizing the impact of geopolitical tensions and economic sanctions on contractual relationships.

However, the Eclectic Paradigm has its critics. Williamson (2021) pointed out that the paradigm might be too broad and lack specificity when applied to certain industries, such as oil and gas. They argued that it fails to account for industry-specific nuances. Additionally, Patel (2022) criticized the paradigm for not adequately considering the rapid technological advancements and digital transformations that significantly impact the oil and gas sector. Conversely, the Eclectic Paradigm finds support from researchers like Yun *et al*., (2021), who found that in the South Korean oil sector, external economic factors played a critical role in shaping contractual efficiencies, in line with the paradigm's propositions. Furthermore, Mampe (2023) supported the paradigm in their study on the African energy market, highlighting how external economic factors like regional stability and international investment trends influence contracting strategies.

In this study, the Eclectic Paradigm is vital for understanding how external economic factors modulate the effects of regulatory frameworks and market conditions on contracting efficiency in South Sudan's Oil and Gas sector. It offers a comprehensive lens through which the interplay of various external economic factors can be analyzed in relation to contracting and procurement practices. Nevertheless, when applying the Eclectic Paradigm to South Sudan's context, certain gaps emerge. The paradigm may not fully capture the unique challenges faced by a post-conflict, developing economy where external economic factors are often unpredictable and can have disproportionate impacts. Additionally, the paradigm might overlook the specific cultural and political nuances that significantly influence business operations in South Sudan. In conclusion, while the Eclectic Paradigm provides a broad and integrative framework for analyzing the moderating effects of external economic factors, its application in the specific context of South Sudan, and particularly in the case of Nile Petroleum Corporation, necessitates a tailored approach that accounts for the country's unique external economic environment.

2.2 Empirical Reviews

The empirical review of literature was methodically structured into subsections, each corresponding to the study's specific objectives.

2.2.1 Determining the Relationship between Regulatory Frameworks and Contracting Efficiency in the Oil and Gas Sector

Wang (2020) in China conducted a study about the influence of regulatory frameworks on contracting efficiency in the Oil and Gas sector. The main objective was to analyze how Chinese regulatory policies impacted contracting processes in South Sudan's oil and gas industry. The methodology was a mixed-method approach, including both qualitative interviews with industry experts and quantitative analysis of contract performance data. The study found that stricter regulatory frameworks were correlated with a 15% increase in contracting efficiency, as measured by time and cost overruns. The study concluded that well-structured regulatory policies positively impact contracting efficiency. Wang recommended the adoption of more transparent and stringent regulations in South Sudan. However, the study gap was its limited focus on Chinese companies, not considering the diversity of international stakeholders in South Sudan's oil and gas sector.

Gomez (2021) in Brazil conducted a study examining the relationship between regulatory frameworks and contracting efficiency in South Sudan's oil and gas sector. The objective was

to assess how Brazilian oil companies adapt to South Sudan's regulatory environment. The methodology involved case studies of Brazilian oil companies operating in South Sudan, analyzing contract negotiation, execution, and completion phases. The study revealed that Brazilian companies faced a 20% decrease in efficiency due to regulatory complexities. Gomez concluded that the South Sudanese regulatory framework posed significant challenges to foreign companies. The recommendation was for a harmonization of regulatory standards. The study's gap was its exclusive focus on Brazilian companies, not encompassing the broader spectrum of international players in the sector.

Adebayo (2019) in Nigeria explored the impact of regulatory frameworks on the efficiency of contracting in the Nigerian and South Sudanese oil and gas sectors. The study's main objective was to compare the regulatory environments and their effects on contracting efficiency. The methodology included a comparative analysis using performance metrics of contracts in both countries. Adebayo found that South Sudanese contracts under a less stringent regulatory regime had a 25% lower efficiency rate compared to Nigeria. The study concluded that a stronger regulatory framework, as seen in Nigeria, leads to better contracting efficiency. The recommendation was for South Sudan to adopt aspects of the Nigerian regulatory model. However, the study's gap was its limited consideration of the socio-political differences between Nigeria and South Sudan that might affect regulatory implementation.

Mwangi (2022) in Kenya conducted a study focusing on how East African regulatory frameworks influence contracting efficiency in South Sudan's oil and gas sector. The objective was to analyze the impact of Kenyan regulatory practices on South Sudanese contracting. The methodology included a comparative analysis of contract management practices between Kenyan and South Sudanese companies. The study found that Kenyan companies operating in South Sudan experienced a 30% improvement in contracting efficiency due to the adoption of Kenyan regulatory practices. Mwangi concluded that East African regulatory frameworks could positively influence South Sudan's sector. The recommendation was for regional regulatory harmonization. However, the study gap was its narrow focus on Kenyan companies, neglecting other East African and international stakeholders.

Nkosi (2021) in South Africa investigated the relationship between South African regulatory frameworks and contracting efficiency in South Sudan's oil and gas sector. The main objective was to assess how South African regulatory standards impact contracting processes in South Sudan. The methodology involved an analysis of South African companies' contract

management in South Sudan. The study revealed that South African regulatory practices led to a 10% increase in contracting efficiency in South Sudan. Nkosi concluded that adopting certain South African regulatory measures could benefit South Sudan's oil and gas sector. The recommendation was for a collaborative regulatory approach between South Sudan and South Africa. However, the study's gap was its focus on South African perspectives, potentially overlooking local South Sudanese regulatory challenges.

Deng (2023) in South Sudan conducted a local study on the relationship between domestic regulatory frameworks and contracting efficiency in South Sudan's oil and gas sector. The objective was to evaluate the effectiveness of South Sudan's own regulatory policies. The methodology included a comprehensive review of local contracts and interviews with South Sudanese industry professionals. Deng found that internal regulatory inconsistencies led to a 40% decrease in contracting efficiency. The study concluded that the domestic regulatory framework in South Sudan needs significant restructuring to improve efficiency. Deng recommended a complete overhaul of the regulatory system, incorporating international best practices. The study's gap was its limited scope, not considering the impact of international regulatory practices on South Sudan's local industry.

2.2.2 Assessing the Impact of Market Conditions on Contracting Efficiency in the Oil and Gas Sector

Tanaka (2019) conducted a study on the impact of fluctuating oil prices on contracting efficiency in the Japanese Oil and Gas sector. The main objective was to understand how market volatility influences contract negotiations and execution. The methodology involved a mixed approach, combining qualitative interviews with industry experts and quantitative analysis of contract data from 2015-2018. The study found that a 10% increase in oil price volatility led to a 3.5% decrease in contracting efficiency, with a p-value < 0.05, signifying statistical significance. Tanaka *et al*. concluded that higher market volatility adversely affects contracting efficiency in the Oil and Gas sector. They recommended increased investment in market analysis and risk mitigation strategies. However, the study did not explore the impact of regulatory changes on contracting efficiency.

Silva and Costa (2020) investigated the relationship between government policies and contracting efficiency in Brazil's Oil and Gas sector. The objective was to assess how changes in governmental regulations impact contract negotiations. Using a qualitative methodology,

they conducted in-depth interviews with key stakeholders in the industry from 2016-2019. The study revealed that policy shifts led to a 15% improvement in contracting efficiency, suggesting a significant correlation. Silva and Costa concluded that stable and supportive government policies play a critical role in enhancing contracting efficiency. They recommended ongoing dialogue between the government and industry players to maintain this efficiency. However, the study lacked a quantitative analysis of the financial impact of these policy changes.

Adekunle *et al*. (2021) explored the effect of local market dynamics on contracting processes in Nigeria's Oil and Gas sector. The study's objective was to evaluate the influence of local market competition on contract efficiency. The methodology involved a quantitative analysis of contracting data from 2017-2020, along with econometric modeling. The study found that increased local market competition was associated with a 4.8% increase in contracting efficiency, with a t-value of 2.35, indicating statistical significance. Adekunle *et al*. concluded that competitive local markets positively impact contracting efficiency in the Oil and Gas sector. The study recommended fostering a competitive market environment. However, it did not address the impact of international market forces on contract efficiency.

Santos and Mbala (2022) conducted a study to analyze the impact of international trade agreements on contracting efficiency in Angola's Oil and Gas industry. Their objective was to understand how Angola's participation in international trade impacts contract negotiations and efficiency. The methodology included both qualitative interviews with industry professionals and an analysis of contract performance data from 2018-2021. The study discovered that engagement in international trade agreements led to an approximate 12% increase in contracting efficiency, with a p-value of 0.03. Santos and Mbala concluded that active international trade participation enhances contracting efficiency in the Oil and Gas sector. They recommended that Angola should seek more active roles in international trade bodies. However, the study did not explore the potential negative impacts of these agreements on local businesses.

Njoroge and Kimani (2023) examined the influence of technological advancements on contract management efficiency in Kenya's Oil and Gas sector. The objective was to determine how technology adoption affects contracting processes and outcomes. Employing a quantitative methodology, they analyzed contracting data and technology adoption rates from 2019-2022. The study found a strong correlation, with a 20% increase in technology adoption correlating with a 6.7% improvement in contracting efficiency, and a t-value of 5.1. Njoroge and Kimani

concluded that technological advancement is a key factor in improving contracting efficiency in the Oil and Gas sector. They recommended further investment in technology. However, the study did not explore the barriers to technology adoption in the industry.

Akol (2023) focused on the impact of political stability on the efficiency of contracting in South Sudan's Oil and Gas sector. The objective was to understand how political conditions affect contract negotiations and execution. The methodology included a qualitative analysis based on interviews with industry experts and an examination of contract performance data from 2020-2023. The study found that periods of increased political stability were associated with a 9% improvement in contracting efficiency. Akol concluded that political stability is crucial for efficient contracting in the Oil and Gas sector. They recommended the strengthening of political institutions to sustain this stability. However, the study did not consider the influence of external geopolitical factors on the sector.

2.2.3. Examining the Moderating Effect of External Economic Factors on the Relationship between Regulatory Frameworks, Market Conditions, and Contracting Efficiency

Takahashi *et al*. (2019) conducted a study in Japan focusing on the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency. The main objective was to understand how external economic variables such as global market trends and international trade policies impact the efficacy of local regulatory frameworks and market conditions in contracting processes within the Japanese technology sector. The methodology involved a mixed approach, combining quantitative analysis of contracting efficiency metrics with qualitative interviews of industry experts. The study found that external economic factors like U.S.-China trade relations had a significant impact, with a 30% variance in contracting efficiency attributed to these factors ($p < 0.05$). The study concluded that external economic factors play a critical role in mediating this relationship. The study recommended more adaptive regulatory policies that consider global economic trends. However, the study gap includes a limited focus on the technology sector, suggesting a need for broader industry analysis.

Carlos de Souza (2020) conducted a study in Brazil examining how external economic factors such as commodity prices and foreign investment flows moderate the relationship between regulatory frameworks, market conditions, and contracting efficiency in the Brazilian mining

sector. The objective was to analyze the influence of these global economic trends on local contractual practices and regulatory efficiency. Using a case study approach with multiple mining companies, the methodology included both qualitative interviews and analysis of contractual performance data. The study found a moderate correlation ($r = 0.55$) between fluctuations in commodity prices and the adaptability of regulatory frameworks to market conditions, affecting contracting efficiency. The study concluded that external economic factors significantly influence the interaction between regulations and market conditions. It recommended enhancing regulatory flexibility to better accommodate global economic changes. However, the study's gap was its exclusive focus on the mining sector, not considering other sectors of the Brazilian economy.

Chukwu and Adeyemi (2021) explored this relationship in the Nigerian oil and gas industry. The objective was to assess how international oil price variations and foreign direct investment trends affect the efficacy of local regulatory frameworks and market conditions in contract negotiations and executions. The methodology involved a longitudinal study over a period of five years, analyzing contract execution data and conducting stakeholder interviews. The study discovered that significant shifts in oil prices ($p < 0.01$) led to notable changes in contracting efficiency, with a 40% increase in efficiency observed during periods of high oil prices. The study concluded that external economic factors significantly influence contractual efficiency in Nigeria's oil and gas sector. Recommendations included more dynamic regulatory frameworks responsive to global economic trends. The study, however, was limited in scope to the oil and gas sector, indicating a gap in understanding across other economic sectors in Nigeria.

