

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

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EFFECT OF PROCUREMENT PROCESS RISK ON PROCUREMENT
SUSTAINABILITY: MEDIATING ROLE OF RISK ORIENTATION

By

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A Thesis submitted to the Department of Supply Chain and Information Systems,
School of Business in partial fulfillment of the requirements for the degree of

**MASTER OF SCIENCE IN
LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

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DECLARATION

I hereby declare that this submission is my work towards the Masters of Science in Logistics and Supply Chain Management and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgment has been made in the text.

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Date

DEDICATION

This work is dedicated to the Almighty God for His support throughout this study. This work is dedicated to my dearest mother Beatrice Atti, and my lovely friend Deborah Appiah for their dedication and support.

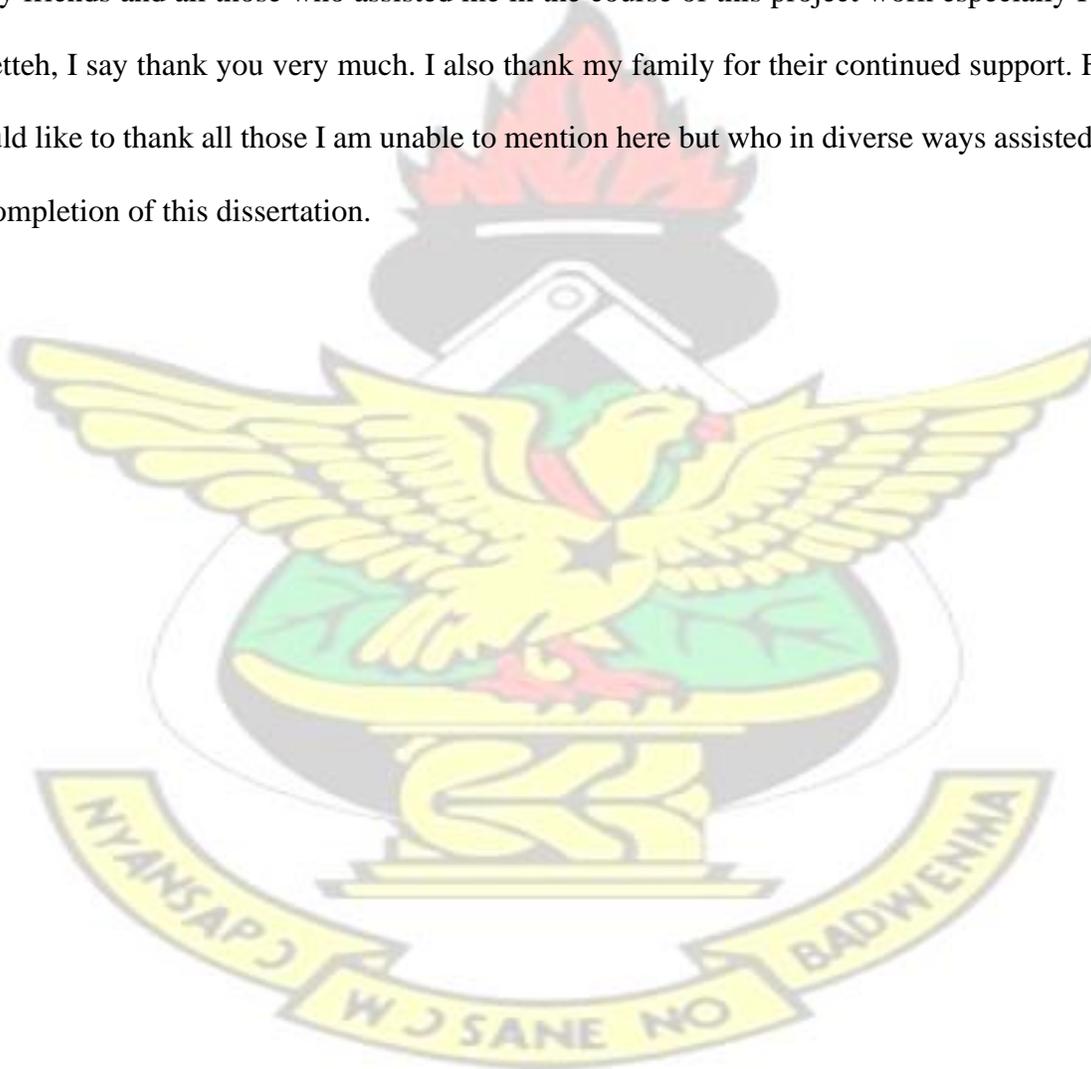
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ABSTRACT

The main purpose of the study is to examine whether risk orientation mediate the significant connection between procurement process risk and procurement sustainability in manufacturing firms in Greater Accra Region, Ghana. This quantitative survey used a cross-sectional research strategy. Purposive sampling selected 381 individuals. A pre-designed structured questionnaire was used to gather data. SPSS v26 and SmartPls v4 did the statistical analysis. Data was analysed using descriptive and inferential statistics. The findings reveal that procurement process risk had a significant direct influence on procurement sustainability and risk orientation. The findings also show that risk orientation had a significant direct influence on procurement sustainability. The mediating role of risk orientation on the link between procurement process risk and procurement sustainability is partially significant.



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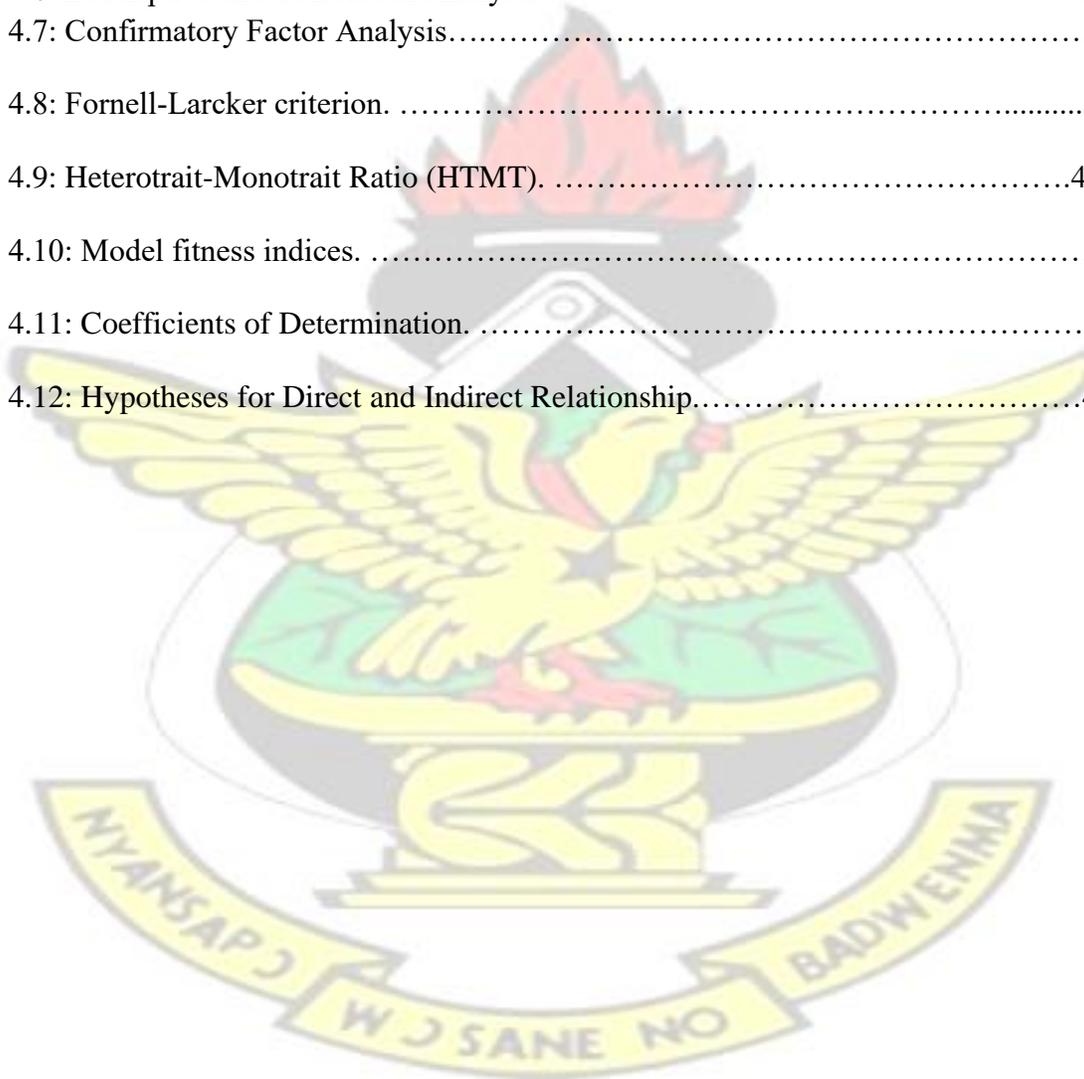
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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Today's purchasing and supply management activities of businesses are primarily responsible for managing the sustainability and guaranteeing transparency of supply chains (Schneider and Wallenburg, 2012; Kim et al., 2019; Xu et al., 2019). Many sustainability-related scandals have surfaced from firms' supplier bases and supply chains, including the milk powder crisis in China in 2008, the horse meat scandal in Europe in 2013, and the modern slavery scandal in the UK apparel sector in 2016. (Hallikas et al., 2020). These incidents have brought buyer companies, including retailers or manufacturers who are selling the products under their own brand names, severe issues and unfavorable public attention.

These examples demonstrate that despite companies' significant efforts, there is still a high likelihood that sustainability-related failures and incidents will occur in the future (Giannakis and Papadopoulos, 2016; Lintukangas et al., 2016; Xu et al., 2019). Therefore, as stated by Hallikas and Lintukangas (2016) and Kwak et al. (2018) managing and securing the sustainability of supply chains requires strong risk orientation skills from purchasing professionals and well-defined purchasing processes within companies.

A number of authors, including Tang and Musa (2011), Ho et al. (2015), Nyamah et al. (2017), and Rane et al. (2019), define procurement risk as any occurrence during the procurement process that influences the inbound supply of goods or services and results in a distribution of potential production outcomes that negatively impact a firm's reputation, capability, operation, performance, financial viability, and planned demand target. For instance, a fraud survey done in Africa in 2005 shows that South African businesses had a very high prevalence of fraud events. According to the

survey, 32% of participating businesses feel that management is also involved in fraud, while 76% of them have cause to suspect that their employees (excluding management) are (Venter, 2007). From this, it is clear that fraud still occurs frequently in many organizations despite numerous efforts to stop it. Research suggests that the most significant fraud schemes take place during or as a part of the procurement process, according to Alazzabi et al. (2020). This also includes the millions of rands in related commercial bribery, kickbacks, and fraud (Venter, 2007). According to studies, it is crucial to effectively manage procurement risk through risk orientation in order to achieve effective procurement sustainability (Giannakis and Papadopoulos, 2016; Paulraj, 2011). Risk-taking, risk-neutral, and risk-averse are three different types of risk orientation, which describes the mindset of decision-makers when faced with risky choices (Ehrlich and Maestas, 2010; Taofeeq and Adeleke, 2019). Risk orientation is stable and affects decisions because it reflects a person's personality (Caliendo et al., 2014). Decision makers with various risk orientations will respond differently to the same market opportunities because they perceive various opportunities, experience various pressures, and respond to various drivers for action. According to a recent study by Olushola et al. (2018), employee risk orientation has a favorable impact on total business performance. In a similar vein, a prior study found that risk orientation in SMEs affected the connection between organizational skills and strategic speed. Malviya and Kant (2019) assert that gauging procurement performance is crucial for forecasting the success of manufacturing companies and their supply chains. In actuality, procurement performance assesses how well a function or process achieves specified objectives at the most affordable price. (Machado et al., 2019; Malviya and Kant, 2019; Tripathi and Gupta, 2020; Jones and Kaluarachchi, 2008).

Previous studies have demonstrated a direct link between risks to corporate brand and image and sustainable supply management (see Lintukangas et al., 2016 for example). In order to preserve the company's reputation from substantial reputational harm, which could result in a decline in equity value, sustainable purchasing practices are required (Lange and Lee, 2011). In accordance with the foregoing, it is evident that various research examined the supply chain's procurement methods, risk orientation, and procurement sustainability. The relationship between risk in the procurement process, risk orientation, and sustainable procurement, however, has not been examined in any studies. It would be prudent to look into the risks present in the various stages of manufacturing firms' procurement processes and their effects on procurement sustainability in the manufacturing sector of Ghana, given that risks account for more than 40% of firm performance (Nyamah et al., 2017).

1.2 Problem Statement

Based on evidence from its significant contributions to the region's GDP and high rate of foreign investment, the manufacturing sector in West Africa, particularly Ghana, is rapidly expanding (Machado et al., 2019; Lawrence, 2020; Bag et al., 2021). The industry is diverse and consists of small, medium, and large-scale local businesses as well as subsidiaries of multinational corporations (Lawrence, 2020). Along with internal competition, established manufacturing sectors in Asia, Europe, and the Americas pose a serious threat to West Africa's performance in the manufacturing sector (Henao et al., 2019).