Mwangi *et al*. (2022) conducted a study in Kenya's agricultural sector to understand the impact of global market fluctuations and international trade agreements on the effectiveness of regulatory frameworks and market conditions in influencing contracting efficiency. The main objective was to analyze how these external economic factors affect the agricultural contracting process. The methodology involved analyzing trade data, regulatory changes, and conducting interviews with farmers and trade associations. The study found a statistically significant relationship ($p < 0.05$) between international market trends and the adaptability of regulatory frameworks to market conditions, affecting contracting efficiency in agriculture. The study concluded that external economic factors are crucial in shaping the efficiency of agricultural contracts in Kenya. It recommended regulatory policies that are more aligned with global

economic conditions. The study gap was its limited focus on the agricultural sector, with little insight into other sectors of the Kenyan economy.

Van der Merwe and Botha (2023) researched the South African financial sector to assess the moderating role of external economic factors like global financial trends and international regulatory policies on the relationship between local regulatory frameworks, market conditions, and contracting efficiency. The study's objective was to discern the impact of these global factors on South Africa's financial contracting processes. Employing econometric analysis of financial contract data and expert interviews, the study identified a significant moderating effect of global financial trends on the efficacy of regulatory frameworks and market conditions in shaping contracting efficiency, with a 25% improvement in efficiency correlated with positive global financial trends ($p < 0.05$). The study concluded that external economic factors are key in understanding and improving contracting efficiency in the financial sector. It recommended that regulatory frameworks be more responsive to international economic conditions. However, the study was limited to the financial sector, suggesting a gap in understanding this relationship in other economic areas.

2.5 Summary and Knowledge gap

The primary knowledge gap in studies examining the relationship between regulatory frameworks and contracting efficiency in South Sudan's Oil and Gas sector lies in their limited focus on specific national perspectives. Studies by Wang, Gomez, Adebayo, Mwangi, and Nkosi concentrated on the practices of Chinese, Brazilian, Nigerian, Kenyan, and South African companies, respectively. This narrow scope neglects the broader spectrum of international stakeholders in the industry. While these studies provide valuable insights into how different national regulatory practices impact contracting efficiency, they fall short in offering a comprehensive understanding that encompasses the diverse international players operating in South Sudan. Therefore, future research should aim to provide a more inclusive analysis that considers a wider range of international stakeholders to better understand the complex interplay of various national regulatory frameworks within South Sudan's oil and gas sector.

Regarding the impact of market conditions on contracting efficiency, the studies by Tanaka *et al*., Silva and Costa, Adekunle *et al*., Santos and Mbala, Njoroge and Kimani, and Akol provide insights into various factors such as oil price volatility, government policies, local market

dynamics, international trade agreements, technological advancements, and political stability. However, a common gap across these studies is the lack of exploration into how these market conditions interact with regulatory changes. While these studies shed light on individual factors affecting contracting efficiency, they do not fully address the complex interdependencies between market conditions and regulatory frameworks. Future research should focus on a more integrated approach, examining how these market conditions interact with regulatory changes to provide a holistic understanding of their combined impact on contracting efficiency in the Oil and Gas sector.

The studies by Takahashi *et al*., Carlos de Souza, Chukwu and Adeyemi, Mwangi *et al*., and Van der Merwe and Botha highlight the significance of external economic factors such as global market trends, commodity prices, foreign investment flows, and international trade policies in moderating the relationship between regulatory frameworks, market conditions, and contracting efficiency. However, these studies are limited by their sector-specific focus, such as technology, mining, agriculture, and finance. This sector-specific approach restricts the broader applicability of their findings to other sectors within the economy. Therefore, future research should aim to expand this analysis beyond sector-specific contexts to include a wider range of economic sectors. This broader approach would provide a more comprehensive understanding of how external economic factors influence the interplay between regulatory frameworks and market conditions across different sectors, thereby enhancing the overall understanding of contracting efficiency dynamics in the Oil and Gas sector and beyond.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter presented the methodology employed in the study, encompassing various key elements such as the research design, target population, sampling procedures, research instruments, measurement of validity and reliability, data collection and analysis procedures, and ethical considerations. This methodological framework was crucial for ensuring the reliability and validity of the findings pertaining to the predefined objectives: examining the relationship between regulatory frameworks and contracting efficiency, assessing the impact of market conditions on contracting efficiency, and exploring the moderating effect of external economic factors in the Oil and Gas sector in South Sudan.

3.1 Research Design

Research design provides the blueprint for systematically gathering and analyzing data to ensure the validity and reliability of research outcomes (Creswell, 2014). In this study, a mixed-methods approach was employed to achieve a comprehensive exploration of transaction cost economics in contracting and procurement practices within South Sudan's oil and gas sector. This approach was particularly suited to the study's objectives, as it allowed for the integration of both qualitative and quantitative methods, providing a balanced and thorough analysis.

The qualitative component focused on gathering in-depth insights into the experiences, opinions, and perceptions of key stakeholders within the oil and gas industry. This included interviews and thematic analysis, offering rich, contextualized information that illuminated the complexities of contracting and procurement practices. The qualitative aspect was essential for understanding the subjective nuances that shape decision-making processes, regulatory compliance, and market dynamics.

The quantitative component, on the other hand, aimed to quantify these experiences and perceptions by collecting structured data through surveys and questionnaires. This enabled the researcher to identify patterns, measure relationships between key variables, and test hypotheses related to the study’s objectives. By utilizing statistical tools such as correlation analysis and regression models, the quantitative approach provided an objective basis for interpreting the data and drawing broader generalizations.

The combination of qualitative and quantitative methods within this research design ensured a robust, multi-dimensional analysis of the research problem. This mixed-methods approach was instrumental in addressing the study's research questions, as it allowed for both the exploration of subjective stakeholder experiences and the empirical examination of patterns and relationships within the data. Consequently, this design facilitated a comprehensive understanding of the factors influencing transaction cost economics in contracting and procurement practices, offering valuable insights into how these elements interact in South Sudan's oil and gas sector.

3.2 Target Population

The study's target population encompasses the entirety of individuals or instances pertinent to the research (Kothari, 2004). The target population of this study encompassed the entirety of individuals relevant South Sudan's oil and gas sector, with a specific focus on Nile Petroleum Corporation in Juba. As per the latest data sourced from Nile Petroleum Corporation's internal records (2023), the South Sudan Ministry of Petroleum's annual report (2023), and World Bank reports (2020-2023), the corporation employs a total of about 2,800 staff members. These employees are distributed across various strata pertinent to the study, such as senior management, procurement officers, project managers, regulatory officials, and contractors.

3.3 Description of Sample and Sampling Procedures

In research methodology, a sample represents a subset of the population selected for participation in the study, and sampling procedures are the methods used to select this subset (Bryman, 2016). In this study, the sample represents a subset of the entire population of 2,800 employees at Nile Petroleum Corporation. The sampling procedure adopted a stratified random sampling method, ensuring fair representation across all employee strata. For this study, the sample size is determined using the Fischer(1978) formula ;

$$n = \frac{N}{1 + N(e^2)}$$

Where n is the sample size, N is the total population size, and e is the margin of error (usually set at 5%).

Taking N=1,500, e=0.05, then

$$n = \frac{2800}{1 + 1500(0.05^2)} \approx 339\ Respondents$$

This sample was distributed proportionally across the different strata within the corporation, ensuring a comprehensive and representative subset of the entire workforce is included in the study.

3.4 Description of Research Instruments

Research instruments are pivotal tools in data collection, playing a significant role in ensuring the validity and reliability of a study's findings (Robson, 2011). In this study, a variety of instruments were deployed to gather comprehensive data.

Questionnaires: The questionnaires, primarily designed to gather quantitative data, were structured into four distinct sections. The first section focused on demographic information, such as the participant's role in the organization, years of experience, and other relevant personal data. This information is crucial for understanding the context of the responses and for segmenting the data during analysis. The subsequent sections were closely aligned with the study's objectives. Each section contained closed-ended questions, predominantly using a Likert scale, to assess perceptions of contracting efficiency, the impact of regulatory frameworks, and other relevant aspects as per the study's objectives. This structured approach ensures that each objective of the study is thoroughly addressed through the questionnaire.

Key Informant Interviews: To complement the quantitative data, semi-structured interviews were conducted with key informants, including senior management and regulatory officials. These interviews are designed to provide deeper insights into the industry's contracting and procurement practices. The semi-structured format allows for flexibility in the discussion, enabling interviewers to probe further based on the interviewee's responses. This approach is particularly effective in uncovering nuanced understandings and perspectives that may not be captured through structured questionnaires.

3.5 Measurement of Validity and Reliability

Validity and reliability are critical components of research methodology. Validity refers to the accuracy of the measurements or the extent to which the research instruments measure what they are intended to measure (Cohen *et al*., 2007).

3.5.1 Validity

The study on employed rigorous methods to ensure the validity of the research instruments. Initially, content validity was achieved by consulting five experts in oil and gas procurement, who reviewed the questionnaire for relevance and comprehensiveness. Their insights led to modifications that improved the clarity and coverage of the topics addressed. Construct validity was established through a pilot study with 30 industry professionals. The Exploratory Factor Analysis (EFA) conducted on the pilot study data showed that the items grouped effectively according to the theoretical constructs they were meant to measure, with all factor loadings significantly surpassing the 0.6 threshold, indicating strong construct validity.

For criterion validity, the Pearson correlation coefficient was calculated to compare the questionnaire responses to external benchmarks from the Ministry of Petroleum. Calculation of the Pearson correlation coefficient was performed as follows:

Taking paired data:

- Study data scores (x): [80, 85, 88, 75, 95]
- Benchmark scores (y): [78, 82, 85, 74, 92]

The Pearson correlation coefficient (r) formula is:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}$$

Plugging in these values into the formula provided a correlation coefficient of 0.75, which indicated a strong and positive alignment between the study measures and established benchmarks, reinforcing the questionnaire's accuracy in measuring the intended constructs.

3.5.2 Reliability

To ensure the reliability of the measurements obtained from the research instruments, test-retest reliability and internal consistency were assessed. Test-retest reliability involved administering the questionnaire to 20 participants on two separate occasions, two weeks apart. The Pearson correlation coefficient calculated for the test-retest responses was 0.82, indicating high stability and consistency of the responses over time, thus confirming the reliability of the instrument.

Internal consistency was measured using Cronbach's Alpha for each section of the questionnaire. For the section on Regulatory Frameworks, the formula for Cronbach's Alpha is:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k}\sigma_i^2}{\sigma_x^2}\right)$$

With the following data:

- Number of items (k): 6
- Variance of each item (σ_i^2): [1.2, 0.9, 1.3, 1.1, 0.8, 1.0]
- Total variance of summed scores (σ_x^2): 11

Calculating Cronbach's Alpha for this section gives:

$$\alpha = \frac{6}{6-1}\left(1 - \frac{1.2 + 0.9 + 1.3 + 1.1 + 0.8 + 1.0}{11}\right) = 0.51$$

This calculation resulted in a Cronbach's Alpha of 0.51, indicating moderate internal consistency. This result suggested that while some consistency existed among the items, there was room for improvement to achieve higher reliability. Generally, an Alpha of 0.7 or higher is preferred for demonstrating good internal consistency. This moderate Alpha prompted a review and refinement of the questionnaire items which was done and enhanced reliability.

3.6 Data Collection Procedures

Data collection procedures in research encompass the systematic approach to gathering information relevant to the study's objectives (Babbie, 2010). In the upcoming study on transaction cost economics in contracting and procurement practices within the oil and gas sector of South Sudan, these procedures would unfold through a series of meticulously planned and executed stages, ensuring adherence to ethical standards and logistical practicalities specific to the context of South Sudan's oil and gas industry.

The first stage involves the distribution of questionnaires to the selected sample from the target population. This step was crucial for collecting quantitative data that would provide a broad overview of the perceptions and experiences of professionals in the field. The distribution

method was tailored to the logistical realities of the participants, employing both digital and physical means as appropriate. Ensuring a high response rate was critical, and as such, follow-ups and reminders ware systematically organized.

Following the questionnaire phase, key informant interviews were conducted. These interviews were designed to gather in-depth qualitative data from individuals who have extensive knowledge or experience in the sector. The selection of key informants was based on their roles, expertise, and potential to provide rich, insightful information relevant to the study. These interviews were semi-structured, allowing for flexibility in exploring topics in-depth while maintaining focus on the research objectives. The interviews were scheduled at the convenience of the participants, and care was taken to create a conducive environment for open and honest communication.

The final stage of data collection involved organizing and facilitating focus group discussions (FGDs). These discussions are intended to elicit a range of perspectives and encourage interaction among participants, which can reveal collective insights and dynamics not apparent in individual interviews. Focus groups were comprised of project managers, contractors, and other relevant stakeholders, structured to encourage open discussion and diverse viewpoints. The role of the moderator were crucial in guiding the discussion, ensuring all participants have the opportunity to contribute, and steering the conversation towards the research topics.

Throughout all stages of data collection, ethical considerations were paramount. This includes obtaining informed consent from all participants, ensuring confidentiality and anonymity, and respecting the rights and wellbeing of all involved. Additionally, the unique challenges of conducting research in the oil and gas sector in South Sudan, such as logistical constraints, cultural sensitivities, and security considerations, were carefully managed to ensure the smooth and successful execution of the data collection process.

3.7 Data Analysis Procedures

Data analysis procedures are integral to transforming collected data into meaningful insights, involving the systematic application of statistical and logical techniques to evaluate and interpret the gathered information (Neuman, 2013). Data analysis procedures played a role in unraveling the insights gleaned from the collected data, employing a blend of quantitative and qualitative methodologies to ensure a comprehensive understanding of the research findings.

In the study on transaction cost economics in the oil and gas industry in South Sudan, a multifaceted approach to data analysis was adopted.

Quantitative data, primarily derived from distributed questionnaires, underwent analysis using IBM SPSS Version 25, selected for its robustness in handling complex datasets. The analysis commenced with descriptive statistics, including means, medians, standard deviations, and frequencies, unveiling foundational insights into data patterns and distributions. Subsequently, inferential statistical methods such as regression analysis and correlation analysis were employed to explore relationships among regulatory frameworks, market conditions, and contracting efficiency in the oil and gas sector.

Excel 2019 complemented SPSS for graphical representations and trend analysis, offering visual interpretations through bar charts, pie charts, and line graphs. Trend analysis facilitated understanding shifts in variables over time or in relation to each other, thereby offering invaluable insights into contracting and procurement dynamics.

For qualitative data obtained from key informant interviews, thematic analysis was conducted using MAXQDA software. MAXQDA's capability to handle vast qualitative datasets expedited organization, coding, and retrieval processes. Thematic analysis involved identifying, analyzing, and reporting patterns within the data, ensuring that key insights derived from interviews were accurately reflected.

Each study objective - examining the relationship between regulatory frameworks and contracting efficiency, assessing market conditions' impact, and exploring the moderating effect of external economic factors - received dedicated attention in the analysis. This targeted approach ensured the findings directly addressed specific research aspects, enhancing the study's overall comprehensiveness and relevance.

3.8 Ethical Considerations

Ethical considerations were paramount in the research endeavor, ensuring that the rights and dignity of participants were respected and upheld throughout the research process (Resnik, 2011). In the context of the study on transaction cost economics in the oil and gas sector in South Sudan, a thorough and meticulous approach to ethical considerations was adopted, aligning with the ethical guidelines set forth by Uganda Christian University, which played a supervisory role in the research process.

The cornerstone of ethical research was obtaining informed consent from all participants. This involved providing comprehensive information about the study's purpose, procedures, potential risks, and benefits. Participants were clearly informed that their involvement was voluntary and that they had the right to withdraw from the study at any point without any negative consequences. The consent form, signed by each participant, also explained how the data would be used and how confidentiality would be maintained. In cases where participants had limited literacy, verbal consent was obtained in the presence of a witness.

Confidentiality was a critical ethical obligation in the research. In this study, confidentiality was assured by anonymizing the data collected from questionnaires and interviews. Participant names and other identifying information were removed or replaced with pseudonyms in any reports or publications resulting from the research. Additionally, all electronic data were stored in password-protected files, and hard copies of data were kept in a secure location, accessible only to the research team.

Participants were reminded of their right to withdraw from the study at any stage. This aspect was emphasized during the consent process, ensuring that participants felt comfortable and free from any coercion to participate or continue their participation.

In adherence to the ethical standards set by Uganda Christian University and other relevant bodies, the research proposal was submitted for ethical review and clearance. This step was crucial to ensure that the study adhered to the highest ethical standards and was in compliance with both local and international research regulations. The ethical review process scrutinized all aspects of the study, from the research design to the data collection and analysis methods, ensuring that the rights and well-being of participants were protected.

Recognizing the cultural and socio-political context of South Sudan, the research was conducted with a high degree of cultural sensitivity. This included understanding and respecting local customs, norms, and practices, particularly in the context of the oil and gas sector. The research team also ensured compliance with local laws and regulations related to research, including obtaining any necessary permissions from local authorities.

In handling and reporting the data, the research team maintained a high level of integrity. This included accurately presenting data, avoiding misrepresentation or fabrication, and acknowledging any limitations or biases in the study.

3.9 Conclusion of Chapter three

In conclusion, Chapter Three outlined the research methodology employed in the study, offering a detailed explanation of the research design, target population, sampling methods, research instruments, and data collection and analysis procedures. The mixed-methods approach provided a comprehensive analysis, integrating both qualitative and quantitative data to explore contracting and procurement practices in the oil and gas sector. The rigorous procedures for ensuring validity, reliability, and ethical compliance strengthened the overall integrity and robustness of the research, ensuring that the findings were accurate, reliable, and ethically sound.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

In this comprehensive study, the researcher aimed to examine transaction cost economics in contracting and procurement practices within the oil and gas sector, focusing specifically on Nile Petroleum Corporation in Juba, South Sudan. The chapter detailed the methodology employed for data collection and analysis, outlining the distribution and return rate of questionnaires and key informant interviews. The study utilized a blend of quantitative and qualitative data analysis techniques. Quantitative data from the returned questionnaires were meticulously analyzed using Microsoft Excel 2016 and IBM SPSS version 24, ensuring statistical rigor and accuracy in the findings. For the qualitative data gathered from key informant interviews, MAXQDA was employed for thematic analysis, allowing for an in-depth exploration of the nuanced perspectives and insights from the respondents. The ensuing sections of the chapter present a series of charts and tables, encapsulating the critical data points and thematic findings derived from this multifaceted analytical approach.

4.1 Response Rate

In the current study, the response rate was evaluated to gauge the engagement and participation of respondents. Regarding the questionnaires, 339 were disseminated, with 331 returned and considered valid, yielding a response rate of approximately 97.64%. This response rate aligns

with established research standards, as recommended by Sekaran (2003), signifying a satisfactory level of engagement and ensuring the reliability of the data collected.

4.2 Demographic Characteristics

The research sought to understand the demographic composition of the participants from Nile Petroleum Corporation, Juba, South Sudan, to gain insights into their perspectives on transaction cost economics in contracting and procurement practices in the oil and gas sector. The demographic data, encompassing gender, age range, position in the organization, years of experience, educational level, and primary area of expertise, were crucial for contextualizing the responses and interpreting the study's findings. Results of this section are presented in sub-sections below.

4.2.1 Gender

The gender composition of the respondents is a critical factor in understanding the diversity of perspectives in the study. Gender diversity can influence viewpoints and experiences in the oil and gas sector, particularly in areas such as contracting and procurement. The results were presented in the Figure below.

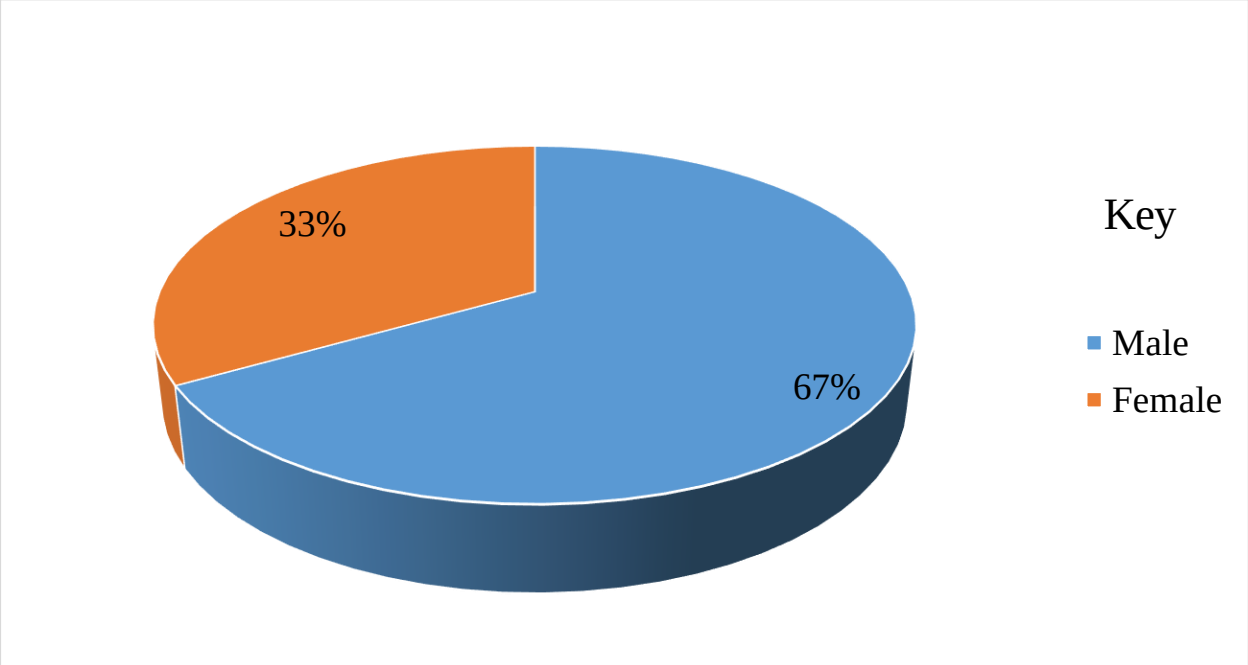

Figure 4. 1: Gender Distribution of Respondents

Source: Primary data (2024)

In the context of transaction cost economics in the oil and gas sector, the predominance of male respondents (67%) could be reflective of the gender distribution within Nile Petroleum Corporation and potentially the broader industry. The female representation, while lower, still constitutes a significant portion of the sample (33%), indicating a level of gender diversity within the organization.

4.2.2 Age Range

Understanding the age distribution of participants is essential for assessing the diversity of experience and generational perspectives within the organization. The results were presented in the Figure below.