The complex information, financial, and material flows in the manufacturing sector, combined with an unstable business environment, expose firms' procurement activities to numerous risks and disruptions, which could have a significant negative impact on overall firm performance (Ho et al., 2015; Trkman et al., 2016; Ramesh and Sarmah, 2020; Parast and Subramanian, 2021). The

meaning, measurement, interpretation, management, and impact of risk vary across and within fields, according to research (Rane et al., 2019; Tarei et al., 2020).

Research, for instance, has demonstrated that risk is unavoidable in any business environment and that its occurrence is highly likely to impact business activities and performance, including supply chain procurement processes (Machado et al., 2019; Dellana et al., 2021). The detrimental impact of risk on firm performance, which is supported by prior research, is the reason why manufacturing firms must now prioritize procurement risk management (Fan and Stevenson, 2018; Nooraie and Parast, 2016; Nyamah et al., 2017; Wiengarten et al., 2016). Additionally, according to earlier research, using sustainable purchasing practices is essential for achieving supply chain operational performance goals like quality, dependability, and flexibility (González-Benito and González-Benito, 2005).

In order to assure the sustainability of their purchases and to reduce the operational and reputational risks associated with supply chains, businesses must adopt practices, policies, and procedures (e.g., Gualandris et al., 2014; Miemczyk and Luzzini, 2018). No study has looked into whether risk orientation mediates the connection between procurement process risk and procurement sustainability, despite the fact that many studies have been conducted in the fields of procurement, procurement risk management, and sustainability in supply chains (Gouda and Saranga, 2018; Miemczyk and Luzzini, 2018). This indicates an existing gap in literature. Hence, the current study will seek to bridge the gap by examining the effects of procurement process risk on procurement sustainability; the mediating role played by risk orientation in the connection between procurement process risk and procurement sustainability in manufacturing firms in Ghana.

1.3 Objectives of the Study

The main purpose of the study is to examine whether risk orientation mediate the significant relationship between procurement process risk and procurement sustainability in manufacturing firms in Greater Accra Region, Ghana. Specifically, the study will seek to achieve the following objectives.

1. To examine the impact of procurement process risk on procurement sustainability.
2. To investigate the link between procurement process risk and risk orientation.
3. To evaluate the relationship between risk orientation and procurement sustainability.
4. To establish the mediating role of risk orientation in the relationship between procurement process risk and procurement sustainability.

1.4 Research Questions

The following questions are formulated in order to achieve the stated objectives:

1. What is the impact of procurement process risk on procurement sustainability?
2. What is the link between procurement process risk and risk orientation?
3. What is the relationship between risk orientation and procurement sustainability?
4. What is the mediating role of risk orientation in the relationship between procurement process risk and procurement sustainability?

1.5 Significance of the Study

This study offers a variety of contributions. First, the study's findings will add to the body of knowledge on Ghanaian industrial companies' purchasing habits. In order to develop pertinent policies and strategies to manage the risks associated with procurement processes, existing and future procuring firms, managers, and officers could benefit from understanding the study's findings regarding risk orientation, the risks associated with procurement processes, and their impact on sustainable procurement.

This study helps address this shortage by demonstrating how risk in the procurement process and risk orientation have a positive impact on sustainable purchasing practices. This study also demonstrates how operational risks, such as those related to product quality or non-availability, or reputational risks, such as those related to brand and image, can be reduced by using sustainable purchasing practices.

Last but not least, this study should serve as a wake-up call for future studies in procurement risk management.

1.6 Overview of Methodology

The study focuses on manufacturing businesses in Ghana, both public and private, that are also listed with the department of the Registrar General of Ghana. Due to the vastness of the population, the researcher will choose a sample of 150 companies for a survey to ascertain the correlation between the major study variables. For this investigation, convenient and purposive sampling methods will be used. The three (3) primary variables of the study will be measured via a questionnaire, which will serve as the research instrument. A theoretical framework will be created, hypotheses will be established, and they will be tested using the Pearson's correlation method as part of a quantitative research strategy. The usage of PLS-SEM software will help with this. According to the study's goals, the results will be presented in an understandable and illustrative manner. Conclusions will then be made, along with suggestions for theory and practice.

1.7 Scope of the Study

The study's theoretical focus is on the risks connected to the procurement process and the sustainability of such risks. The theory of constraints (TOC) will serve as the foundation for this proposed study, which aims to assess the mediating influence of risk orientation on the relationship between procurement process risk and sustainability. The study will employ the main respondents to express their ideas through the questionnaires that will be supplied to them in order to measure

the important variables for evaluating the research model. Only manufacturing companies in Ghana's Greater Accra Region that are registered with the Registrar General's Department are the subject of the study's geographic focus.

1.8 Organisation of the thesis

The study is broken up into five (5) chapters. The introduction, Chapter One, covers the background of the investigation, problem statement, study objectives, research questions, study significance, methodology summary, study scope, study constraints, and study organization.

The literature review, which is described in Chapter 2, conducts conceptual, theoretical, and empirical reviews in accordance with the objectives of the study. At the conclusion, the conceptual framework and related hypotheses are provided. The study population, sample size, sampling procedures, data sources, tools and processes utilized for data collecting, data interpretation, standards of research, and ethical issues are all covered in Chapter 3 discussion of the research methodology.

The results of the fieldwork are discussed in Chapter 4 along with their analysis and interpretation in light of the objectives of the study. Chapter 5, the concluding chapter, presents a summary of the research results, draws conclusions, and makes theoretical and practical suggestions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This thesis' chapter two is divided into four major sub-headings. The content in the section is arranged under conceptual review, theoretical review, empirical review, and ultimately the construction of the study model and predictions. Terminology, explanations, and examples of how the constructs are used in this work are provided in the conceptual review section. The theoretical foundations of the work are also provided in the theoretical review section. A proposed model was used to illustrate the numerous prepositions provided in this study, and many linkages were extensively explained. The study's research shortcomings are noted in the chapter's conclusion.

2.2 Conceptual Review

In this section, the terms used to describe the constructs and how they were used in the study are defined and operationalized. The model includes three primary components (Procurement Process Risk, Procurement Sustainability, and Risk Orientation). These structures were operationalized in the sections that followed.

2.2.1 Procurement Process Risk

The purchasing of products, ideas, or works from outside vendors to satisfy the demands of an institution is a component of the procurement procedures (Kohler and Dimancesco, 2020). The procurement procedure has hazards just like any other corporate procedure. An overview of the potential dangers of the procurement process is provided as: Risks associated with suppliers, contracts, operations, compliance, the law, and information assurance (Cao et al., 2020). Dependence on untrustworthy suppliers runs the danger of receiving subpar products or services, missing deadlines, or breaking contractual obligations. Economic security of the provider: The

possibility that the supplier will not be able to regularly deliver products or services due to financial issues (Sharma et al., 2019). Dependence on a single source too much runs the danger of causing interruptions if the provider is unable to meet those requirements or runs into operational problems. Partnerships with insufficient conditions and clauses run the danger of causing disagreements, misconceptions, or insufficient legal security. Contractual non-compliance: The chance that suppliers will not follow the conditions of their contracts, including quality requirements, delivery deadlines, or price ranges (Jahani et al., 2021). Risk of immediate withdrawal or contractual violation by either partner, which might result in monetary losses, service disruptions, or legal issues. Erroneous market expansion: The chance that the number of products or services needed may be underestimated or overestimated, which could influence economic viability and operating excellence (Dewanti and Karningsih, 2021). Interruptions in delivery: This risk can create considerable plans to be disrupted, service quality to suffer, and economic difficulties to occur (Modrušan et al., 2021). A lack of proper managing inventory can result in supply disruptions, overstocking, or depreciation, which can raise costs and cause shortcomings. Security problems: The possibility of unauthorized users, compromising of, or exploitation of private information relating to an acquisition, such as purchase history, price information, or contract conditions, which can result in monetary loss, legal repercussions, or adverse publicity (Lenderink et al., 2022). Insufficient information integrity: The chance that data connected to procurement would contain mistakes or inconsistencies, which could lead to ineffective decision-making, ineffective procedures, or financial problems (Mulligan and Bamberger, 2019). Companies ought to use effective risk reduction techniques, such as performing proper research on providers, determining specific contract agreements, diversifying the supply base, able to monitor service quality, enforcing adherence to legal and regulatory requirements, putting data security safeguards in place,

and consistently evaluating and trying to improve procurement activities, in order to successfully handle risks associated with the acquisition process (Fazekas and Kocsis, 2020).

2.2.2 Procurement Sustainability

Sustainability in purchasing relates to the incorporation of social, ecological, and economic implications into the acquisition procedure to guarantee that products, resources, and activities are obtained in a way that reduces the adverse influence on the environment, community, and market (Lăzăroiu et al., 2020). The following is a conceptual overview of sustainable procuring: administration and transparency, economic and social compatibility, and ecological responsibility. Sustainable strategy is the process of providing services while considering ecological issues, such as compliance to legislation pertaining to the environment, use of environmentally friendly resources, and dedication to sustainability solutions (Sönnichsen and Clement, 2020). Purchasing items and activities with a smaller ecological footprint, such as eco-friendly plastic wrapping, energy-efficient commodities, and low-emission logistics processes, is known as carbon used less. Waste reduction involves promoting suppliers that place a high priority on reducing trash, recycling, and using suitable disposal techniques (Adjei-Bamfo et al., 2019). It also includes buying items with less baggage and made of recyclables. Dealing with vendors who uphold fair labor regulations, laws pertaining to human rights, and moral distribution networks is the focus of responsible sourcing. This ensures that workers receive adequate compensation and are not exploited (Zaidi et al., 2019). Equality and inclusion: The assistance of underrepresented populations and the marketing of vendors that encourage inclusion and representation in their workforces. Community-based influence: Taking into account how purchasing decisions would affect local communities in terms of job prospects, financial and social advantages to local companies, and community engagement (Ogunsanya et al., 2022). The assessment of purchasing decisions is dependent on the total operating expense and long-term value, as opposed to only the

appraised value, taking into account elements such product sturdiness, power efficiency, and service charges. Collaborations with vendors: The development of committed relationships built on mutual confidence, teamwork, and similar environmental responsibility, which fully supported and open up possibilities for creativity and constant progress (Vluggen et al., 2019). Financial growth: The assistance of the community's or region's economy via the marketing of vendors who support economic expansion, job creation, and environmental sustainability. Incorporation of ecological sustainability into procurement policies, practices, and assessment processes to ensure that sustainability factors are taken into account when making decisions (Stritch et al., 2020). Monitoring is the process of creating criteria and key metrics for success (KPIs) to evaluate suppliers' environmental effectiveness and encourage transparency. Reporting and accountability release of sustainability-related data to participants in a bid to improve openness and enable intelligent decisions, such as responsible sourcing ratings, ecological impact evaluations, and key milestones (Leal Filho et al., 2019). Companies may help build a healthier future, minimize adverse ecological impacts, encourage social accountability, boost productivity, and reap long-term financial rewards by embedding sustainability into the acquisition process. Supplier cooperation, distinct sustainable development objectives and approaches, efficient governance structures, and a dedication to continual development are all necessary (Grandia and Voncken, 2019).

2.2.3 Risk Orientation

The perception, perspective, and strategy regarding risks that a person or company adopts is referred to as risk orientation (Gitelman et al., 2020). It represents ways risks are viewed, assessed, and handled over the course of judgment. This list of concepts for risk orientation includes risky behavior, assessing risk, risk mitigation, risk culture and administration, hazard identification, and

risk adaptation (Ibrahim et al., 2021). Risk awareness refers to how much an individual or company is conscious of possible hazards and how they could affect targets or results. Risk response: The degree to which one is at ease with accepting chances and is prepared to put up with ambiguity and possible undesirable outcomes (Liubchenko, 2020). Unconscious processes including disposition effect, regret aversion, and incumbency bias, among others, can affect how risks are interpreted. Risk evaluation is the methodical procedure of locating, examining, and assessing hazards, as well as their propensity for occurrence, potential consequences, and interrelatedness (Azoti et al., 2021). Prioritizing risks according to their significance involves taking into account variables including possible influence, probability, economic significance, or stakeholder expectations. The amount of risk that an individual or business is willing to take in order to achieve their goals, taking into consideration variables including risk levels, policy objectives, and asset allocation (Grishunin et al., 2022). Using approaches, controls, and actions to lessen the chance or effect of hazards that have been recognized is minimizing risk. Transferring risks to third parties, such as through outsourcing or insurance, can help to reduce their potential negative effects (Agrafenin et al., 2022). Accepting risks consciously is choosing not to actively intervene in particular situations because of their low potential severity or expensive mitigation costs. Development of a culture that prioritizes information exchange, risk perception, and ongoing learning in order to strengthen capacities for risk management (Hosseini et al., 2022). Strategies for choosing decisions the systematic assessment and evaluation of risks in decision-making by incorporating risk concerns into planning process, operational operations, and project execution (Mondino et al., 2019). Appropriate risk management involves informing users of risks, their possible repercussions, and mitigating techniques in order to foster trust and promote intelligent decisions. The tendency to see dangers and take action before they manifest or worsen through

remedies to treat including risk mitigation, early detection systems, and recovery plans (Hock-Doepgen et al., 2021). Agile and adaptable approaches: The capacity to react and re-evaluate to shifting hazards and unpredictability, modifying strategies, procedures, or procedures as needed to mitigate unfavorable effects or capitalize on possibilities (Schweda et al., 2022). The capacity of a person or a business to better handle and capitalizing on risks may be strongly influenced by their orientation regarding risk. In order to accomplish specific priorities while assuring long-term viability, a fair risk orientation takes into account both the possible benefits and drawbacks of risks, promotes a proactively and adaptable mentality, and incorporates risk mitigation into judgment operations (Kara et al., 2020).