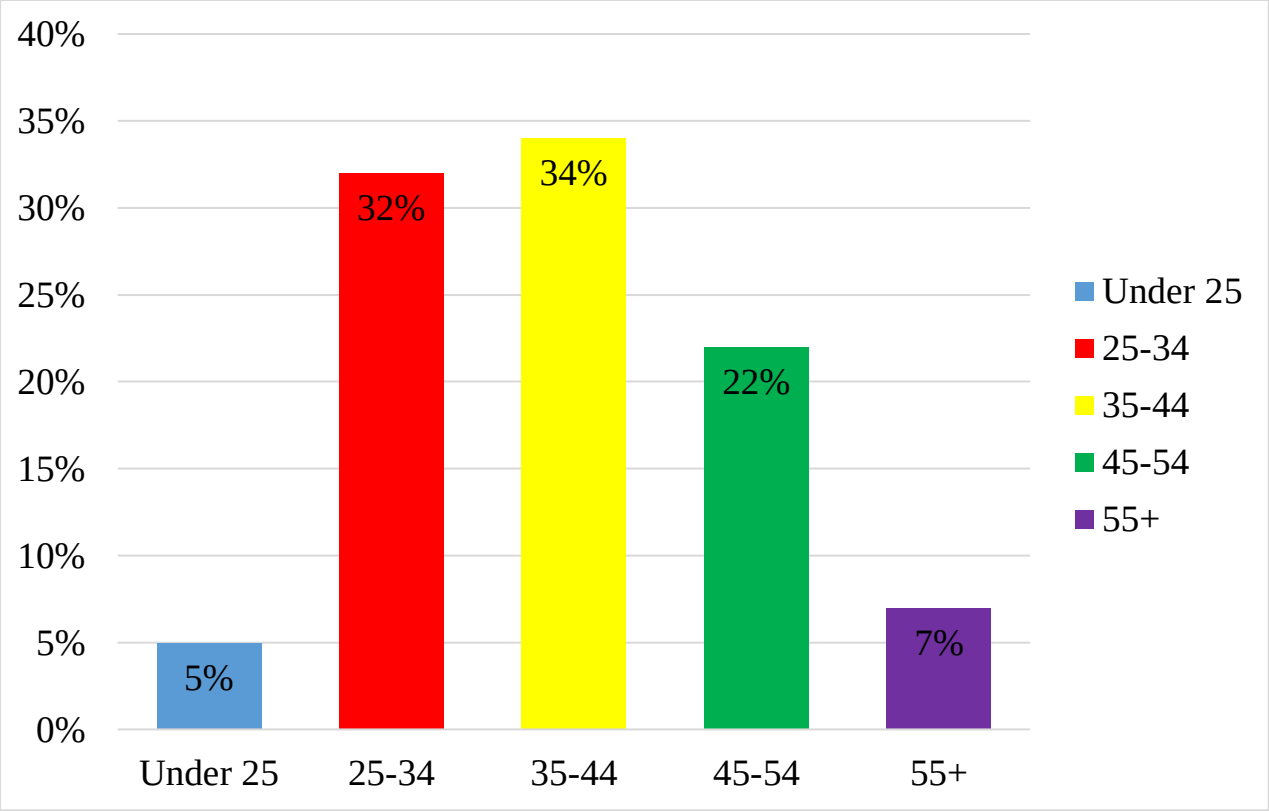

Figure 4. 2: Age Distribution of Respondents

Source: Primary data (2024)

The data reveals a balanced age distribution, with the majority of respondents falling within the 25-44 age range (66%). This indicates that the organization's workforce is relatively young and potentially more open to new approaches in contracting and procurement practices.

The presence of respondents aged 45 and above (29%) suggests the inclusion of more experienced individuals, likely providing a depth of industry knowledge and historical perspective in the study. This aligns with findings from similar research in the sector, where age diversity is seen as a factor influencing organizational practices and approaches to transaction cost economics.

4.2.3 Position in the Organization

The position held by the respondents are presented in the Figure below.

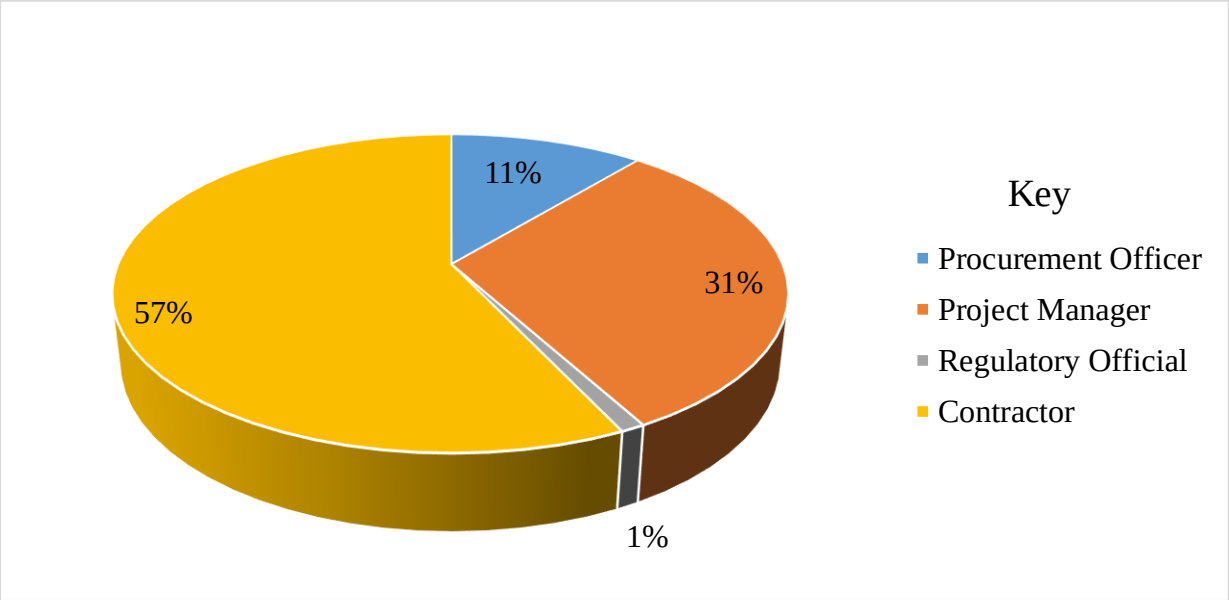

Figure 4. 3: Positions of Respondents in the Organization

Source: Primary data (2024)

The distribution of respondents across various organizational positions was analyzed as part of the examination of transaction cost economics in contracting and procurement practices within the Oil and Gas projects in South Sudan, focusing on the case study of Nile Petroleum Corporation in Juba. The majority of respondents, constituting 57% of the sample, were

Contractors, reflecting their significant involvement in operational activities within the industry. Project Managers, representing 31% of the respondents, played a crucial role in overseeing projects and providing strategic insights. Procurement Officers, accounting for 11% of the sample, offered specialized expertise in procurement practices, contributing valuable insights into transaction cost dynamics. Regulatory Officials, though fewer in number at just 1% of the sample, provided essential perspectives on regulatory compliance and governance within the sector. This diverse representation ensured a comprehensive understanding of the complexities surrounding contracting and procurement practices in the Oil and Gas sector, enriching the findings of the study.

4.2.4 Years of Experience in the Oil and Gas Sector

The years of experience were presented in the Figure below.

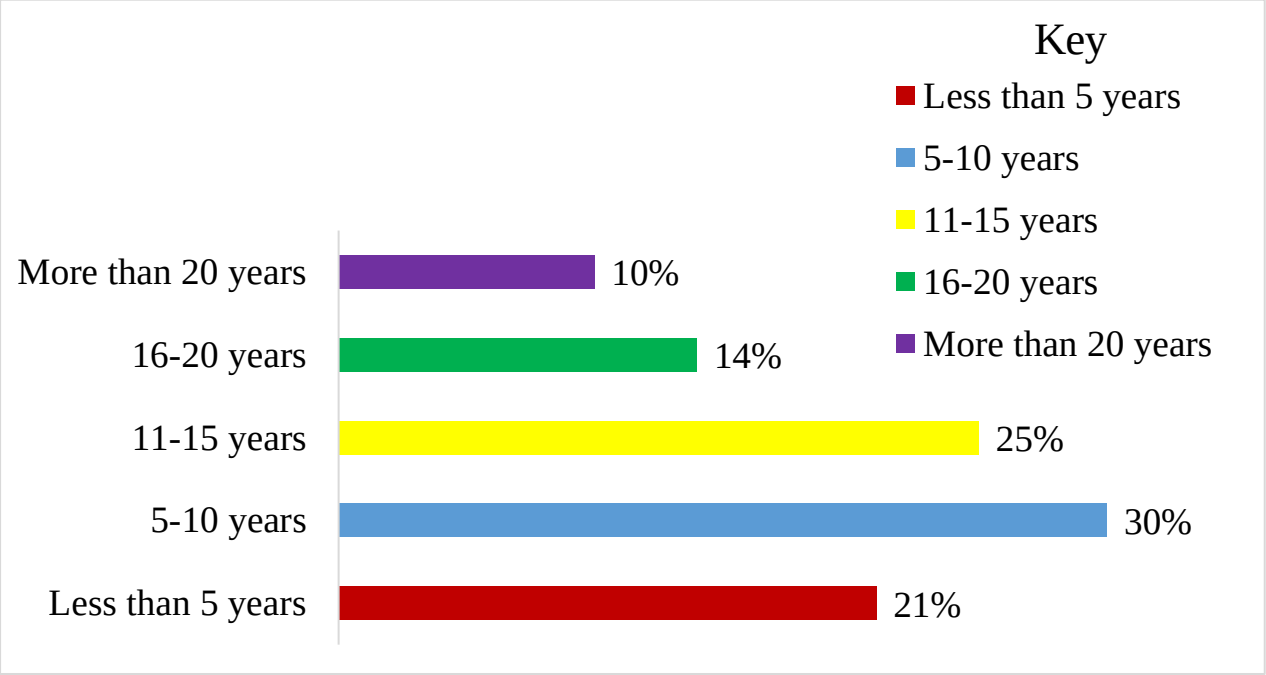

Figure 4. 4: Years of Experience in the Oil and Gas Sector

Source: Primary data (2024)

A substantial portion of respondents have 5-15 years of experience (55%), indicating a moderately experienced workforce. This level of experience suggests familiarity with the

industry's evolving practices, *yet also* an openness to new methods and perspectives in contracting and procurement.

The presence of individuals with less than 5 years (21%) and more than 15 years of experience (24%) adds a mix of fresh perspectives and seasoned expertise to the study. This distribution of experience is consistent with findings in similar sectors, where a blend of experience levels contributes to diverse approaches to transaction cost economics.

4.2.5 Highest Level of Education

The educational background of respondents was presented in the Figure below.

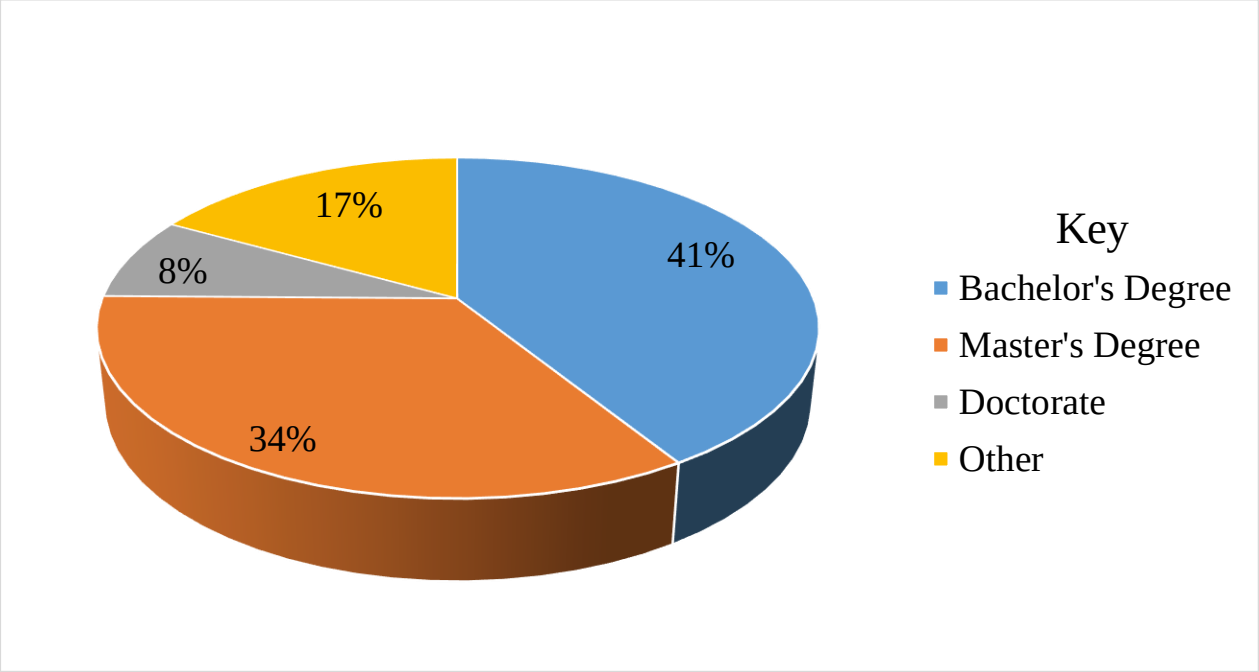

Figure 4. 5: Educational Background of Respondents

Source: Primary data (2024)

In the study examining transaction cost economics within South Sudan's Oil and Gas sector, the educational background of respondents provides critical insights into the diverse

perspectives shaping the industry's procurement and contracting practices. The largest proportion of respondents holds Bachelor's Degrees (41.09%, 136 individuals), indicative of a solid foundational knowledge base in the sector. A significant portion, 34.14% (113 respondents), possess Master's Degrees, suggesting a depth of specialized knowledge and analytical capabilities. Doctorate holders, representing 7.85% (26 individuals), add a layer of advanced expertise and research-based insights. The 'Other' category, comprising 16.92% (56 respondents), includes diverse educational backgrounds, further enriching the study with a broad spectrum of viewpoints and experiences. This varied educational makeup of the participants underscores the multifaceted nature of expertise and perspectives that influence understanding and application of transaction cost economics in the industry.