2.3 Theoretical Literature Review

In this section, the review looked at the fundamental concepts as well as the effect of procurement process risk on procurement sustainability: the mediating role of risk orientation. This study's guiding theories are the Agency Theory and its application to the Stakeholder theory and New Institutional Economics. Theoretical frameworks offer a distinct lens or perspective through which a topic is researched; they clarify the context and the relationships among all aspects and levels.

2.3.1 Agency Theory

The distinction of ownership and oversight as well as management incentive are included in the extension of agency theory's examination of the enterprise (Alodat et al., 2022). Agency concerns have been found in the realm of corporate risk assessment to affect managers' views about taking risks and offsetting (Poletti-Hughes & Briano-Turrent, 2019). It also illustrates how inequalities in wealth inequality may cause a conflict of interest amongst investors, administration, and debt holders, which may cause the company to take on too much risk or refrain from carrying out tasks with high net present values (Puni & Anlesinya, 2020). As a result, agency theory suggests that well specified hedging practices may have a significant impact on business value (Merendino &

Melville, 2019). The later theories provide forecasts that are consistent with standard finance and are related to financing systems. Many studies have investigated the role of managerial incentive elements in the execution of corporate risk management, but with adverse outcomes (Kyere, M., & Ausloos, M. (2021). Nonetheless, Al-Gamrh et al. (2020) found considerable positive indications in his examination of the US gold mining sector. Surveys of the financial theory investigated financial-policy assumptions since both theories make comparable forecasts in this area (Pucheta-Martínez & Gallego-Álvarez, 2020). Overall, nevertheless, the majority of empirical findings appears to be in opposition to the agency theory theories. Diversification as a solution to the conflict among management incentive schemes and majority shareholders is strongly supported by stewardship theory. The next theories are intended to test the fundamental ramifications of this hypothesis (Nguyen Trong et al., 2021).

2.3.2 Stakeholder theory and New Institutional Economics

Stakeholder perspective, which Naseem et al. (2020) first conceived as a management tool, has subsequently matured into a theory of the enterprise with significantly associated power. The primary driver of organizational policies, according to stakeholder theory, is an equilibrium of various stakeholders (Shadm et al., 2019). The expansion of implied constructionism beyond employment to other contracts, such as sales and finance, represents the most significant benefit to risk management (Wang et al., 2020). Consumer confidence in a company's capacity to continue providing its services in the future may significantly increase a company's worth in several sectors, notably high-tech and systems (Canh et al., 2019). Yet, the price of these implied claims is very dependent on what insolvency and financial difficulty are estimated to price. Risk management corporate procedures reduce these anticipated expenses, increasing the value of the organization (Buallay, 2020). Stakeholder perspective therefore offers fresh perspective on potential

justifications for risk management. Unfortunately, it has not yet undergone direct testing. Only indirect evidence is provided by inquiries into the financial hardship theory (Saeidi et al., 2021).

The new institutional theory provides a fresh view on risk assessment. Here, as indicated by Williamson, the emphasis is moved to governance mechanisms and the socio-economic organizations that control these processes (Dubey et al., 2019). Although there have not been any analytical purposes of the appropriate institutional macroeconomic strategy to managing risk, the theory provides a different perspective on how businesses behave (Manhart et al., 2020). It explicitly states that entities or recognized norms within a market or sector may dictate risk management procedures. Additionally, the theory connects protection to the acquisition of particular assets (Foltean et al., 2019), which suggests that risk assessment can be crucial in agreements that bind parties without permitting diversification, like extensive investment agreements or close collaboration within a distribution network. The statistics should show this if institutionalized considerations really play a significant role in offsetting. Initially, there can be a distinction amongst industries (Vadasi et al., 2020). Second, businesses could see periods where hedging is more common. One may hazard a prediction that hedging will gain in popularity over time. This theory's more practical application is that investors could be motivated to draw block participation by lowering corporate risk (Shad et al., 2019).

2.4 Empirical Literature Review

This part evaluated the previous studies that targeted the purpose of the investigation. They have to do with the effect of procurement process risk on procurement sustainability: mediating role of risk orientation. The effect of procurement process risk on procurement sustainability: mediating role of risk orientation, was reviewed as literature pertaining to the study's objective of the impact of tax regulations on the financial health of small and medium-sized enterprises in a poor economy.

2.4.1 The Impact of Procurement Process Risk on Procurement Sustainability

Nyamah et al. (2023) explore how procurement process risk affects industrial enterprises' procurement effectiveness. The research philosophy, a statistical strategy, and an interpretive design of the study are all used in this research. To determine the impact of particular strategic sourcing risk on supplier effectiveness, it analyses primary information compiled from industrial companies via survey questions and applies the partial least-squares structural equation modeling approach. The survey's results suggest that five of the six procurement process hazards examined considerably harmed the purchasing efficiency of production enterprises. The impact of the risk threshold on effectiveness, nevertheless, varies. The findings of this study also suggest that the procurement procedure used by business organisations is risky and that the impact of risk on various procurement processes varies. As a result, before implementing management decision to allocate a company's scarce funds in reaction to a particular risk, it is necessary to recognize and analyse the risks associated with each acquisition process in order to enhance strategy implementation in the industrial sector.

Sönnichsen and Clement (2020) examining environmentally friendly and sustainable public procurement in the direction of circular procurement processes by organizing, analysing, and making comparisons and clusters in existing literature. Furthermore, the categorization of the data revealed three overarching themes: organizational elements, individual behavior, and action plan to address. These concepts were further divided into nine sub-categories: three organizational, two attitudinal, and four operational. The study demonstrates how it is essential to be cognizant of and knowledgeable about the characteristics of circular procurement processes, which are predicated on the execution of circular policies and strategies. In the transition to circular procurement procedures, the procurer's opinions and principles play a significant role in determining the best possible mix of risk, efficiency, and affordability for the state institution over the course of its

existence. The process' essential components include eco-labels, standardization, life cycle analyses, and life cycle pricing. This work has ramifications for academics and purchasing professionals by outlining the existing understanding as a foundation for additional studies in creating circular public purchasing procedures.

Hallikas et al. (2020) investigates how risk assessment and procurement effectiveness are affected by sustainable consumption methods. As the businesses require unique buying and supply management techniques to make sure that their distribution channels are competitive and durable. Yet, sustainable policies assist businesses eliminate risks and damage to their finances and reputations in addition to assuring sustainable development. The research also made use of quantitative survey information gathered from 111 Finnish businesses. A partial minimum squares approach is used to investigate the categories' direct and indirect links. The findings demonstrate that using sustainable purchasing methods enhances firms' ability to make purchases. Businesses that engage in operational risk regulation in their procurement are more likely to do well in their strategic sourcing and supplying. Also, it was discovered that employing sustainable buying strategies enhanced operational and brand risk assessment outcomes, proving the importance of green initiatives for risk administration as a whole as opposed to only sustainably.

2.4.2 Procurement Process Risk and Risk Orientation

Kumar et al. (2022) compared beverage businesses' financial and behavioral traits to their success drive and risk-taking orientation. Moreover, the investigation was carried out in the Udaipur district in the state of Rajasthan, which was specifically chosen because it has the largest concentration of cattle in southern Rajasthan. For this investigation, a group consisting of 120 individuals was chosen. The findings showed that most farmers had a respectable level of accomplishment drive. In comparison to the preponderance of medium-sized dairy farmers,

64.29% of micro dairy farmers were determined to have a medium degree of risk orientation, while 82.35% of big dairy farmers showed a high level of risk for their business. According to the research project, expertise, employment, scientific orientation, promotion, and mainstream media were all positively and substantially connected with farmers' drive for accomplishment. Yet, it was shown that the interviewees' annual revenue, financial drive, scientific orientation, and content consumption had a positive and substantial link with risk orientation. Education, profession, expansion, yearly income, mass media, economic motivation, and scientific orientation were significant determinants that affected dairy entrepreneurs' accomplishment encouragement and risk approach.

Mazunina et al. (2021) focused on the creation of a risk-oriented strategy for quality administration mostly during execution of initiatives for a firm's operations modernization, which guarantees the expansion of this corporation's performance. Also, the profitability and commercial efficiency of a firm are viewed as aspects of quality since they form the foundation of the economic growth of the organization. As a result, the emphasis is placed on distinctive qualities of quality that are impossible for competitors to match sustainable comparative edge. This emphasizes technologically advanced characteristics commodities as the foundation of its quality and takes into account the characteristics of quality in the setting of the internet-based economy. These products are given through breakthrough developments. While implementing new ideas, business pays attention to the dangers that come with them. With their assistance, quality management is proposed. With the aid of data analysis, it has been demonstrated that in nations with established market economies, the efficiency of quality assurance throughout most of the execution of creative initiatives from the stances of organization's future advancement is determined by the outcomes of a patented technology model proposed for categorizing the thresholds and qualitative therapeutic

interventions. A risk-oriented strategy to quality assurance is provided when new initiatives are implemented for the firm's operations expansion in order to address this issue.

Vnukova and Davidenko (2019) determine and assess potential risk mitigation measures in the domain of purchasing and sourcing in order to provide guidelines that would assist companies be adequately equipped in the event that a similar scenario to the one at hand should arise repeatedly. The study intends to be an entirely qualitative desk-based study. The desk-based investigation, in Barbara Bassot's opinion, is a type of academic evidence in which data is collected indirectly (for example, online), as opposed to academic evidence, in which data is collected directly (for example, through interviews, focus groups). Last but not least, study results show that the two main types of risk preventive actions in purchasing and sourcing are redundancies and versatility. According to investigation, flexibility-related countermeasures like employing technologies that boost awareness, precision, and interfirm functionality and implementing digitalization and actionable insights can generated due that additional amount edge to recognise threats early on. High availability techniques include maintaining overstock, engaging in multilevel supply chain, and having a dispersed vendor and raw material foundation.

2.4.3 The Relationship Between Risk Orientation and Procurement Sustainability

Grandia and Voncken (2019) investigate the connections among aptitude, drive, and possibility and six different SPPs, including green public purchasing, social financial return, sustainable consumption, microbially procurement processes, development-oriented public procurement, and international humanitarian criteria. Online polls were given to procurers employed by Dutch government agencies. Research indicates that opportunity, talent, and desire all have an impact on green procurement procedures (GPP).

Wang et al. (2022) explores the awareness pattern of sustainable risk administration in distribution network using both qualitative and quantitative methods. A combination of 793 publications were extracted to illustrate the information landscape of sustainability risk administration in the supply chain. In economic evaluation, equations can be solved and context assessment are integrated to form the intellectual framework of risk mitigation studies pertaining to environmentally friendly supply chains. Finally, a critical evaluation is undertaken in qualitative analysis to evaluate and assess the motives, methods, methodologies, and instruments of sustainability managing risk in the supply chain. The survey's findings indicate that a simulation model for financially viable managing supply chain risks is created by incorporating the findings of qualitative and quantitative evaluations. This model focuses on three elements: (1) process for identifying, (2) early detection, and (3) risk offsetting and reacting. On the basis of the theoretical model for directing the concepts and practices of sustainable supply chain administration, suggestions for further study are lastly offered. This study can serve as a guide for developing suitable risk management guidelines and toolkits for ethical supply chains, which could progress the field's fundamental understanding of how to reduce the risks associated with such chains.

Dammert (2021) looks at the distribution network's sustainability risk assessment using a case study of Finnish businesses. Moreover, the researchers evaluated supply chain sustainability risk management practices employed by Finnish businesses. The 2020 Global 100 rating was used to choose the three case firms, Kesko, UPM, and Neste, which are among the most environmentally conscious companies worldwide. A framework that has been discussed in prior research is used to study the case firms. Corporate reports and other documentation from their websites make up the studied dataset. To get an unbiased view of the problem, information from NGOs is also used. The fact that the example firms' distribution channels have sustainability problems as shown by the

NGO reports is evidence of how challenging it is to manage risk exposures, particularly in lengthy distribution networks. The key finding of the empirical investigation is that the study firms have established procedures for handling risks associated with supply chains' sustainable development. The paradigm that is described in the previous literature is used by corporations in comparable ways. Moreover, they provide methods for managing sustainability risks, such as supplier evaluation, certifications, and codes of conduct. Businesses must refine their procedures even when they have defined operations for managing uncertainties. The sustainability of supply chain risk oversight involves a revolving door of potential new threats. Companies must thus keep an eye on their operations and look for opportunities to enhance procedures.