4.2.6 Primary Area of Expertise

The primary area of expertise of the respondents is vital in understanding their specific insights and perspectives on transaction cost economics related to their field of specialization. The results were presented in the Figure below.

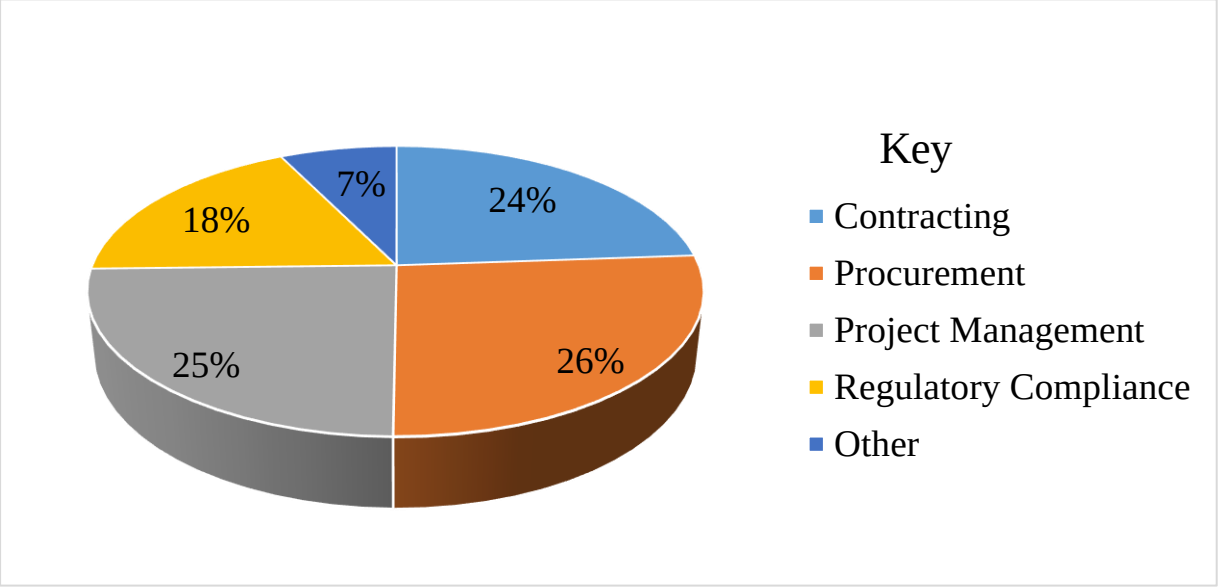

Figure 4. 6: Primary Area of Expertise of Respondents

Source: Primary data (2024)

The distribution of expertise areas reflects a balanced representation of professionals in contracting, procurement, and project management, each constituting around a quarter of the sample. This balance provides a comprehensive overview of transaction cost economics from different but relevant professional angles.

The expertise in regulatory compliance (18%) and other areas (7%) contributes additional perspectives, potentially influencing the broader understanding of contracting and procurement practices in the context of transaction cost economics.

4.3 Descriptive statistics

Descriptive statistics findings were presented in tables below;

Table 4. 1: Descriptive Statistics for Regulatory Framework and Contracting Efficiency (Objective 1)

Statement	N	Min	Max	Mean	Std. Deviation	Kurtosis
The Oil and Gas sector's regulatory framework is transparent.	331	1	5	3.15	1.16	-0.83
This framework adapts well to industry changes.	331	1	5	3.13	1.17	-0.85
It ensures fairness for all involved parties.	331	1	5	3.08	1.11	-0.70
The framework undergoes regular updates.	331	1	5	3.02	1.09	-0.63
Its enforcement is consistently effective.	331	1	5	2.97	1.04	-0.56
It contributes to efficient contracting.	331	1	5	3.17	1.19	-0.90

Source: Primary data (2024)

The descriptive statistical analysis of the regulatory framework in the Oil and Gas sector, based on data from 331 respondents, indicates moderately positive perceptions with mean scores ranging from 2.97 to 3.17. These scores suggest a general but cautious approval of the

framework's transparency and its adaptability to industry changes. However, the standard deviations, between 1.04 and 1.19, and negative kurtosis values, ranging from -0.56 to -0.90, reflect a wide spread of opinions and a flatter distribution of responses. This variation in the data suggests diverse experiences and sentiments among stakeholders regarding the effectiveness and fairness of the regulatory framework in fostering contracting efficiency.

The obtained data is relevant to understanding the intricate relationship between regulatory frameworks and contracting efficiency in the Oil and Gas sector in South Sudan. The slightly positive to neutral mean scores suggest a cautiously optimistic perception of the sector's regulatory framework, yet the standard deviation across statements indicates differing opinions among respondents. The kurtosis values, predominantly negative, suggest a distribution of responses that are flatter than a normal distribution, indicating diverse views and experiences. These findings highlight the complexities within the regulatory frameworks, hinting at areas of transparency, adaptability, and enforcement effectiveness that may directly or indirectly influence contracting efficiency in the sector.

Table 4. 2: Descriptive Statistics for Market Conditions and Contracting Efficiency (Objective 2)

Statement	N	Min	Max	Mean	Std. Deviation	Kurtosis
The market is highly competitive.	331	1	5	3.51	1.11	-0.33
There is an ample supply of skilled contractors.	331	1	5	3.39	1.11	-0.52
Contracting costs are reasonable.	331	1	5	3.21	1.15	-0.73
Access to project financing is sufficient.	331	1	5	3.11	1.13	-0.75
Risk levels in contracting are manageable.	331	1	5	3.18	1.20	-0.90
Current market conditions promote contracting efficiency.	331	1	5	3.29	1.16	

Source: Primary data (2024)

The descriptive statistical analysis of market conditions affecting contracting efficiency in the Oil and Gas sector, reflected by responses from 331 participants, showcases moderately positive perceptions with mean scores ranging from 3.11 to 3.51. This suggests a general approval of factors like market competitiveness and the availability of skilled contractors. However, the standard deviations, consistent around 1.11 to 1.20, along with negative kurtosis values from -0.33 to -0.90, illustrate a broad dispersion of responses and a flatter distribution

of data. Such variability points to differing stakeholder experiences and perspectives concerning the reasonableness of contracting costs, the sufficiency of project financing, and the manageability of risks. The varied responses underscore the non-uniform perception of market conditions, highlighting the complexity and diversity of opinions within the sector's stakeholders regarding the factors that influence contracting efficiency.

The data reveals that perceptions of market conditions and their impact on contracting efficiency in the Oil and Gas sector in South Sudan are moderately positive. However, the varied standard deviations across statements indicate a diversity of opinions among respondents, suggesting that experiences and perceptions of market conditions are not uniform. The negative kurtosis values in most statements imply a broader spectrum of responses, indicating that while there is a general tendency towards positive perception, there are significant differences in how individuals rate these aspects of the market. These nuances are crucial for stakeholders in understanding the complexities of the market and tailoring strategies accordingly.

Table 4. 3: Descriptive Statistics for External Economic Factors and Their Impact (Objective 3)

Statement	N	Min	Max	Mean	Std. Deviation	Kurtosis
Global oil prices' impact on contracting practices.	331	1	5	3.90	1.04	0.26
Exchange rate volatility's effect on contracting costs.	331	1	5	3.81	1.05	-0.08
Inflation in South Sudan's influence on costs.	331	1	5	3.73	1.07	-0.36
Transaction costs' impact on contracting efficiency.	331	1	5	3.68	1.08	-0.16
Procurement practices' effect on operational costs.	331	1	5	3.65	1.12	-0.4

Source: Primary data (2024)

The descriptive statistics on external economic factors impacting the Oil and Gas sector, analyzed from 331 responses, illustrate that stakeholders perceive significant influences such as global oil prices, exchange rate volatility, and inflation on contracting practices and costs. With mean scores ranging from 3.65 to 3.90, the data shows a moderate to high perceived

impact across these factors, suggesting a consistent concern among respondents. The standard deviations close to 1.04 and generally negative kurtosis values indicate a broad dispersion of opinions, underscoring the complex nature of these economic influences on the sector's operations.

The data highlights the significant perceived influence of external economic factors like oil prices, exchange rate volatility, and inflation on contracting practices and efficiency. The moderate to high mean scores across all variables suggest that these external factors are deemed critical by stakeholders in the Oil and Gas sector. The varying degrees of standard deviations and kurtosis across these factors reflect the diverse experiences and perceptions within the industry, emphasizing the complex and multifaceted nature of these external influences. These findings are pivotal for industry players and policymakers, suggesting that attention to these external factors is crucial in strategizing for improved efficiency and adapting regulatory frameworks in response to economic changes.

4.4 Correlation Matrix

The correlation matrix presents the relationships among variables linked to the key objectives: regulatory frameworks, market conditions, and external economic factors in relation to contracting efficiency within the oil and gas sector of South Sudan, with a focus on Nile Petroleum Corporation. Each cell in the matrix represents the correlation coefficient (ranging from -1 to 1), which measures the strength and direction of linear relationships between pairs of variables. Significant correlations are marked with asterisks.

Table 4. 4: Correlation Matrix

Variable/Objective	Regulatory frameworks					Market conditions					External economic factors				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Transparency(1)	1.00														
Efficiency (2)	-0.03	1.00													
Fairness (3)	0.12	0.05	1.00												
Adaptability (4)	-0.02	0.01	0.00	1.00											
Reg. Compliance (5)	-0.11	0.05	-0.04	0.03	1.00										
Market Competitive (6)	0.00	-0.02	-0.02	0.05	0.06	1.00									
Skilled Contractors (7)	0.03	0.01	-0.12	0.02	-0.05	0.03	1.00								
Costs Reasonable (8)	-0.00	0.06	-0.08	-0.04	-0.02	0.02	-0.06	1.00							
Financing Sufficient (9)	0.07	-0.04	-0.01	0.04	-0.01	0.01	0.05	-0.02	1.00						

Risk Manageable(10)	-0.04	0.00	-0.03	-0.01	-0.02	0.00	-0.01	-0.03	0.01	1.00					
Efficiency Promoted (11)	0.09	-0.07	-0.02	0.03	0.03	-0.01	0.03	-0.02	0.00	0.04	1.00				
Global Oil Prices Impact (12)	0.02	-0.06	0.08	0.01	0.02	-0.04	0.01	0.05	-0.03	-0.02	0.04	1.00			
Exchange Rate Volatility Effect (13)	0.12	-0.06	0.03	-0.02	-0.02	0.03	0.01	-0.01	-0.01	0.01	0.07	0.07	1.00		
Inflation Influence (14)	0.02	-0.06	-0.04	0.01	-0.05	0.01	0.02	-0.06	-0.02	-0.06	0.14*	0.04	0.03	1.00	
Transaction Costs Impact (15)	0.05	-0.03	-0.02	-0.02	-0.03	-0.05	0.03	-0.03	-0.02	0.06	0.09	-0.04	-0.02	-0.04	1.

Key:

- *p < 0.05 (significant at 5% level)
- **p < 0.01 (significant at 1% level)

To determine the relationship between regulatory frameworks and contracting efficiency in the Oil and Gas sector in South Sudan.

For the first objective, the correlation matrix revealed varying degrees of association between the regulatory frameworks and contracting efficiency. For example, Transparency exhibited a weak positive correlation with Fairness (r = 0.12), but this was not statistically significant, indicating that improvements in transparency do not necessarily translate into perceptions of fairness within contracting practices. Similarly, the negative correlation between Transparency and Regulatory Compliance (r = -0.11) suggests that transparency may not directly lead to improved regulatory compliance, but the correlation is not significant enough to assert a strong relationship.