2.4.4 The Mediating Role of Risk Orientation in The Relationship Between Procurement Process Risk and Procurement Sustainability

Borah et al. (2022) examines how the sustainable brand strategy components of European multinational companies in Ghana relate to stakeholders' risk and achievement of new products. The research's main data was collected from 302 European multinational companies in Ghana, who provided the information. The modeling of structural equations was used in Amos (v.23) to predict the numerous associations that were hypothesized in the investigation after several dependability and validity tests. According to the investigation, shareholder risk significantly hampered the commercial achievement of novel goods developed by European multinational corporations. Nevertheless, this detrimental impact is mitigated by the operational, tactical, and organizational green marketing orientations, which have positive mediating roles. Moreover, green marketing approach is viewed as very context-specific and having distinctive qualities. implies that the societal, environmental, diplomatic, and economic context should be taken into account while interpreting the outcomes of the sustainable marketing orientation paradigm. As well,

shareholder risk constituted a substantial obstacle to the performance of European transnational companies, whose processes are scrutinized by both domestic and foreign stakeholders. These European large businesses are required to conduct themselves ethically since their acts and inactions have an impact on the mother company's reputation as a whole.

Gallear et al. (2017) investigate how business investments in ethical and environmental behavior, made as a component of corporate socially responsible, affect the link among collaborations in the supply chain and management awareness of the associated risk. The study postulates that just entering into a supply chain partnership does not promote and can even hinder comprehension of the danger of collaborating. Yet, a corporate social responsibility ecological and management process philosophy might help people understand the risk better. The research provided a further contribution by dividing risk into the separate relationship and operational dimensions. The findings of a firm-level survey support the mediating roles and show the benefits of engaging in environmentally and ethically responsible behavior on three fronts: raising institutional consciousness, keeping track of progress, and transferring best practices.

2.5 Conceptual Model/ Framework

The theoretical framework is supported by the Agency Theory and its extension to the Stakeholder theory and New Institutional Economics (see Figure 2.1). Any occurrence during the acquisition procedure that has an impact on the incoming supply of products or services is referred to as purchasing vulnerability (Grandia and Voncken, 2019). It can have a negative impact on a firm's business, capabilities, administration, efficiency, economic health, and approach-based goal. Effectiveness in purchasing has recently been regarded as one of the most important metrics for measuring organizational success. In forecasting the success of the industrial industry and its distribution network, Leal Filho et al. (2019) claim that monitoring the performance of the business

is crucial. In reality, the effectiveness of a purchasing procedure or function is measured by how well it achieves specified objectives at the most affordable prices. Given that risks influence more than 40% of firm profitability (Gitelman et al., 2020), it would be wise to look at the risks present during the different phases of manufacturing companies' supply chain and how they affect procurement effectiveness. Independent (Procurement Process Risk), dependent (Procurement Sustainability), and mediating variables are all included in the overall idea of (Risk Orientation). In this study, three types of variables were employed. It is anticipated that effect of procurement process risk on procurement sustainability: mediating role of risk orientation.

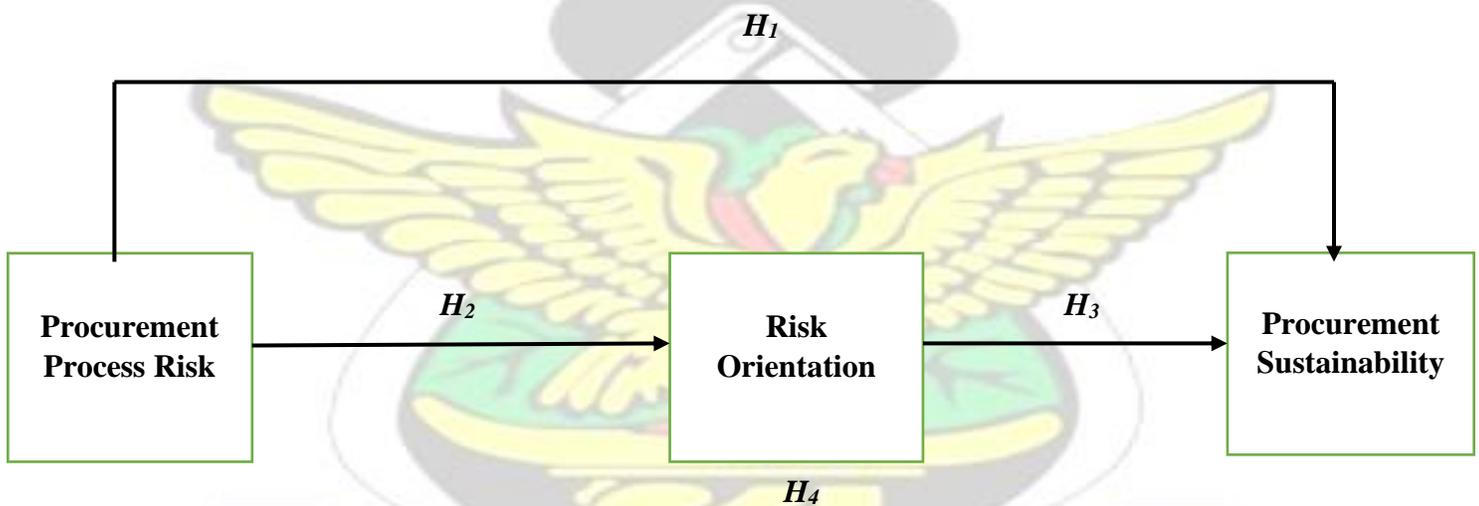


Figure 2.1 Conceptual framework

H₁. Procurement Process Risk has a positive and significant effect on Procurement Sustainability

H₂. Procurement Process Risk has a positive and significant effect on Risk Orientation

H₃. Risk Orientation has a positive and significant effect on Procurement Sustainability

H₄. Risk Orientation mediates the relationship between Procurement Process Risk and Procurement Sustainability

2.6 Hypotheses Development

The main propositions that are presented in Figure 2.1 above are covered in this section. According to the study paradigm, subareas have been made and addressed for every one of the assumptions.

2.6.1 Hypothesis 1: Procurement Process Risk on Procurement Sustainability

In order to ensure that goods, resources, and activities are gained in a way that minimizes the negative impact on the environment, community, and market, sustainability in purchasing involves the incorporation of social, ecological, and economic consequences into the acquisition technique (Sönnichsen and Clement, 2020). The three concepts of administration and transparency, economic and social compatibility, and ecological responsibility provide an outline of sustainable procurement. The process of delivering services while taking ecological concerns into consideration includes their adherence to environmental laws, usage of environmentally friendly materials, and commitment to sustainability solutions (Rausch and Kopplin, 2021). Increased concentrations of strategic sourcing risk, including such outages in the supply chain, can result in business instabilities, postponements, and disconnections in the acquisition process (Sharma and Foropon, 2019). These outages can positively impact the firm's ability to purchase ecologically sustainable, which might lead to significant in impossibility to find sustainable packaging, meet sustainability initiatives, or adhere to compliance standards. Risks associated with the acquisition process, including capital costs or pricing volatility, can place financial restrictions on a company (Nekmahmud and Fekete-Farkas, 2020). Businesses may emphasize cost reductions over sustainability initiatives while under financial stress, thereby jeopardizing their capacity to source effectively (Alikhani et al., 2019). Hence, it is anticipated that a positive influence of procurement process risk on procurement sustainability:

H₁. Procurement Process Risk has a positive and significant effect on Procurement Sustainability

2.6.2 Hypothesis 2: Procurement Process Risk on Risk Orientation

The risk approach relates to a person's or an organization's awareness, viewpoint, and approach to risks. It illustrates how risks are seen, evaluated, and managed during the procedure of assessment (Bhattacharya et al., 2021). The ideas for risk orientation included in this list include hazardous conduct, risk assessment, reducing risk, risk perception and management, exposure assessment, and risk adaptability. Risk awareness is the degree to which a person or organization is aware of potential risks and how those risks could impact goals or outcomes (Martínez-López et al., 2020). Risk orientation is significantly influenced by elevated amounts of strategic sourcing risk. Increased levels of risk associated with the acquisition process may cause individuals or entities to feel hazards more keenly (Schulze et al., 2019). More knowledge and responsiveness regarding risks may result from increasing vulnerability to dangers such as distribution network interruptions or quality problems, which may lead to a shift in perspective about a risk-oriented one (Lintukangas et al., 2019). To reduce their effect, strategic sourcing risks frequently need active oversight and mitigation techniques. When faced with major risks, people or institutions could realize how crucial it is to use a risk-oriented strategy in order to efficiently detect, evaluate, and mitigate risk (Kohler and Dimancesco, 2020). Hence, it is anticipated that a positive influence of procurement process risk on risk orientation:

H₂. Procurement Process Risk has a positive and significant effect on Risk Orientation

2.6.3 Hypothesis 3: Risk Orientation on Procurement Sustainability

Sustainable acquiring is incorporating social, ecological, and economic repercussions into the procurement approach in hopes of ensuring that products, assets, and operations are obtained in a manner that reduces the significant impact on the environment, society, and business (Galeazzo et al., 2021). An overview of sustainable purchasing is given by the three ideas of management and

openness, social and financial congruence, and environmental stewardship. Following environmental regulations, using eco-friendly products, and committing to multiple initiatives are all steps in the process of providing benefits while considering ecological issues into account (Grandia and Voncken, 2019). Sustainable purchasing is positively impacted by a more risk-oriented strategy. An effective risk-oriented strategy entails detecting and mitigating risks before they worsen or have a detrimental effect on the long-term viability of purchasing (Sönnichsen and Clement, 2020). Individuals or companies with a risk-oriented perspective are much more equipped to foresee and identify possible threats to sustainability, which enables them to create assertive measures to reduce such threats and guarantee environmentally friendly procurement procedures (Caniato et al., 2020). Risk-taking frequently entails a readiness to try out novel strategies and accept creative solutions. Risk-averse individuals or entities are more likely to investigate and embrace strategic purchasing techniques, such as using eco-friendly materials, putting the value chain into reality, or working with socially conscious vendors (Negri et al., 2021). Hence, it is anticipated that a positive influence of risk orientation on procurement sustainability:

H₃. Risk Orientation has a positive and significant effect on Procurement Sustainability

2.6.4 Hypothesis 4: Risk Orientation mediates Procurement Process Risk and Procurement Sustainability

The delicate mediation of the link between procurement process risk and procurement sustainability is contingent upon the risk orientation of the company (Walker et al., 2021; Lee and Klassen, 2020). The risk orientation of an organization plays a crucial role in determining its approach to risk management in the procurement process, hence influencing its decisions and tactics (Adams et al., 2019; Sinden et al., 2018). A risk-averse organization may place a higher emphasis on conservative procurement procedures, which might possibly impede the progress of innovation and sustainability projects (Thomas et al., 2020; Wu et al., 2019). Conversely, a firm

that embraces risk-taking may exhibit a greater inclination towards embracing sustainable buying techniques, perceiving them as potential avenues for growth rather than potential hazards (Ali et al., 2017; Li and Tang, 2018). Hence, the degree to which an organization accepts or mitigates risks associated with the procurement process has a direct impact on its capacity to incorporate sustainability into its procurement processes (Wang et al., 2022; Yu et al., 2021). The business's risk orientation plays a significant role in mediating this intricate relationship (Chen and Singh, 2023; Lopez and Smith, 2022). A 2021 study by Wang et al. found that risk-averse firms were less likely to adopt sustainable procurement practices compared to risk-taking firms. They argue that perceived risks and uncertainties associated with sustainable procurement lead risk-averse firms to avoid such practices (Wang et al., 2021). Additionally, Ghadge et al. (2017) found that organizational culture and risk orientation influence the integration of sustainability criteria in procurement processes. Their findings indicate that risk-averse cultures present barriers to sustainable procurement. Thus:

H4. Risk Orientation mediates the relationship between Procurement Process Risk and Procurement Sustainability

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This Chapter provides the methodology that was followed to address the research questions. The sections give the choices of methodologies and the justification for the choices. The chapter is organized under six key headings. The chapter starts with an introduction, followed by the research design and approach, study population, sample size, sampling technique, research instrumentation and data collection procedure, validity and reliability, and data analysis.

3.2 Research Design

The research design is the actual structure that indicates the time frame(s) in which data is collected, the type of study to be conducted, and how many groups are involved in the research study (Edmonds and Kennedy, 2012). The research design therefore serves as the roadmap that guides the researcher to achieve the research objectives and provide answers to the study's research questions. Research design according to Okesina (2020) has various components including the research purpose (descriptive, explanatory, exploratory or a combination of two or more purposes), research methods (quantitative, qualitative and mixed methods) and time horizon (cross-sectional or longitudinal).. This study employed the survey method. The data collected was cross sectional, which means the author collected data at only one point in time. Zikmund et al. (2010) define survey as a research technique in which a sample is interviewed in some form or the behavior of respondents is observed and described in some way. The survey method was chosen for this study because the researcher intends to study risk orientation mediate the significant relationship between procurement process risk and procurement sustainability in manufacturing firms through the use of a structured questionnaire. The study will employ the cross-sectional survey design

where deductive reasoning is applied to the quantitative data (Cohen, Manion, and Morrison, 2017). The survey design allows the collection of data from different units over a specific period. Since the study is conducted over a limited period, the cross-sectional survey is deemed more appropriate for examining how risk orientation mediate the significant relationship between procurement process risk and procurement sustainability in manufacturing firms.

3.3 Research Purpose

Considering the positivist approach used, the research design for the current study was explanatory as opposed to descriptive and exploratory. This is because the explanatory research design is characterised by hypotheses that predict the nature and direction of the relationship among the variables of study. While the descriptive describes the nature of risk orientation, procurement process risk and procurement sustainability in manufacturing firms. The explanatory research will also aid in examining the risk orientation mediate the significant relationship between procurement process risk and procurement sustainability in manufacturing firms. In addition, borrowing from Okesina (2020) the study is a cross-sectional one as opposed to longitudinal design since data was collected in a short space of time spanning one month.

3.4 Research Approach

Deductive and inductive research are two broad types of research approaches (Trochim, 2006). Trochim (2006) explains that inductive research makes its arguments based on observations and experiences and therefore concludes by moving from "specific to general". On the other hand, deductive research starts from established rules, laws, and principles about a particular phenomenon and draws conclusions by moving from "general to specific." In addition, Creswell and Clark (2017) propose that deductive research has its orientation from the positivist paradigm and employs a top-down approach where the researcher tests theories through the use of hypothesis in order to either confirm or disconfirm a theory. In contrast, inductive research, which has its

orientation from the interpretivist paradigm, makes use of bottom-up approach where the researcher utilizes the views of participants to build broader themes and then generates a theory by connecting the themes identified (Cohen, Mannion and Morrison, 2017).

3.5 Population of the Study

This section provides a description of the study population and the sample frame used in this study. Etikan, Musa and Alkassim (2016) defined population as the range of the instances, persons, or objects that are the focus of a study. Thus, the target population reflects the group or individuals the study intends to conclude about. Differently put, the target population consists of a diverse variety of persons from whom a sample should be drawn (Shamsuddin et al., 2017). The study's population of the study comprised owners, and managers of manufacturing firms in Ghana. The sample frame refers to the list of individuals the researcher intends to collect the data from. Because owners, and managers of manufacturing firms are many and the study cannot gather data from all, the study sets its sample frame to investigate the phenomena among owners, and managers of manufacturing firms.

3.6 Sample and Sampling Techniques

The issue of sample and sampling technique has a long debate in the academic space, this is because the choice of sample and the procedure has serious consequences on the outcome of any scholarly research. According to Kothari (2012), the sample reflects the researcher's effort or strategy to determine the number of study participants who should be included in the sample. In obtaining the sample size in a given population, three main methods for estimating a sample size can be identified. Firstly, the sample size can be calculated by using formulas (Israel, 1992). Secondly the use of a published statistical table to estimate the sample size, for instance, the published statistical table of Krejcie and Morgan (1970) and Cohen et al. (2013). Lastly, a researcher can decide to utilize census methods by collecting data from the entire population which

is known as the census. For this study, sample size determination will be established from Singh and Masuku (2014) formula of sample size determination. The choice of the Singh and Masuku (2014) formula is justified by the fact that the actual population of manufacturing firms is not known by the researcher. Hence the formula is given as

$$n = \frac{Z^2(P)(1 - P)}{C^2}$$

Where Z= the standard normal deviation set at a 95% confidence level

P=percentage picking a choice or response (50%)

C=Confidence interval

$$n = \frac{(1.96)^2(0.50)(1-0.50)}{0.05^2}$$

$$n=384.16$$

$$n \sim 384$$

Based on the formula, 384 managers of manufacturing firms are drawn for the study. The processes used to choose a sample for a research endeavour are referred to as sampling techniques. Probability procedures and non-probability procedures are the two types of sampling procedures (Taherdoost, 2016). For this investigation, the convenience sampling technique will be used to select students who are available and ready to participate in the study.

3.7 Data Collection

A structured questionnaire will be used to source information from the respondents. This study dwells on the use of primary data that will be collected using a questionnaire. The questionnaire is designed in two parts. The first part contains the demographic information of the respondents. The second part contains questions on the variables used in this study. All items used in the questionnaire were sourced from previously validated instruments.

In the survey, participants will be asked to choose a number from 1 to 5 that best represented their thoughts on each statement. The items used to measure the constructs are included in the appendix. Though the items were already validated and tested in previous studies, this study will also conduct different types of validity and reliability of the items to ensure the final results are reliable. To encourage participation, each questionnaire was accompanied by a cover note from the researcher clarifying the aim of the study as well as soliciting respondent involvement in the study; it as well assured the confidentiality of the selected participants and briefly introduces the research work.

3.8 Method of Data Analysis

Data analysis is the process of using a systematic procedure to draw inferences from data gathered from the field as well as considering the various procedures that can be used to analyze the data (Churchill and Iacobucci, 2009). The researchers further suggest that the research design, kind of data and assumptions made in the research and concerns associated with the study will influence the suitability of a given technique. Data analysis may follow quantitative or qualitative procedure in scrutinizing the large volume of information obtained from the field. In the quantitative context, the procedure includes the use of statistical techniques to describe and examine variation in the quantitative measures. The quantitative approach emphasizes the use of either inferential or descriptive statistics (statistical techniques), to understand and establish relationships between constructs.

In this study Statistical Package for Social Sciences (SPSS) version 23 and SmartPLS 3 software will be utilized to conduct descriptive statistics and inferential statistics respectively. The data collected will be coded, cleaned, and prepared for analysis. The data will first be coded in Microsoft excel. In excel the data will be thoroughly checked to avoid possible data entry errors. After cleaning the data will then be exported to SPSS. The data checks in SPSS include missing values, reliability, descriptive statistics, and test of assumptions for multivariate analysis.

Subsequently SmartPLS version 3 (Ringle et al., 2015) will be employed to conduct inferential statistics through multivariate data analysis.

3.9 Validity and Reliability of Constructs/Variables

To ensure external validity, participation in the study was purely voluntary. The selected participants were assured of the benefits of the study to the facility to ensure a minimum dropout rate. Both the content and the construct validity of this study were also ensured. The validity and reliability of a research study are two research criteria for consistency (Straus, 2017). An alpha coefficient of 0.70 is used as a cut-off point for assessing the internal consistency of the research item and scales to guarantee study reliability (Hair, Biasutti and Frate, 2017). To eliminate logical flaws and biases in the study, the researcher emphasizes the validity and reliability of the results. This was done by adopting all of the questions and conducting a pilot study using 10 respondents.

3.10 Ethical Consideration

Ethical considerations are the principles that must be followed in conducting any type of research (Singh et al., 2015). According to Fleming and Zegward (2018) ethical issues of informed consent, risk of harm, confidentiality and anonymity, and conflict of interest must be considered and presented with a plan on how these ethical issues will be managed in a study.

Ethical considerations were followed during the data collection process the first of which was informed consent. All respondents of the study were duly informed of what the entire study was about and then allowed to decide whether they wanted to participate or not. Only participants who willingly agreed to participate in the study were included in the study for data collection purposes. However, individuals who were uncomfortable with releasing information about their workplaces were exempted from the study. In this regard, participation in this study was strictly voluntary and respondents could withdraw from the data collection process at any time.

Another ethical consideration that guided the data collection process was the confidentiality of the information gathered. The researcher ensured that every data gathered from the respondents through questionnaires were kept in safety such that no external party had access to them.

The anonymity of participants was also very essential during the data collection process. The researcher ensured to ensure that any kind of information that revealed the identity of the participants such as names, residential addresses; phone numbers among others were not part of the instruments used for data collection.



CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, AND INTERPRETATION

4.1 Introduction

The subsequent chapter of this academic research scrutinises the data derived from the antecedent chapter, which is partitioned into four principal segments. The initial segment provides the outcomes of the exploratory data evaluation, whereas the next segment encompasses the demographic. The additional part centres on the correlation analysis and provides the discoveries of the CFA and model fit index. The last segment of the study involves the utilisation of a structural equation model to scrutinise the hypotheses proposed, and the major findings are elaborated.

4.2 Exploratory Data Analysis

The initial examination of the data was primarily exploratory in nature, focusing on assessing data quality using exploratory factor analysis with the aid of SPSS. This evaluation involved scrutinising several subsections; including response rate, non-response bias, and common method bias (CMB). The subsequent sections below provide detailed descriptions on the data quality assessment tests and their corresponding interpretations.

4.2.1 Response Rate

The response rate of a survey is typically expressed as a percentage, obtained by dividing the total number of questionnaires sent by the number of respondents who completed them. Achieving response rates above 50% is uncommon. Data collection for the study occurred between March 12th and April 22nd, 2023. Although the study aimed to collect 381 responses, 500 questionnaires were distributed as a precaution. Table 4.1 presents the results of the data cleaning process, which involved reviewing each completed questionnaire for quality and completeness. Ultimately, a response rate of 76.2% was deemed adequate for analysis, resulting in 381 usable responses.

Table 4.1: Data Response Rate

Distributed	Collected	Percentage of Usable
Response	381	76.2
Non-Response	119	23.8
Total	500	100.0

Source: Field Survey (2023)

4.2.2 Test for Common Method Bias and Sampling Adequacy

Testing for common method bias (CMB) is an important part of survey research because it helps ensure that the connection between the dependent variable and the predictors is maintained (Podsakoff and Organ, 1986; Bahrami et al., 2022). Social desirability or consistency is one kind of CMB that may be detected using methods that reduce the amount of data generated by CMB. Exploratory Factor Analysis findings show that a single factor may explain less than 50% of the variation, adding credibility to Harman's single component approach. The main component analysis found that this strategy accounted for 49.012% of the total variance.

Table 4.2: Test for Common Method Variance (CMV)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.182	49.012	49.012	9.182	49.012	49.012
2	1.350	9.498	58.511	1.350	9.498	58.511
3	1.305	7.249	65.759	1.305	7.249	65.759
4	.893	4.961	70.721			
5	.692	3.845	74.566			
6	.575	3.192	77.758			
7	.493	2.741	80.499			
8	.467	2.594	83.092			
9	.403	2.240	85.332			
10	.377	2.094	87.426			
11	.354	1.965	89.391			

12	.330	1.834	91.225
13	.318	1.769	92.994
14	.294	1.631	94.625
15	.273	1.519	96.144
16	.258	1.434	97.579
17	.245	1.360	98.938
18	.191	1.062	100.000

Extraction Method: Principal Component Analysis.

Source: Field Survey (2023)

4.1.3 Bartlett's Test of Sphericity and KMO Test

The KMO test and the Bartlett sphericity test were used to further assess the samples' accuracy. In light of the data in Table 4.3, the Kaiser-Meyer-Olkin Examining Sufficiency score was 85.1%, and Bartlett's test exhibited measurable importance ($\chi^2= 7581.969$, df: 276, $p = 0.000$). This demonstrates that the sampling was carried out appropriately.

Table 4.3: Bartlett's Test of Sphericity and KMO Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.940
Bartlett's Test of Sphericity	Approx. Chi-Square	4416.514
	df	153
	Sig.	.000

Source: Field Survey (2023)

4.2.4 Non-Response Bias

Non-response bias was assessed using an independent-samples t-Test. Table 4.4 shows the results of this study. Levene's Test for Equality of Variances was used to determine whether or not the sample variances were similar between the two groups. Two groups, "early responders" and "late responders," were compared across all three variables (PPR, PS, RO) in terms of their mean scores. According to the results, there were no differences in the groups' mean scores on the three variables tested: PPR ($t=2.141$, $p=0.240$), PS ($t=1.281$, $p=0.151$), and RO ($t=1.484$, $p=0.644$). Since there

were no difference between the "early responders" and "late responders" groups with regard to any of the variables, the results of the research suggest that there was no non-response bias. Previous study have shown that analysing both early and late responders is an effective way to deal with non-response bias, as pointed out by Oppenheim (2001). Thus, the results support the need of addressing non-response bias in order to assure the accuracy and reliability of research findings.

Table 4.4 Results of Independent-Samples t-Test for Non-Response Bias

Levene's Test for Equality of Variances					
	Group	Mean	F	Sig.	t
Procurement Process Risk	1	12.43	1.385	0.24	2.141
	2	11.99			
Procurement Sustainability	1	41.13	2.074	0.151	1.281
	2	40.34			
Risk Orientation	1	20.77	0.214	0.644	1.484
	2	20.27			

Source: Field Survey (2023)

4.3 Respondents Profile

The demographics of the respondents are included in this section to present information on the subject individuals and the firms that participated in the research. The key data taken from the respondent are gender, age, educational background, department of respondents, position of respondents, age of firms, number of employees, and type of ownership.