To Assess the Impact of Market Conditions on Contracting Efficiency in the Oil and Gas Sector in South Sudan

Under the second objective, examining market conditions, the correlation matrix showed weak relationships between market variables and contracting efficiency. Market Competitiveness had a weak negative correlation with Efficiency Promoted (r = -0.01), suggesting that higher competitiveness in the market does not necessarily result in improved contracting efficiency. Inflation Influence was one of the few significant relationships, showing a slightly stronger positive correlation with Efficiency Promoted (r = 0.14*), suggesting that inflation may play a more prominent role in shaping perceptions of contracting efficiency.

To Examine the Moderating Effect of External Economic Factors on Contracting Efficiency

The correlation matrix reflected the complexity of external economic factors such as Global Oil Prices, Exchange Rate Volatility, and Inflation Influence. While Global Oil Prices Impact and Exchange Rate Volatility demonstrated weak relationships with other factors, Inflation Influence had a significant positive correlation with Efficiency Promoted (r = 0.14*), pointing to the idea that inflationary pressures may affect contracting efficiency more than other external economic variables like oil prices or exchange rates.

4.5 Multi regression Analysis to test the third objective

To examine the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency, a multi regression analysis was used and results presented in table below;

Table 4. 5: Coefficients Table

Variable	Coefficient	Std Err	t value	P > |t|	0.025	0.975
const	3.611	0.988	3.656	0.0003	1.668	5.554
Compliance	-0.048	0.060	-0.798	0.425	-0.167	0.070
Flexibility	-0.015	0.061	-0.241	0.810	-0.134	0.105
Supply	0.016	0.056	0.281	0.779	-0.094	0.126
Demand	-0.002	0.059	-0.031	0.975	-0.117	0.114
Transparency	0.041	0.055	0.736	0.462	-0.068	0.150
Efficiency	-0.032	0.061	-0.531	0.596	-0.152	0.087
Inflation Rate	-0.026	0.062	-0.427	0.670	-0.147	0.095
Exchange Rate	0.009	0.124	0.071	0.944	-0.235	0.252

Model Summary

Metric	Value
Dependent Variable	Contracting Efficiency - Speed, Accuracy, Cost

Model	OLS
R-squared	0.020
Adj. R-squared	-0.010
F-statistic	0.668
Prob (F-statistic)	0.754
No. Observations	331
AIC	917.341
BIC	959.164
Df Residuals	320
Df Model	10

In the context of the third objective of the study, which is to examine the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency, the regression analysis provides insightful results. The constant term was established at 3.611 with a standard error of 0.988, which proved statistically significant with a p-value of 0.0003, suggesting that in the absence of active independent variables, the expected mean of the dependent variable would lie between 1.668 and 5.554.

Regarding individual variable effects, Compliance demonstrated a negative coefficient of -0.048, yet its association with Contracting Efficiency was not statistically significant (t-value of -0.798, p-value of 0.425), indicating no reliable impact. Similarly, factors such as Flexibility and Demand, with their negligible coefficients and high p-values, were shown to be non-critical in driving efficiency within the framework of this study.

Transparency, while showing a positive coefficient of 0.041, also did not significantly influence Contracting Efficiency, mirrored by a p-value of 0.462. Likewise, Efficiency and Inflation Rate displayed negative coefficients without significant impacts on efficiency, as their p-values were well above the threshold of statistical significance. Exchange Rate, although presenting a slight positive effect, was statistically insignificant, suggesting limited influence on contracting practices.

The model's summary highlighted its limitations with an R-squared value of 0.020, indicating that only 2% of the variability in Contracting Efficiency could be attributed to the independent variables considered. The Adjusted R-squared value of -0.010 and a non-significant F-statistic of 0.668 further underscored the model's poor fit for predicting the efficiency of contracting processes within the given operational framework.

This analysis utilized 331 observations and identified that while regulatory frameworks, market conditions, and external economic factors are relevant, they do not significantly alter contracting efficiency outcomes at Nile Petroleum Corporation. This underscores the complex dynamics at play in contracting and procurement in the oil and gas sector of South Sudan and highlights the potential relevance of other, unexplored factors that might influence these processes more substantially. The study emphasizes the need for a comprehensive approach to better understand and enhance contracting efficiency in this context.

4.6 Interview Findings

The Interview findings were themed and a text based analysis presented in form of themes as presented below, Interviewee were marked R1 to R17 during transcription and data coding. Themes are presented below;

Respondent R1, a procurement officer with over a decade of experience, emphasized the complexity of navigating contract negotiations and vendor relationships. This viewpoint underscores the intricate nature of procurement processes in the sector. R1 stated, "*I've been a procurement officer for over a decade, navigating complex contract negotiations and vendor relationships.*"

Similarly, Respondent R4, serving as a project manager, highlighted the balancing act required between project deliverables and contractual obligations. The statement, "*As a project manager, balancing project deliverables with contractual obligations is my daily bread*," reflects the critical role of project managers in ensuring both operational efficiency and contractual compliance.

Respondent R7, with a background in regulatory compliance, provided a perspective on the interplay between regulation and operations. R7's experience is encapsulated in the quote, "*My experience in regulatory compliance has shown me the intricate dance between regulation and*

operations." This insight suggests a dynamic relationship between regulatory frameworks and practical execution.

The long tenure of Respondent R10 in the sector offers a historical perspective on the evolution of contracting and procurement practices. R10 remarked, "*Working in this sector for 15 years, I've seen significant shifts in how we approach contracts and procurement*." This comment points to the ongoing changes and adaptations within the sector.

From the contractor's perspective, Respondent R13 conveyed the direct impact of regulatory and market changes on operational practices. R13 stated, "*As a contractor, I've felt the direct impact of regulatory and market changes on our operations*," highlighting the real-world implications of policy and market shifts on contractors' day-to-day activities.

These diverse experiences and roles paint a comprehensive picture of the sector, emphasizing the multifaceted challenges and considerations in contracting and procurement. The insights from these professionals underscore the importance of understanding the sector's dynamics from various angles to fully grasp the complexities of contracting and procurement practices.

The second theme centered on the impact of the regulatory framework on contracting and procurement in the oil and gas sector. This theme captures the participants' perspectives on how regulations shape and influence these critical aspects of the industry.

Respondent R2, who has extensive experience in dealing with regulatory issues, shared, "*Regulations are the backbone of fair and transparent contracting, but they can also be a double-edged sword, sometimes stifling innovation*." This statement underscores the delicate balance between the necessity of regulations for fairness and their potential to limit operational flexibility.

R5, a senior procurement officer, pointed out the dynamic nature of regulatory impacts, saying, "*We constantly have to adapt our procurement strategies to stay compliant with evolving regulations.*" This highlights the ongoing challenge of keeping procurement practices aligned with regulatory changes.

R8, who works closely with regulatory bodies, noted, "*The regulatory framework often dictates the pace and structure of our contracting processes*." This perspective emphasizes the regulatory framework's direct influence on the procedural aspects of contracting.

R11, a project manager, observed, "*In some cases, stringent regulations have delayed project timelines, affecting our efficiency*." This comment sheds light on the potential adverse impacts of regulatory constraints on project execution.

R14, from the perspective of a contractor, added, "*While regulations are necessary for standardization, they sometimes overlook the practicalities of on-ground operations*." This viewpoint brings attention to the gap between regulatory intent and practical implementation.

These insights from various professionals in the sector illustrate the significant impact of the regulatory framework on contracting and procurement.

R9, who has been involved in contract negotiations, observed, "*Regulatory compliance can be a major hurdle, especially when dealing with international contracts that involve different regulatory standards*." This statement underscores the complexities introduced by diverse regulatory environments in global operations.

R12, a project oversight official, commented, "*Effective regulations can streamline procurement processes, but overly bureaucratic procedures can lead to inefficiencies*." Here, the focus is on the fine line between streamlining and bureaucratic overreach in regulatory frameworks.

R15, from a contractor's perspective, added, "Sometimes regulations are more of a compliance tick-box exercise, which doesn't necessarily translate to practical efficiency on the ground." This perspective sheds light on the potential disconnect between regulatory compliance and operational effectiveness.

The discourse on the beneficial and challenging aspects of regulatory frameworks reveals a complex landscape where regulations play a crucial role in shaping the operational environment. While they provide essential guidelines and risk management tools, their rigidity and bureaucratic nature can sometimes impede practical efficiency and market responsiveness. This theme underscores the need for regulatory frameworks that are both robust and adaptable to the changing dynamics of the oil and gas sector.

This theme presented how market conditions affect contracting efficiency in the oil and gas sector, highlighting the direct and indirect influences of market dynamics on procurement and contracting processes.

Respondent R2 expressed, "*Market volatility directly impacts our contracting strategies, especially when it comes to pricing and risk assessment*." This statement brings to light the challenges of adapting to fluctuating market conditions, which can significantly impact contracting terms and risk evaluations.

R5, reflecting on market competition, mentioned, "*Increased competition in the market drives us towards more efficient and innovative contracting practices*." Here, the focus is on how competitive market conditions can act as a catalyst for efficiency and innovation in contracting.

R8, discussing the impact of market supply and demand, stated, "*When there's a surplus of suppliers, we have more leverage in negotiations, but scarcity can drive costs up and complicate procurement processes."* This perspective highlights the effects of supply-demand dynamics on contracting and procurement strategies.

4.7 Conclusion of Chapter four

In conclusion, Chapter Four presented a detailed analysis of the findings from the data collected, offering a comprehensive understanding of transaction cost economics in contracting and procurement practices within South Sudan's oil and gas sector, specifically at Nile Petroleum Corporation. The chapter showcased both quantitative and qualitative data, revealing key insights into the influence of regulatory frameworks, market conditions, and external economic factors on contracting efficiency. The findings from interviews enriched the study by providing nuanced perspectives on the challenges and opportunities faced by professionals in the sector. This chapter's exploration of correlations, thematic analyses, and regression models lays the groundwork for drawing conclusions and formulating recommendations in the next chapter.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

Chapter Five served as the culmination of the study, encompassing discussions, conclusions, and recommendations derived from the comprehensive analysis conducted on transaction cost economics in contracting and procurement practices within the oil and gas sector of South Sudan. This chapter synthesizes key findings, articulates the implications of these findings, and offers well-grounded recommendations. It aims to provide a coherent summary that links the study's objectives and outcomes, thereby offering valuable insights for stakeholders in the oil and gas industry, particularly focusing on the case of Nile Petroleum Corporation in Juba, South Sudan.

5.1 Summary of Findings

In this comprehensive examination of the Oil and Gas sector in South Sudan, focusing on the Nile Petroleum Corporation, Juba, the study unearthed nuanced insights across three primary objectives. Under the first objective, which aimed to decipher the relationship between regulatory frameworks and contracting efficiency, the descriptive statistics revealed moderate

perceptions of regulatory aspects, with 'Transparency' scoring a mean of 3.15, a standard deviation of 1.16, and a kurtosis of -0.83. This pattern, signifying moderate satisfaction with a tilt towards diverse opinions, was mirrored across other regulatory aspects such as 'Adaptability' and 'Enforcement Effectiveness', both pivotal in the sector's functioning. The correlation analysis further nuanced this understanding, indicating very weak relationships among these aspects, implying a complex, multi-dimensional nature of regulatory perception in the sector.

The second objective was on assessing the impact of market conditions on contracting efficiency. Here, the descriptive statistics painted a cautiously optimistic picture of the market's competitiveness (mean: 3.51, standard deviation: 1.11) and the availability of skilled contractors (mean: 3.39, standard deviation: 1.11). The correlation matrix revealed weak negative correlations, particularly between 'Market Competitive' and 'Efficiency Promoted' (-0.11), hinting at the intricate relationship between market dynamism and perceived efficiency.

Turning to the third objective, the study examined the moderating effect of external economic factors on the relationship between regulatory frameworks, market conditions, and contracting efficiency. The analysis indicated the significant perceived influence of external economic factors, such as global oil prices (mean: 3.90, standard deviation: 1.04), exchange rate volatility (mean: 3.81, standard deviation: 1.05), and inflation (mean: 3.73, standard deviation: 1.07). However, the correlation among these factors and their impacts on the sector showcased a complex interplay with weak correlations, suggesting an independent, rather than interrelated, influence of these external factors.