Table 4.5: Respondents Profile

Variables	Categories	Frequency	Percent
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Gender	Female	103	27.0
	Male	278	73.0
Age	18-30 years	20	5.2
	31-40 years	196	51.4
	41-50 years	105	27.6
	Above 50 years	60	15.7
Level of Education	Bachelor Degree	202	53.0
	Diploma	78	20.5
	Graduate Studies (Master / Ph.D.)	101	26.5
Your Position in the Firm	Business Owner	41	10.8
	Business Owner & Manager	97	25.5
	Manager	240	63.0
	Production Manager	3	0.8
How many years have your firm been in operation?	1 - 5 years	129	33.9
	11 – 15 years	62	16.3
	16 years and above	34	8.9
	6 - 10 years	156	40.9
How many employees are in the firm?	30 – 99 employees	131	34.4
	5 – 29 employees	9	2.4
	More than 100	241	63.3
Type of ownership	Fully locally owned	339	89.0
	Fully foreign owned	29	7.6
	Jointly Ghanaian & foreign owned	13	3.4
Total		381	100.0

Source: Field Survey (2023)

Table 4.5 show that 27.0% were females and 73.0 were from males. In addition, 5.2% of the participants were between 18 and 30 years old, 51.4% were between 31 and 40 years old, 27.6%

were between 41 and 50 years old, and 15.7% were over 50 years old. Moreover, 53.0% of the participants had a bachelor's degree, 20.5% had a diploma, and 26.5% had done graduate studies (Master's or Ph.D.). Table 4.5 also indicate that 10.8% of the participants were business owners, 25.5% were business owners and managers, 63.0% were managers, and 0.8% said they were production managers. According to firm age, 33.9% of the logistics service companies have been in business for 1 to 5 years, 16.3% have been in business for 11 to 15 years, 8.9% have been in business for more than 16 years, and 40.9% have been in business for 6 to 10 years. According to firm size, 34.4% had between 30 and 99 employees, 2.4% had between 5 and 29 employees, and 63.3% had more than 100 employees. Finally, 89.0% of the participants said the business was owned entirely by Ghanaians, 7.6% said it was owned entirely by foreigners, and 3.4% indicate both Ghanaians and foreigners owned.

4.4 Correlation Analysis

Procurement process risk, sustainability, and risk orientation were correlated. The correlation coefficient between the constructs in each row and column is provided. The correlation coefficient indicates the degree and path of the linear link between two variables, ranging from -1 to 1. The table diagonal shows the correlation coefficient between the same variable, which is always 1. Table 4.6 show that procurement process risk and procurement sustainability are positively correlated (0.566). Procurement process risk and risk orientation are positively correlated (0.587). Procurement sustainability and risk orientation have a positive correlation value of 0.546.

Table 4.6: Descriptive and Correlation Analysis

Construct	1	2	3
Procurement Process Risk	1.000		
Procurement Sustainability	0.566	1.000	
Risk Orientation	0.587	0.546	1.000

Source: Field Data, 2023

4.5 Confirmatory Factor Analysis

Table 4.7 show the finding of a Confirmatory Factor Analysis (CFA) the evaluates the outer loadings, CA, CR, AVE, and T statistics of the constructs.

The outer loadings show how each latent variable (factor) correlates with its observable variables (indicators). The outer loadings vary from 0.795 to 0.925, demonstrating a significant link between variables. CR, CA, and AVE assess internal consistency and convergent validity, respectively (Hair et al., 2016). All factors show strong CR (0.911 to 0.943), CA (0.877 to 0.909), and AVE (0.671 to 0.846) values, suggesting good internal consistency and convergent validity (see Table 4.7). T-statistics and p-values indicate outer loading statistical significance. All loadings exhibits high t-statistics (from 32.785 to 110.237) and low p-values (less than 0.05), suggesting statistically significant between variables. Variance inflation factor (VIF) measures indicator multicollinearity (Kock, 2015). Multicollinearity is not a problem since all VIF are smaller than 3 (see Table 4.7).

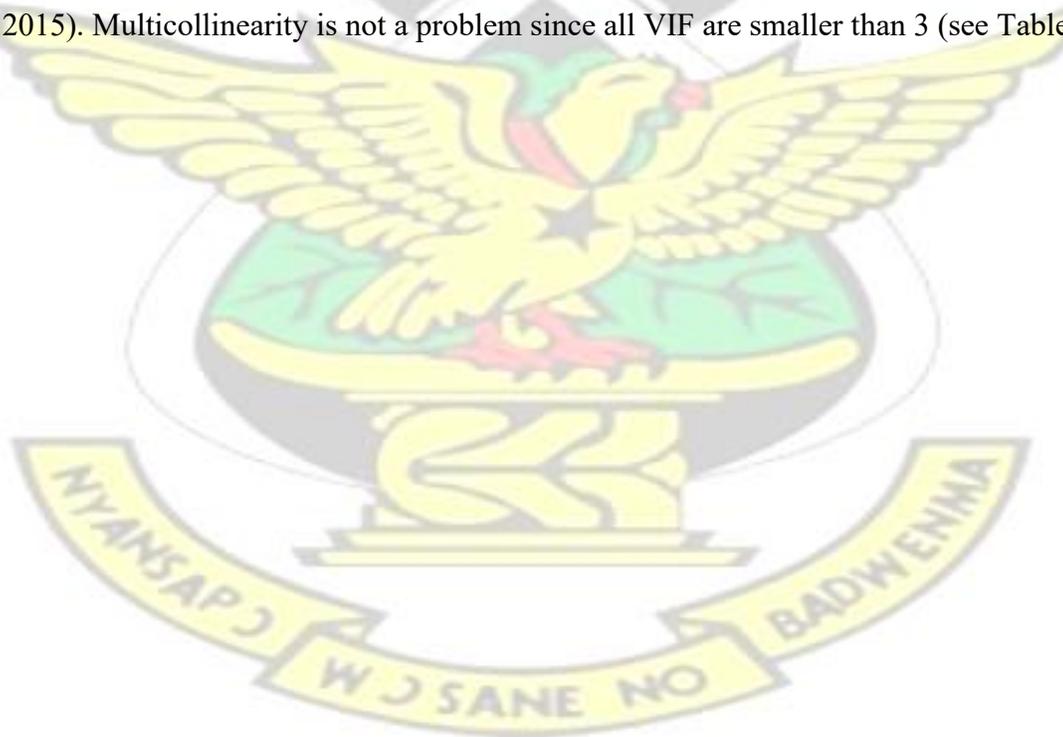
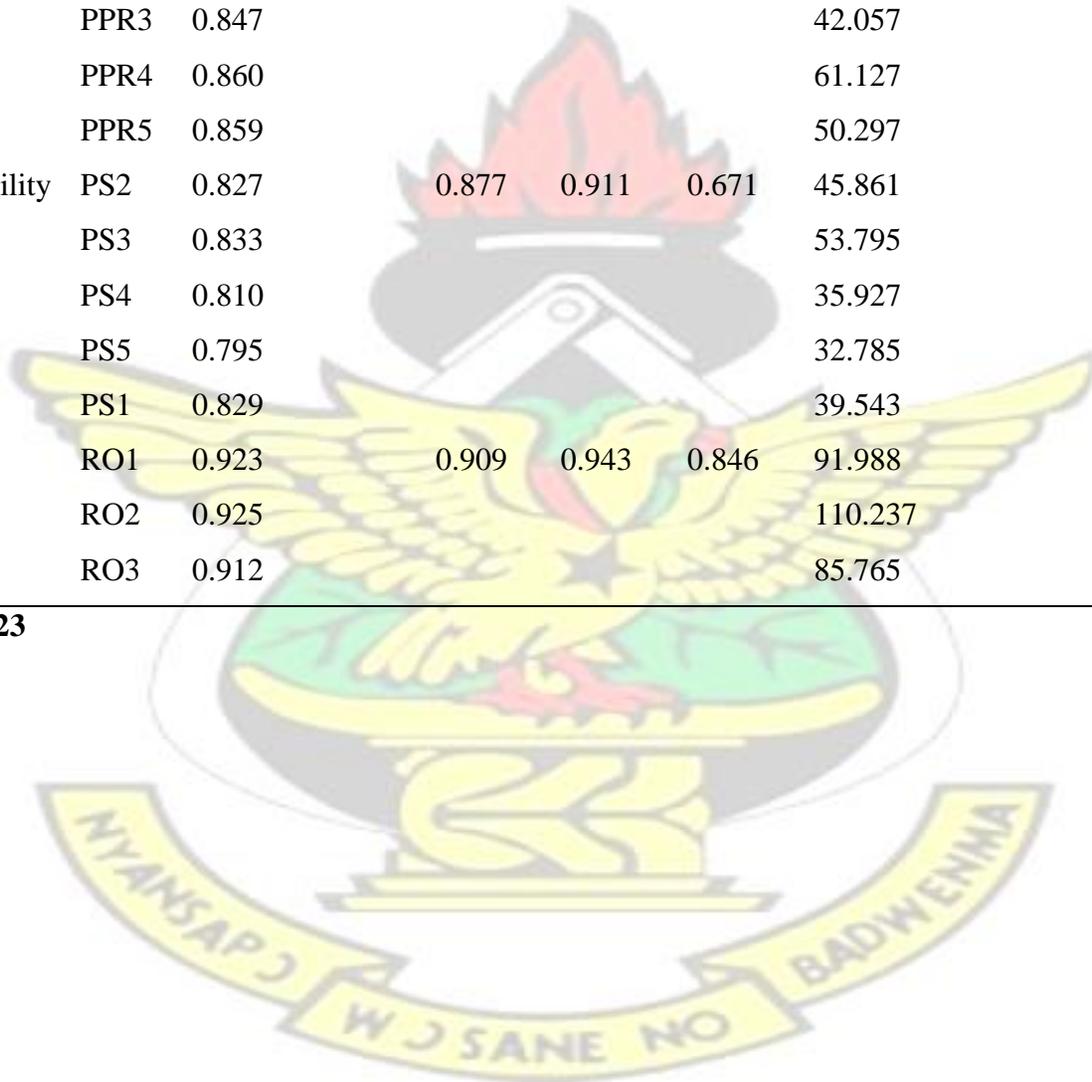


Table 4.7: Confirmatory Factor Analysis

Scales	Codes	Outer Loadings	CA	CR	AVE	T statistics (O/STDEV)	P values	VIF
Procurement Process Risk	PPR2	0.856	0.878	0.916	0.732	51.687	0.000	2.351
	PPR3	0.847				42.057	0.000	2.117
	PPR4	0.860				61.127	0.000	2.310
	PPR5	0.859				50.297	0.000	2.176
	Procurement Sustainability	PS2				0.827	0.877	0.911
PS3	0.833	53.795	0.000	2.133				
PS4	0.810	35.927	0.000	1.987				
PS5	0.795	32.785	0.000	1.789				
PS1	0.829	39.543	0.000	2.174				
Risk Orientation	RO1	0.923	0.909	0.943	0.846	91.988	0.000	3.255
	RO2	0.925				110.237	0.000	3.145
	RO3	0.912				85.765	0.000	2.776

Source: Field Data, 2023



4.5.1 Discriminant Validity

The Fornell-Larcker criteria assessed the study's constructs discriminant validity (Hair et al., 2010; Henseler et al., 2016b). As indicated in Table 4.8, the diagonal values are the square roots of each construct's AVE, which indicated the construct's variance relative to measurement error. Off-diagonal values show construct correlations. Discriminant validity requires AVE values larger than inter-construct correlations. In Table 4.8, all constructs have AVE values larger than their inter-construct correlations, suggesting discriminant validity. The Heterotrait-Monotrait Ratio (HTMT) also assessed discriminant validity. All constructs' HTMT values are below 0.85, showing adequate discriminant validity (see Table 4.9)

Table 4.8: Fornell-Larcker criterion

Construct	1	2	3
Procurement Process Risk	0.856		
Procurement Sustainability	0.566	0.819	
Risk Orientation	0.587	0.546	0.920

Source: Field Data, 2023

Table 4.9: Heterotrait-Monotrait Ratio (HTMT)

Construct	1	2	3
Procurement Process Risk			
Procurement Sustainability	0.640		
Risk Orientation	0.654	0.608	

Source: Field Data, 2023

4.5.2 Model fitness indices

Table 4.10 displays the calculated model's fitness indices. As the standardized root mean square residual (SRMR) value of 0.053 is below the suggested threshold of 0.08, this indicates a good model fit. The model fit is also good based on its d_ULS (unweighted least squares) value of 0.216 and d_G (geodesic) value of 0.124. Model fit improves with lower d_ULS and d_G values. The observed data deviates from the predicted model because the chi-square value is 372.067 ($p < 0.05$). However, large sample sizes can change chi-square since it is sensitive to sample size. Finally, the model is of good fit with an NFI of 0.902. A higher NFI closer to 1 indicates a better model fit.

Table 4.10: Model fitness indices

Model fitness indices	Estimated model
SRMR	0.053
d_ULS	0.216
d_G	0.124
Chi-square	372.067
NFI	0.902

Source: Field Data, 2023

4.5.3 Coefficients of Determination

Table 4.11 presents the R-squares and the adjusted R-squares values of the two constructs, namely procurement sustainability and risk orientation. The R^2 value shows the proportion of variance in the dependent variable explained by the independent variable (Hair et al., 2018). The adjusted R^2 value takes into account the number of predictors included in the model. The R^2 value of 0.390 suggests that the predictor (independent variable) can account for 39% of the variance in procurement sustainability. The value of the adjusted R^2 is 0.387, indicating that the model is not overfitting. The R^2 value of 0.344 for risk orientation

suggests that the predictor can account for 34.4% of the variation in risk orientation. The value of the adjusted R^2 is 0.343.

Table 4.11: Coefficients of Determination

Construct	R-square	R-square adjusted
Procurement Sustainability	0.390	0.387
Risk Orientation	0.344	0.343

Source: Field Data, 2022

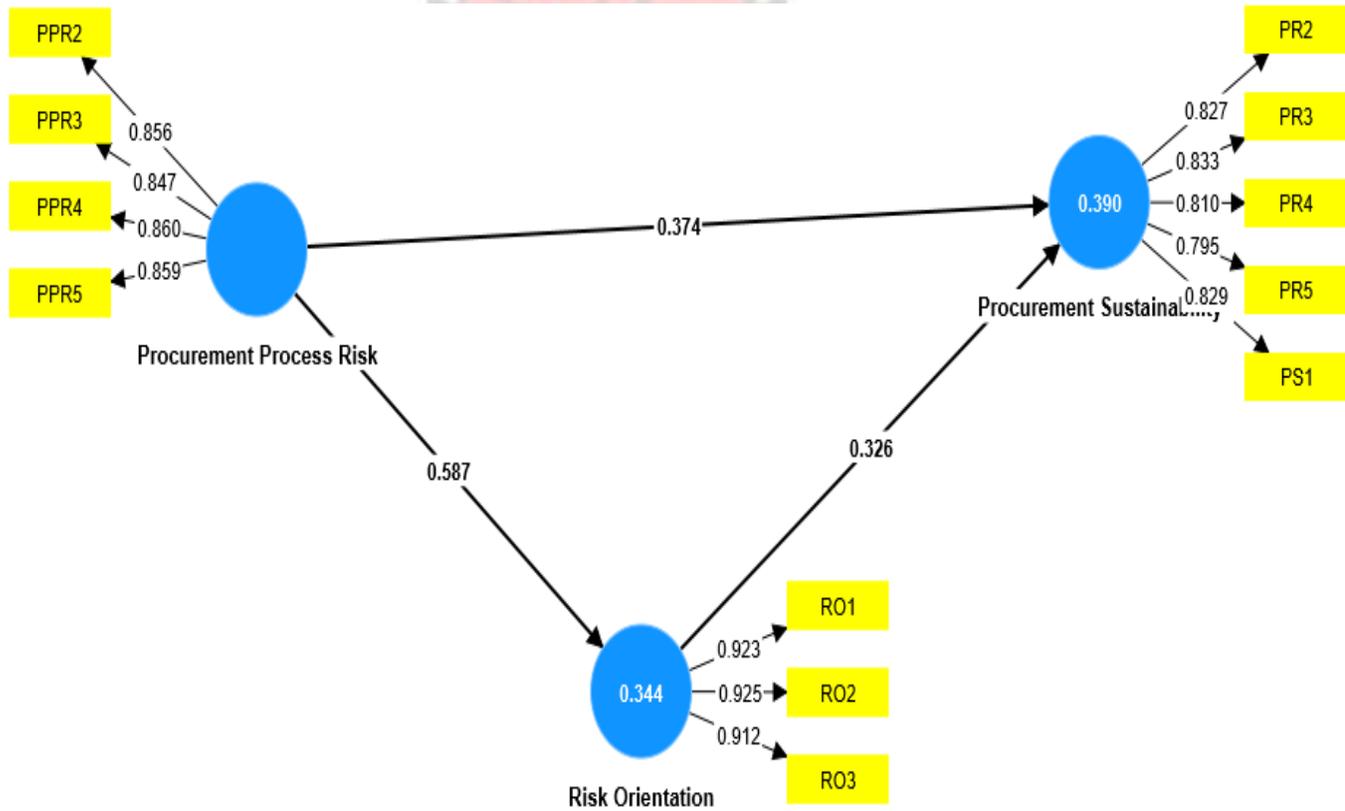


Figure 4.1: Measurement Model Assessment

4.6 Hypotheses for Direct and Indirect Relationship

Figure 4.2 and Table 4.12 depicts the structural model assessment, which in its entirety evaluates the connections between the constructs. Figure 4.2 and Table 4.11 show the results of this analysis. The relevance of the model's four pathways was examined using PLS bootstrapping with 5000 samples. The results on the direct and indirect correlations among these constructs provided in Table 4.12 and Figure 4.2 are discussed further.

Table 4.12: Hypotheses for Direct and Indirect Relationship

Path	Path Coefficient	T statistics	P values	Hypothesis Validation
Procurement Process Risk -> Procurement Sustainability	0.374	5.710	0.000	Accepted
Procurement Process Risk -> Risk Orientation	0.587	13.183	0.000	Accepted
Risk Orientation -> Procurement Sustainability	0.326	4.955	0.000	Accepted
Procurement Process Risk -> Risk Orientation -> Procurement Sustainability	0.191	4.748	0.000	Accepted

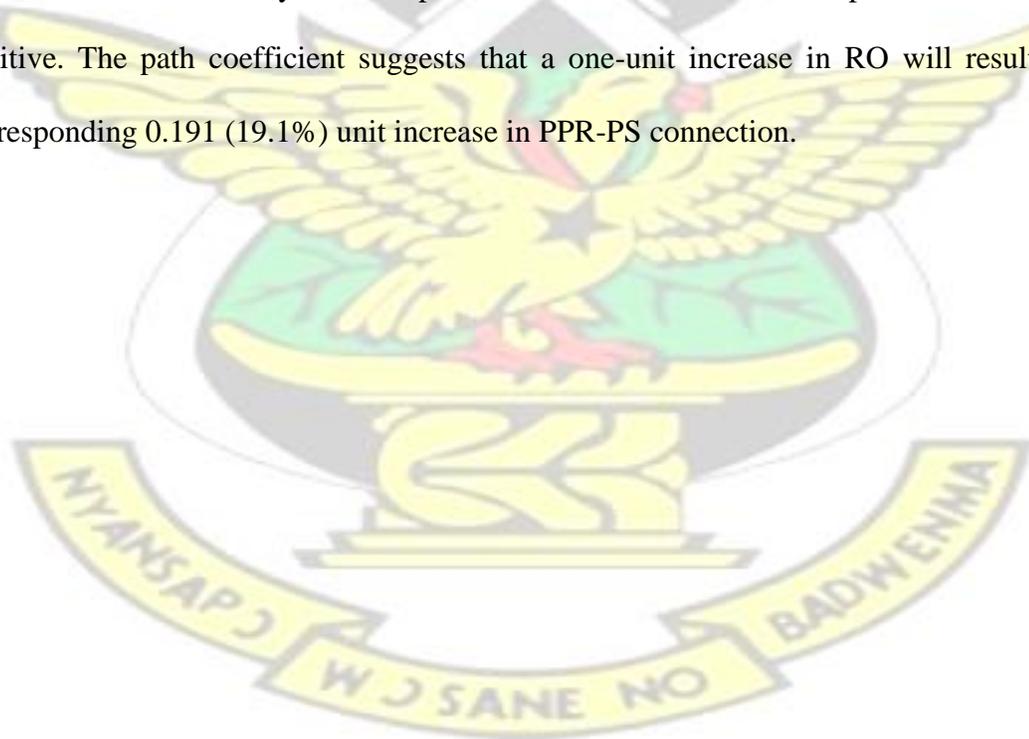
Source: Field Data, 2023

Table 4.12 shows that the connection procurement process risk has on procurement sustainability is significant ($B = 0.374$, $P = 0.000$). Given that, the p-value for H1 was less than 0.05 and the path coefficient was positive, the finding shows that procurement process risk has a direct effect on sustainable procurement. The path coefficient suggests that a one-unit increase in PPR will result in a corresponding 0.374 (37.4%) unit increase in PS. Procurement process risk directly influences risk orientation ($B = 0.587$; $P = 0.000$). The path coefficient was positive and the p-value for H2 was less than 0.05, indicating a significant positive direct influence of procurement process risk on risk orientation. The

path coefficient suggests that a one-unit increase in PPR will result in a corresponding 0.587 (58.7%) unit increase in RO.

Risk orientation directly influence procurement sustainability ($B = 0.326$; $P = 0.000$). Since the p-value was less than 0.05 and the path coefficient was positive, risk orientation had a significant direct influence on procurement sustainability, validating the third hypothesis (H3). The path coefficient suggests that a one-unit increase in RO will result in a corresponding 0.326 (32.6%) unit increase in PS.

Risk orientation indirectly mediates procurement process risk and procurement sustainability ($B = 0.191$; $P = 0.000$). The result show that risk orientation positively and partially mediates the link between procurement process risk and procurement sustainability since the p value was less than 0.05 and the path coefficient was positive. The path coefficient suggests that a one-unit increase in RO will result in a corresponding 0.191 (19.1%) unit increase in PPR-PS connection.



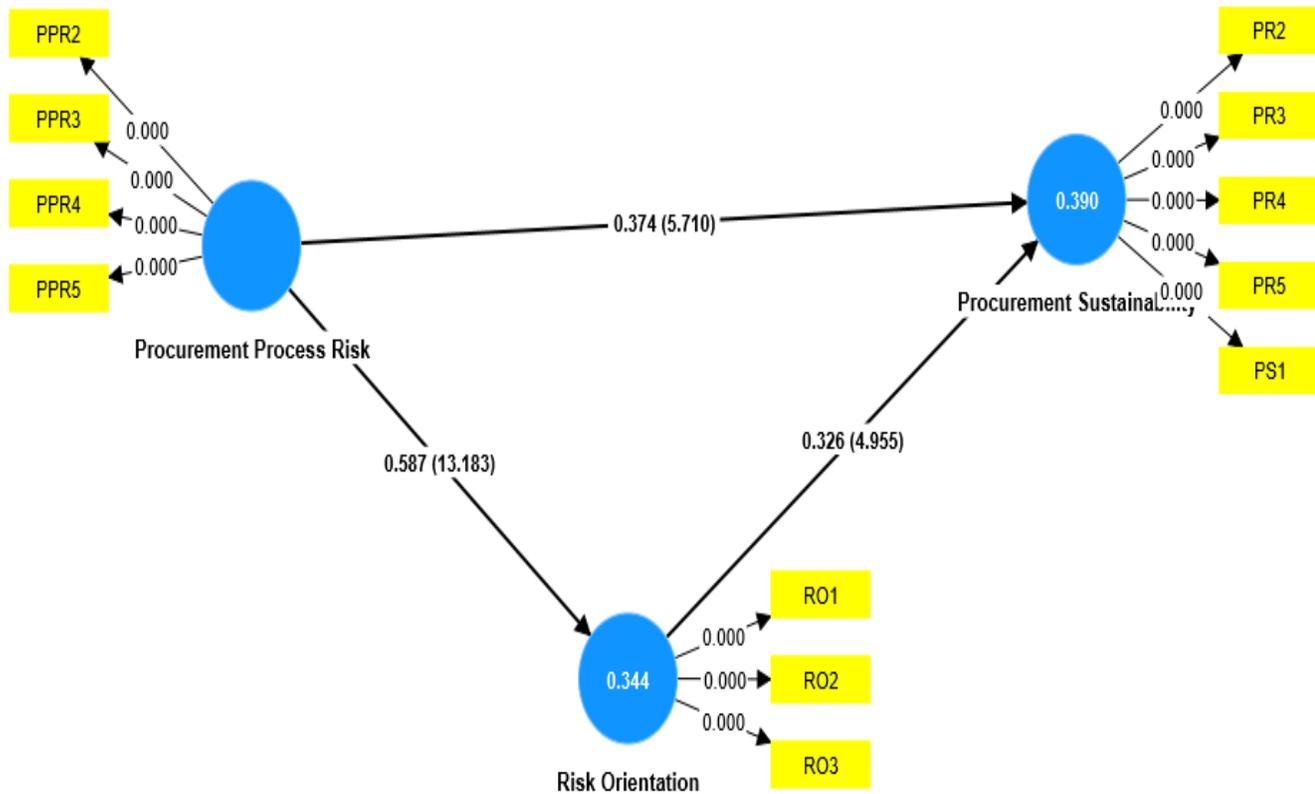


Figure 4.2: Structure Model Evaluation

4.7 Discussion of Results

The main purpose of the study is to examine whether risk orientation mediate the significant connection between procurement process risk and procurement sustainability in manufacturing firms in Greater Accra Region, Ghana. This section present a discussion of the key findings in line with stated objectives.