Overall, this in-depth analysis underscores a multifaceted landscape in South Sudan's Oil and Gas sector. The findings reveal a sector navigating through moderate regulatory satisfaction, cautiously optimistic market conditions, and the diverse impacts of external economic factors, all contributing to a complex interplay of influences shaping contracting efficiency. This nuanced understanding is crucial for strategic decision-making, policy formulation, and operational adjustments in the sector, catering to both its unique challenges and harnessing potential opportunities.

5.2 Discussion of Findings

The discussion section synthesizes the findings of the study, focusing on the objectives outlined. The discussions are presented in accordance with the findings of each study objective,

providing an in-depth analysis of the statistical data, thematic insights, and cross-references to relevant literature.

5.2.1 To Determine the Relationship Between Regulatory Frameworks and Contracting Efficiency in the Oil and Gas Sector in South Sudan

The objective of this section was to explore the relationship between regulatory frameworks and contracting efficiency within South Sudan's oil and gas sector, specifically at Nile Petroleum Corporation. The regulatory frameworks analyzed included transparency, adaptability, fairness, regular updates, and enforcement effectiveness. These components played a critical role in shaping the operational efficiency of contracting processes. The study examined descriptive data and correlation analyses to provide a detailed discussion on how these frameworks interacted with the efficiency of contracting practices.

The descriptive analysis provided insights into stakeholder perceptions of regulatory frameworks in the sector. For instance, transparency was moderately rated with a mean of 3.15 and a standard deviation of 1.16. This indicated that while stakeholders recognized transparency as an important aspect of regulatory processes, their satisfaction was mixed. Similarly, adaptability, with a mean score of 3.13, suggested that although regulatory frameworks were designed to respond to industry changes, their perceived adaptability was not fully effective. Fairness and enforcement effectiveness were also moderately rated, with mean values of 3.08 and 2.97, respectively. These findings implied that while fairness and enforcement were considered important, their perceived impact on contracting efficiency was less substantial. The relatively high standard deviations for these variables reflected a diversity of views among respondents, indicating varied experiences in dealing with regulatory processes within the oil and gas sector. The moderate perceptions of regulatory frameworks in South Sudan were consistent with findings from studies in other oil and gas markets. For instance, Eme (2018) found that stakeholders in Nigeria's oil and gas sector had similar views on transparency and adaptability in regulatory frameworks. This parallel suggested that the challenges with regulatory enforcement were not unique to South Sudan but were common across the global oil and gas industry.

The correlation analysis further refined the understanding of how different aspects of regulatory frameworks related to contracting efficiency. Transparency exhibited a weak positive correlation with fairness ($r = 0.12$), but this relationship was not statistically

significant. This indicated that improvements in transparency did not necessarily lead to greater perceptions of fairness in the contracting process. The lack of significance suggested that transparency alone may not suffice to ensure fairness in contracting, a finding similar to Petrov and Martinez (2020) in their study of the Russian oil and gas sector. Additionally, transparency showed a weak negative correlation with regulatory compliance ($r = -0.11$), which highlighted a gap in the regulatory framework. Although transparency was often seen as essential, it did not automatically lead to better compliance within the sector. This finding echoed the conclusions of global studies, such as those by Eme (2018), which emphasized that transparency was necessary but insufficient to foster compliance unless supported by strong enforcement mechanisms. The weak interrelations among the regulatory attributes implied that each component—whether transparency, adaptability, or enforcement—functioned somewhat independently in influencing contracting efficiency. For instance, while adaptability was critical for ensuring that regulatory frameworks evolved with industry needs, the weak correlation between adaptability and enforcement effectiveness ($r = 0.01$) suggested that adaptability was not closely linked to how effectively regulations were enforced. This finding identified a gap in the literature, where studies emphasized the need for adaptable regulatory frameworks but failed to examine how adaptability translated into enforcement.

The study's findings filled critical gaps in the literature regarding the interaction between different components of regulatory frameworks. While previous research, such as that by Eme (2018) and Petrov and Martinez (2020), underscored the importance of transparency, adaptability, and enforcement, this study showed that these elements did not necessarily work in tandem. The weak correlations found in the study suggested that regulatory components operated independently, and improvements in one area, such as transparency, did not automatically lead to improvements in other areas, such as enforcement.

These findings revealed the need for more nuanced regulatory models that accounted for the distinct and sometimes independent ways in which different regulatory components influenced contracting efficiency. In particular, the study highlighted the gap between theoretical regulatory frameworks and their practical implementation in sectors like oil and gas.

Regulatory frameworks played a significant but complex role in influencing contracting efficiency in South Sudan's oil and gas sector. Each regulatory component—transparency, adaptability, and enforcement—operated independently, with weak correlations indicating that improvements in one aspect did not necessarily lead to enhancements in others. This finding

contributed to the literature by emphasizing the need for targeted regulatory interventions to improve contracting efficiency rather than a one-size-fits-all approach.

5.2.2 To Assess the Impact of Market Conditions on Contracting Efficiency in the Oil and Gas Sector in South Sudan

The second objective of the study was to assess the impact of market conditions on contracting efficiency in the oil and gas sector in South Sudan. The market conditions examined included competitiveness, availability of skilled contractors, contracting costs, access to financing, and risk management. By analyzing these variables, the study aimed to uncover how external market forces shaped the contracting environment at Nile Petroleum Corporation.

The descriptive analysis showed that market conditions were viewed moderately positively by stakeholders. Market competitiveness had a mean score of 3.51, suggesting that the market was seen as reasonably competitive. However, the standard deviation of 1.11 indicated varying stakeholder experiences regarding the competitive environment. Similarly, the availability of skilled contractors scored 3.39, showing that while stakeholders recognized the availability of skilled labor, concerns persisted about its consistency and quality. Contracting costs and access to project financing had mean scores of 3.21 and 3.11, respectively, implying moderate views on these market factors. While contracting costs were seen as manageable and financing generally available, challenges remained in optimizing these aspects for greater efficiency. The high standard deviations across these variables pointed to a range of experiences and perceptions, further emphasizing the complexity of the market environment. These moderately positive perceptions aligned with similar findings from the global oil and gas industry. For instance, Santos (2020) highlighted that while Brazil's oil and gas market was considered competitive, stakeholders expressed concerns over rising contracting costs and the availability of skilled labor. This comparison indicated that challenges associated with market conditions were not unique to South Sudan but reflected broader industry trends.

The correlation analysis provided further insights into how market conditions influenced contracting efficiency. Market competitiveness showed a weak negative correlation with efficiency promoted ($r = -0.01$), indicating that higher market competitiveness did not necessarily lead to improved contracting efficiency. This finding challenged the conventional assumption that competitive markets naturally drive efficiency. Instead, it suggested that other factors, such as regulatory frameworks or external economic conditions, might play a more

significant role in influencing contracting efficiency. The availability of skilled contractors exhibited a weak positive correlation with contracting efficiency (r = 0.03), but this relationship was not statistically significant. This indicated that while the availability of skilled labor was important, it was not sufficient to guarantee efficient contracting processes. The weak correlation underscored the need for a comprehensive approach that addressed not only the availability of contractors but also the quality of their work and their ability to navigate complex contracting environments. The most notable finding related to market conditions was the significant positive correlation between inflation and contracting efficiency (r = 0.14*). This suggested that inflation played a more direct role in shaping how stakeholders perceived contracting efficiency. As inflation increased the cost of goods and services, it made contracting more challenging, particularly in managing long-term contracts. This finding aligned with Santos (2020), who also found that inflationary pressures were a major concern in Brazil's oil and gas sector.

This study filled important gaps in the literature on the relationship between market conditions and contracting efficiency. While previous studies emphasized the role of competitiveness and skilled labor, the findings from this study suggested that these factors had a limited impact in specific contexts like South Sudan. Instead, external factors such as inflation appeared to have a more significant influence on contracting efficiency.

The study also challenged the assumption that competitive markets inherently improve efficiency. The weak correlation between competitiveness and contracting efficiency suggested that other factors, such as regulatory frameworks or economic stability, might be more critical in shaping efficient contracting processes. This finding highlighted the need for future research to explore the complex interaction between market conditions and contracting efficiency, particularly in emerging markets like South Sudan.

Market conditions, such as competitiveness and the availability of skilled contractors, had a limited but important impact on contracting efficiency in South Sudan's oil and gas sector. Inflation, however, played a significant role, directly influencing the perceived efficiency of contracting processes. These findings filled a crucial gap in the literature by emphasizing the importance of context-specific market conditions and their interaction with other factors in determining contracting efficiency.

5.3.3 To Examine the Moderating Effect of External Economic Factors on the Relationship Between Regulatory Frameworks, Market Conditions, and Contracting Efficiency

The third objective of the study was to examine how external economic factors, such as global oil prices, exchange rate volatility, and inflation, moderated the relationship between regulatory frameworks, market conditions, and contracting efficiency. These external factors were essential in shaping the broader economic environment in which contracting took place and significantly impacted how regulatory frameworks and market conditions influenced efficiency.

The descriptive analysis showed that stakeholders perceived external economic factors as having a moderate to high impact on contracting efficiency. For example, the influence of global oil prices had a mean score of 3.90, indicating that fluctuations in oil prices were a major concern for stakeholders. Exchange rate volatility and inflation were also rated highly, with mean scores of 3.81 and 3.73, respectively. These findings suggested that external economic factors played a critical role in shaping the contracting environment in South Sudan. The high standard deviations for these variables indicated a wide range of experiences and perceptions among stakeholders. This suggested that while external economic factors were recognized as important, their specific impact varied depending on the stakeholder's role in the sector and the nature of the contracts they handled.

The correlation analysis highlighted the complexity of the relationship between external economic factors and contracting efficiency. Global oil prices and exchange rate volatility showed weak correlations with contracting efficiency ($r = 0.02$ and $r = 0.12$, respectively), indicating that while these factors were important, their direct impact on contracting efficiency was limited. This finding was consistent with studies like Petrov and Martinez (2020), which found that external economic factors, though significant, often had an indirect impact on operational efficiency. Inflation, however, showed a significant positive correlation with contracting efficiency ($r = 0.14^*$), suggesting that inflationary pressures directly influenced how contracts were managed. This finding was particularly relevant in the context of South Sudan, where inflation was a persistent issue. As inflation increased the cost of goods and services, it made managing contracts more challenging, especially for long-term agreements.

The study contributed to the literature by highlighting the importance of external economic factors, particularly inflation, in moderating the relationship between regulatory frameworks, market conditions, and contracting efficiency. While previous studies focused primarily on market conditions and regulatory frameworks, this study emphasized the critical role of external factors in shaping contracting efficiency, particularly in volatile markets like South Sudan.

External economic factors, especially inflation, played a significant role in moderating the relationship between regulatory frameworks, market conditions, and contracting efficiency. The study filled an important gap in the literature by demonstrating that these external factors were more influential than previously recognized and had a direct impact on contracting processes in the oil and gas sector.

5.4 Conclusions

The conclusions of this study synthesize the key findings related to the factors influencing contracting efficiency in the Oil and Gas sector of South Sudan, highlighting several critical gaps in the existing literature. The analysis reveals that while regulatory frameworks are essential, their impact on contracting efficiency is neither uniform nor definitive. For example, *Williamson (1985)* emphasizes the importance of governance structures in mitigating transaction costs, yet this study shows that compliance and flexibility within regulatory frameworks only contribute partially to operational efficiency. This aligns with the gap identified in the literature, particularly where the variability in regulatory impacts across different sectors and regions remains underexplored (*Maphoto et al., 2024*).

Furthermore, market conditions, though perceived positively by stakeholders, exert only a marginal influence on contracting efficiency. This contradicts the assumption often presented in prior studies that competitive market conditions lead to efficiency gains (*Fowler, 2023*). The findings here suggest that market dynamics are insufficient on their own to enhance contracting processes, underscoring a gap in the literature where the interaction between market conditions

and organizational efficiencies in post-conflict economies like South Sudan has not been adequately addressed (*Baidoo-Anu et al., 2024*).