4.7.1 Effect of Procurement Process Risk on Procurement Sustainability

The initial objective of this study examine the impact of procurement process risk on procurement sustainability. The finding reveal that procurement process risk had a significant direct influence on procurement sustainability. The present finding is in line with the study explored by Nyamah et al. (2023), which demonstrated that five of the six PPRs examined were discover to have a significant negative impact on the procurement performance of manufacturing companies. Increased procurement sustainability in a

manufacturing company may be attained through the identification of procurement process risk and the implementation of appropriate risk management measures (Nyamah et al., 2023). Organisations may guarantee a sustainable procurement process by recognising the risks involved and taking preventative steps (Cole and Aitken, 2019 Šotić and Ivetić, 2016). Managing procurement risks may improve procurement performance and sustainability, according to a research by Akhtar et al. (2021). Organisations may improve their long-term viability by employing risk management techniques that lower the chance of interruptions and delays in procurement, strengthen connections with suppliers, and boost the overall efficiency of procurement operations (Dellana et al., 2021; Machado et al., 2019). Sustainable procurement possibilities may be establish, and managed, via the procurement process (Florio, 2017). Organisations may create more sustainable procurement procedures and execute more socially and ecologically responsible sourcing strategies by recognising and resolving risks connected with procurement (Falasca et al., 2022). As a result, the company's overall social and environmental performance may improve, the environmental effect of procurement operations can be mitigated, and local communities can be supported (Aragão and Jabbour, 2017). Therefore, a manufacturing company's long-term performance may depend in part on how well it manages the risks associated with the procurement process (Tarei et al., 2020). In addition, a manufacturing company's procurement practises may be made more sustainable by the careful management of risks in the procurement process, which can result in cost savings (Shenoi et al., 2016). Waste, poor performance from suppliers, and interruptions in the supply chain all contribute to high procurement costs, but may be mitigated by proper risk assessment and management (Aragão and Jabbour, 2017). The money saved may then be used towards other sustainable

procurement projects, including training for new suppliers or developing environmentally friendly purchasing policies (Chin and Min, 2021). Long-term sustainability may be achieved through increasing financial performance and decreasing environmental impact while decreasing procurement prices (Carter and Liane Easton, 2011).

4.7.2 Effect of Procurement Process Risk on Risk Orientation

The following objective investigates the link between procurement process risk and risk orientation. The findings indicate a significant positive direct influence of procurement process risk on risk orientation. There is evidence to suggest that businesses with a high risk orientation are more successful overall (Naffin et al., 2023; Ding, 2013). Firms with a stronger risk orientation developed better risk management strategies and were more successful at controlling supply chain hazards, according to research by Nyamah et al. (2023). Increased knowledge and sensitivity to possible risks and uncertainties in the procurement process is one way in which procurement process risk may boost risk orientation in a manufacturing company (Akhavan et al., 2021). Can Saglam et al. (2021) point out that good risk management practices may improve a company's sensitivity to and ability to deal with risk. A company's risk orientation may be enhanced by the identification, assessment, and mitigation of risks throughout the procurement process (Oehmen et al., 2020). Additionally, a risk-aware culture inside the company may be fostered by the deployment of risk management practices, which can encourage staff to be more cautious towards risks and uncertainties in the procurement process, ultimately leading to an improvement in risk orientation (Tse et al., 2019). Risk-awareness and preventative risk management are two aspects of the procurement process that may help enhance risk orientation (Zipperle et al., 2022). Risks must be identified, their probability and effect evaluated, and then suitable risk mitigation measures put into place (Santos and

de Oliveira, 2019). Procurement professionals may improve their capacity to recognise and react to new hazards by gaining a more nuanced awareness of the risks they face and the solutions available to them (Lysons and Farrington, 2020). In addition, strengthening the procurement function's resilience via a focus on procurement process risk helps enhance the function's risk orientation (Simba et al., 2017). For procurement experts, this means setting up procedures and tools that let them respond rapidly to shifting conditions and lessen the effect of unforeseen occurrences (Harland et al., 2021). Having a high Procurement Process Risk also forces a company to take a more proactive stance towards risk management, which improves the company's risk orientation as a whole (Settembre-Blundo et al., 2021). If an organisation has a high risk orientation, it is more likely to be able to recognise and respond to potential threats to its capacity to meet its sustainability goals (Santos and de Oliveira, 2019). This suggests that procurement process risk may boost risk orientation by compelling the adoption of effective risk management techniques, which in turn improves the organization's capacity to deal with risks and move towards its sustainability objectives. Procurement teams' abilities to spot, evaluate, and deal with possible threats throughout the buying process were considered to benefit from better risk management practises (El Baz and Ruel, 2021). This may enhance their risk management practises and overall efficiency inside the organisation by raising their level of risk consciousness (El Baz and Ruel, 2021).

4.7.3 Effect of Risk Orientation on Procurement Sustainability

The next objective also evaluate the connection between risk orientation and procurement sustainability. The finding show that risk orientation had a significant direct influence on procurement sustainability. Fostering a culture of risk management, supporting sustainable supplier relationships, and promoting ethical procurement practises are just a few of the

ways in which a risk orientation may increase the long-term viability of procurement (Kumar and Anbanandam, 2020). Supplier selection, supplier development, and supplier assessment are just some of the SSCMPs that have been shown to benefit from a risk-taking mindset (Sarkis, 2022). According to the author, businesses may benefit from improved supplier relationships and more environmentally friendly purchasing procedures by adopting a risk-oriented approach to supply chain management. Shafiq et al. (2017) discovered that a buyer's risk orientation has a positive effect on their ESG practises. The authors argue that organisations with a keen eye for risk are more likely to weigh the possible social and environmental effects of their purchasing choices and respond accordingly. Better environmental and social benefits may follow from more sustainable procurement practises (Kannan, 2021). In addition, Kihm (2019) discovered that a pro-risk mindset is correlated with sustainable purchasing practises, which in turn may improve environmental, social, and economic outcomes. According to the author, businesses may benefit from a risk orientation by learning to spot threats and opportunities in their supply chains. Sustainable buying practises are also more common among companies with a good risk management culture, according to research by Klassen and Vereecke (2012). The authors stated that higher performance in sustainability-related areas may result from a firm's adoption of a risk management culture. As pointed out by Rajagopal et al. (2017), businesses might benefit from adopting a risk-oriented attitude in order to better understand the threats and opportunities presented by their procurement operations and to devise appropriate risk management strategies to deal with them. Actions taken to ensure suppliers are meeting environmental and social responsibility standards, anticipating and mitigating supply chain disruptions due to climate change or scarce resources, and incorporating

sustainability criteria into procurement decision-making processes are all examples of what this means in the context of sustainability (El Baz and Ruel, 2021).

4.7.4 Mediating Role of Risk Orientation

The last objective establish the mediating role of risk orientation in the connection between procurement process risk and procurement sustainability. The result show that risk orientation positively and partially mediates the link between procurement process risk and procurement sustainability. As noted by Papadaki and Vlachopoulou (2019), a risk-oriented perspective on procurement allows for the identification of possible hazards and the development of solutions to minimise them (Levytska et al., 2022). The sustainability of the procurement system may be enhanced by using a risk-oriented approach, which allows procurement experts to anticipate and react to possible hazards in the procurement process (Bulgakov and Makarenko, 2022). In addition, a focus on risk may help businesses create more eco-friendly purchasing procedures (Sreedevi and Saranga, 2017). The possible environmental, social, and economic hazards connected with an organization's procurement practises may be identified with the use of a risk-oriented strategy, as stated by Klassen and Vereecke (2012). Organisations may build sustainable procurement practises that protect against these threats and advance sustainability if they adopt a risk-oriented perspective (Saarela, 2021). Improved sustainability performance may be achieved by better risk management practises in procurement, according to research by Munir et al. (2020). This is due to the fact that a better understanding of risk may reveal hidden threats to sustainability, allowing for preventative steps to be implemented (Um and Han 2021). Similarly, Foerstl et al. (2017) stated that a risk-oriented approach may assist organisations in seeing the trade-offs between various aspects of sustainability and making choices that strike an appropriate balance between these competing priorities. Furthermore,

Munir et al. (2020) stated that risk management practises may aid organisations in integrating sustainability concerns into procurement procedures. The authors argued that risk management may act as a portal to sustainability challenges by identifying vulnerable points in the supply chain. Using this information, businesses will be better equipped to choose which vendors to partner with and establish sustainable standards with (Nyamah et al., 2023).



CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

The present investigation offers a thorough synopsis of the outcomes, conclusions, and suggestions obtained from the carried out research. The findings of the research demonstrate significant links among the variables examined. Several conclusions were derive from the aforementioned findings. Additionally, the study offers practical implications and suggests future research directions to augment the applicability and broaden the influence of its findings.

5.1 Summary of Findings

5.1.1 Effect of Procurement Process Risk on Procurement Sustainability

The initial objective of this study examine the impact of procurement process risk on procurement sustainability. The finding reveal that procurement process risk had a significant direct influence on procurement sustainability. According to the results, businesses in the manufacturing sector may better manage procurement risks if they have a firm knowledge on the connections between procurement process risk and procurement sustainability. In order to secure the long-term viability of their operations, businesses must identify and mitigate the risks associated with the procurement process.

5.1.2 Effect of Procurement Process Risk on Risk Orientation

The following objective investigate the link between procurement process risk and risk orientation. The finding indicate a significant positive direct influence of procurement process risk on risk orientation. The influence of procurement process risk on risk orientation suggests that businesses should be alert to the dangers posed by their procurement processes and take preventative actions to deal with them. To do this, effective

risk management frameworks that can detect, evaluate, and counteract threats in procurement procedures should be put into place. Businesses may improve their procurement performance by increasing their risk orientation and risk response capacity.

5.1.3 Effect of Risk Orientation on Procurement Sustainability

The next objective also evaluate the connection between risk orientation and procurement sustainability. The finding show that risk orientation had a significant direct influence on procurement sustainability. The influence of risk orientation on sustainable procurement suggests that businesses should put more effort into building a culture and set of skills around risk management. To achieve this goal, the company must create a risk-aware culture and include risk management practises into its purchasing procedures.

5.1.4 Mediating Role of Risk Orientation

The last objective establish the mediating role of risk orientation in the connection between procurement process risk and procurement sustainability. The result show that risk orientation positively and partially mediates the link between procurement process risk and procurement sustainability. The mediating function of risk orientation in the link between procurement process risk and procurement sustainability means that organisations may enhance their procurement sustainability by building a risk-oriented culture. Organisations may better manage the risks associated with the procurement process, leading to more sustainable procurement, if their staff have a more risk-oriented mind-set.

5.2 Conclusion

The main purpose of the study is to examine whether risk orientation mediate the significant connection between procurement process risk and procurement sustainability in manufacturing firms in Greater Accra Region, Ghana. This quantitative survey used a cross-sectional research strategy. Purposive sampling selected 381 individuals. A pre-designed structured questionnaire was used to gather data. SPSS v26 and SmartPls v4 did

the statistical analysis. Data was analysed using descriptive and inferential statistics. The findings reveal that procurement process risk had a significant direct influence on procurement sustainability and risk orientation. The findings also show that risk orientation had a significant direct influence on procurement sustainability. The mediating role of risk orientation on the link between procurement process risk and procurement sustainability is partially significant.

5.3 Recommendation

This section provides recommendations based on the findings of the research for various stakeholders. These ideas should be taken into consideration by management and academics.

- The study suggests that organisations operating in the manufacturing industry ought to prioritise their comprehension of the correlation between procurement process risk and procurement sustainability. The acquisition of this knowledge can facilitate superior procurement risk management and guarantee the sustained prosperity of their endeavours. In order to accomplish this task, it is imperative that one identifies and subsequently mitigates the potential hazards that are inherently associated with their procurement procedures. Through proactive risk management, enterprises can mitigate the probability of operational disruptions and enhance their overall sustainability.
- The study suggests that organisations ought to be mindful of the hazards linked to their procurement procedures and implement measures to avert them. The implementation of good risk management frameworks is imperative in order to identify, assess, and alleviate potential threats that may arise during procurement procedures. By enhancing their capacity for risk-taking and enhancing their ability

to respond, organisations can enhance their procurement efficacy and mitigate the probability of operational disruptions.

- The study suggests that organisations ought to accord precedence to the establishment of a risk management ethics and integrate it into their procurement processes. This entails allocating resources towards the development of competencies and educational programmes aimed at enhancing risk perception and fostering risk mitigation strategies across the entire company. Through the establishment of a corporate ethics that places significant emphasis on the mitigation of risk, organisations can more effectively integrate sustainable procurement strategies into their operations, thereby attaining more favourable and enduring results.
- The research suggests that organisations ought to prioritise developing of a culture that is connected to risk in order to bolster the sustainability of their procurement practises. Through this approach, one can effectively mitigate the hazards inherent in the procurement process and attain procurement outcomes that are more sustainable in nature. The cultivation of a risk-oriented mind-set among staff necessitates investment in training and development.

5.4 Limitations and Recommendation for Future Research

Since this research was conducted only in the Ghanaian manufacturing sector, its findings may not be generalised to other sectors or countries. Therefore, to broaden the relevance of the results, future research should duplicate the study in other sectors and nations. The data was gathered using a cross-sectional survey, which restricts the capacity to make causal inferences. Future research should make use of longitudinal data in order to

demonstrate causal links between the variables. Future research should go beyond the study's three components (procurement process risk, risk orientation, and procurement sustainability) to include others that might influence procurement sustainability, such as supplier relationship management and green procurement practises. Finally, possible mediators of the link between procurement process risk and procurement sustainability that need to be investigate in future research include organisational culture and supply chain resilience.



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