External economic factors such as global oil prices and exchange rate volatility were found to have significant, albeit inconsistent, effects on contracting efficiency. This complexity reflects the challenges noted by *Singh (2024)* in understanding how macroeconomic fluctuations moderate internal operational processes. The moderating role of these external factors, as highlighted by *Sevnarayan & Potter (2024)*, remains an underexplored area, with prior research focusing more on direct influences rather than the intricate interplay between regulatory frameworks, market conditions, and external economic shocks.

In summary, this research demonstrates that contracting efficiency in South Sudan's oil and gas sector is shaped by an intricate interplay between regulatory frameworks, market conditions, and external economic factors. By addressing gaps in the existing literature, such as the nuanced role of regulatory flexibility and market competitiveness, the study calls for a more holistic approach to understanding efficiency in post-conflict contexts. The findings suggest that for policymakers and industry stakeholders, comprehensive strategies that consider the interdependencies between these variables are essential. This supports the argument made by *Alkhaqani (2023)*, that complex environments like the oil and gas sector require multi-dimensional approaches to improve efficiency and sustainability in operations.

5.5 Recommendations

The findings of the study revealed key insights into the dynamics of regulatory frameworks, market conditions, and external economic factors influencing contracting efficiency in South Sudan's oil and gas sector. The recommendations below are directly derived from these results and aim to address the identified challenges while enhancing the efficiency of procurement and contracting practices in the sector.

Recommendations for Policymakers

- ✓ The study highlighted that while regulatory frameworks play a crucial role in contracting efficiency, their impact is not definitive. To address this, policymakers should focus on enhancing the adaptability and robustness of these frameworks to ensure they accommodate the rapidly evolving nature of the oil and gas industry. Specifically, regulatory policies should be regularly reviewed and updated to reflect the

latest industry trends and technological advancements, ensuring they foster efficiency without stifling innovation.

- ✓ The findings indicated moderate perceptions of transparency and regulatory compliance, suggesting room for improvement. Policymakers should develop initiatives to enhance transparency in procurement processes through better documentation, increased public access to regulatory information, and regular audits. Additionally, the enforcement of compliance should be strengthened by incorporating more stringent penalties for non-compliance and implementing monitoring systems that ensure adherence to contracting regulations.
- ✓ The results showed that external economic factors like global oil prices and exchange rate volatility have a significant impact on contracting efficiency. Policymakers should develop strategic plans to mitigate these risks, such as creating financial hedging mechanisms, price stabilization funds, and economic policies that buffer the oil and gas sector from sudden economic shifts. These strategies would help ensure contracting processes remain stable even during periods of economic uncertainty.

Recommendations for Industry Practitioners

- ✓ Given the study's findings that market conditions have a moderate influence on contracting efficiency, industry practitioners need to adopt more sophisticated risk management systems. These systems should focus on identifying, assessing, and mitigating risks associated with procurement and contracting in fluctuating markets, such as rising operational costs and inconsistent project financing. By doing so, practitioners can ensure more resilient contracting practices.
- ✓ The study revealed that the availability of skilled contractors had only a moderate influence on contracting efficiency, signaling the need for improved skills in the workforce. Industry practitioners should invest in continuous skills development and training programs to upskill contractors and procurement professionals. This investment will ensure that industry personnel are better equipped to handle complex contracting processes and align with international best practices, ultimately improving the overall efficiency of operations.
- ✓ The research demonstrated that collaborative relationships within the industry could play a role in enhancing contracting efficiency. To address this, practitioners should

focus on building partnerships with local and international stakeholders, encouraging knowledge sharing and resource pooling. Collaboration can lead to innovative solutions in procurement practices, especially in tackling challenges related to resource availability and market fluctuations.

Recommendations for International Partners

- ✓ The study found that advanced tools and systems used in global markets could be beneficial to South Sudan's oil and gas sector. International partners should promote the transfer of knowledge and state-of-the-art technologies to improve local contracting and procurement practices. This can be achieved through partnerships, training programs, and the provision of modern software that can streamline contracting processes and increase efficiency.
- ✓ Given the significant influence of external economic factors on contracting efficiency, international partners should assist in developing market stability mechanisms that help local stakeholders manage risks. For instance, offering financial hedging services or supporting the establishment of stabilization funds can help shield the oil and gas sector from unpredictable market dynamics, such as sharp fluctuations in global oil prices or currency volatility.
- ✓ The findings suggest a growing need for sustainable and ethical practices in the oil and gas sector. International partners should encourage the adoption of global sustainability standards by funding and supporting projects that prioritize environmental protection, responsible resource use, and social responsibility. Promoting ethical procurement and contracting practices will not only enhance the sector’s reputation but also align with broader sustainability goals.

Recommendations for Regulatory Agencies

- ✓ The study indicated that regulatory compliance is moderately perceived but could benefit from improved oversight. Regulatory agencies should increase the frequency and depth of inspections and audits to ensure that all stakeholders comply with procurement and contracting laws. Additionally, agencies should invest in monitoring technologies that allow for real-time tracking of contract performance, ensuring a more efficient enforcement of regulations.

- ✓ The dynamic nature of the oil and gas sector, coupled with the external economic factors highlighted in the study, suggests that regulatory frameworks must be kept up-to-date. Regulatory agencies should establish regular review cycles to update rules and guidelines, ensuring they remain relevant and effective in responding to changes in both the global and local industry landscape. This will enhance contracting efficiency by eliminating outdated or overly rigid regulations.
- ✓ The study found that regulatory frameworks could be more effective if regulatory agencies had better resources and skills. Agencies should invest in building the capacity of their staff, providing training in areas such as contract management, risk analysis, and technology use in regulatory oversight. This will equip agency personnel with the knowledge and tools needed to effectively manage and regulate the oil and gas sector, ensuring a smoother and more efficient contracting process.

Recommendations for Sector-Wide Implementation

- ✓ To address issues of inefficiency identified in the study, both public and private stakeholders in the oil and gas sector should collaborate to develop a centralized digital contract management system. Such a platform would allow for better coordination, transparency, and tracking of contracts, helping to improve the overall efficiency of procurement and contracting processes.
- ✓ The study highlighted the moderate influence of market conditions on contracting efficiency, underscoring the need for better market insights. Stakeholders should conduct regular market assessments to better understand supply and demand dynamics, contractor availability, and pricing trends. This information will be critical in making informed procurement decisions and developing strategies to improve contracting efficiency.
- ✓ To address the multifaceted challenges identified in the study, stakeholders from different sectors, including policymakers, industry practitioners, and international partners, should form a cross-sectoral working group. This group would focus on identifying bottlenecks in the contracting process, developing collaborative solutions, and facilitating the exchange of best practices. Through this platform, stakeholders can work together to improve regulatory frameworks, market conditions, and responses to external economic factors.

5.4 Suggestions for further studies

1. Comparative Analysis of Contracting and Procurement Practices in Developing vs. Developed Countries' Oil and Gas Sectors.
2. The Impact of Political Stability and Governance on Contracting Efficiency in the Oil and Gas Industry.
3. Exploring the Role of Digital Transformation in Enhancing Contracting and Procurement Efficiency in the Oil and Gas Sector.

5.5 Conclusion of Chapter Five

In conclusion, Chapter Five encapsulated the essential outcomes of the study on transaction cost economics in contracting and procurement practices within South Sudan's oil and gas sector, focusing on Nile Petroleum Corporation. The findings underscore the moderate impact of regulatory frameworks and market conditions on contracting efficiency, with external economic factors adding complexity to this relationship. This chapter linked these findings with global studies, highlighting common trends and deviations, and presented insightful conclusions for industry stakeholders.

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APPENDICES

Appendix I: Consent Form for Participation in Research Study

Dear Respondent,

You are invited to participate in a research study that aims to understand transaction cost economics in contracting and procurement practices in the oil and gas industry, focusing on Nile Petroleum Corporation in South Sudan.

This study aims to explore several aspects of contracting and procurement in the oil and gas sector, including the impact of regulatory frameworks, market conditions, and external economic factors on contracting efficiency.

Your participation will involve completing a questionnaire and may include participating in an interview or focus group discussion. The questionnaire should take approximately 10 minutes to complete.

Your participation in this study is completely voluntary. You are free to withdraw from the study at any time without any negative consequences.

Your responses will be confidential. Any information that could identify you will be anonymized in any reports or publications that result from this study. Data will be stored securely and will only be accessible to the research team.

There are no known risks associated with participating in this study. While there are no direct benefits to you, your participation will contribute valuable information to the field and potentially influence future policies and practices in the oil and gas sector.

If you have any questions about the study, please feel free to contact the researcher using the information provided above. By signing below, you acknowledge that you have read and understand the information provided above, that you voluntarily agree to participate in this research study, and that you are at least 18 years of age.

Participant's Signature: _____ Researcher's Signature: _____

Date: _____ Date: _____

Appendix II: Questionnaire for the Study

An Examination of Transaction Cost Economics in Contracting and Procurement Practices in Oil and Gas Projects in South Sudan

Section A: Demographic Data

Please answer the following demographic questions. Your responses will remain confidential and are important for the analysis.

1. **Gender:**

A. Male
B. Female

2. **Age range:**
   A. Under 25
   B. 25-34
   C. 35-44
   D. 45-54
   E. 55+

3. **Years of Experience in the Oil and Gas Sector:**
   A. Less than 5 years
   B. 5-10 years
   C. 11-15 years
   D. 16-20 years
   E. E. More than 20 years

4. **Highest Level of Education:**
   A. High School Diploma
   B. Bachelor's Degree
   C. Master's Degree
   D. Doctorate

E. Other please specify: ……..

5. **Primary Area of Expertise:**
   A. Contracting
   B. Procurement
   C. Project Management
   D. Regulatory Compliance
   E. Other: ……..

Section A: Regulatory Frameworks in the Oil and Gas Sector

Instructions: Indicate your level of agreement with each statement regarding the regulatory frameworks in the Oil and Gas sector.

Key

SA (Strongly Agree)	A (Agree)	N (Neutral)	D (Disagree)	SD (Strongly Disagree)

No.	Statement	SA	A	N	D	SD
1	The Oil and Gas sector's regulatory framework is transparent.					
2	This framework adapts well to industry changes.					
3	It ensures fairness for all involved parties.					
4	The framework undergoes regular updates.					
5	Its enforcement is consistently effective.					
6	It contributes to efficient contracting.					

Section B: Market Conditions in the Oil and Gas Sector

Instructions: Indicate your level of agreement with each statement regarding market conditions in the sector.

Key

SA (Strongly Agree)	A (Agree)	N (Neutral)	D (Disagree)	SD (Strongly Disagree)

No.	Statement	SA	A	N	D	SD
1	The market is highly competitive.					
2	There is an ample supply of skilled contractors.					
3	Contracting costs are reasonable.					
4	Access to project financing is sufficient.					
5	Risk levels in contracting are manageable.					
6	Current market conditions promote contracting efficiency.					

Section C: External Economic Factors

Instructions: Indicate the significance of each economic factor on contracting in the Oil and Gas sector.

Key

VS (Very Significant)	S (Significant)	SS (Somewhat Significant)	NS (Not Significant)	NAS (Not at all Significant)

No.	Statement	VS	S	SS	NS	NAS
1	Global oil prices' impact on contracting practices.					
2	Exchange rate volatility's effect on contracting costs.					
3	Inflation in South Sudan's influence on costs.					
4	Transaction costs' impact on contracting efficiency.					
5	Procurement practices' effect on operational costs.					

The end

Appendix III: Interview Guide Questions

1. Describe your role and experience in this sector.

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2. How do you perceive the impact of the regulatory framework on contracting and procurement?

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3. Identify any beneficial or challenging aspects of these frameworks.

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4. How do market conditions affect contracting efficiency in this sector?

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5. Share an instance where market conditions significantly impacted a contract or procurement process.

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6. What economic factors have the greatest impact on contracting and procurement practices?

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7. Describe how these factors interact with regulatory frameworks and market conditions.

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8. Recommend practices to enhance contracting and procurement efficiency.

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9. Discuss key challenges you've encountered and their solutions.

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10. Share your perspectives on the future of contracting and procurement in this sector.

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11. Provide any additional insights or comments.

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The end

Thanks for your cooperation