

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

KNUST SCHOOL OF BUSINESS

DEPARTMENT OF MARKETING AND CORPORATE STRATEGY

KNUST

**THE EFFECT OF INNOVATION ON PERFORMANCE OF MANUFACTURING
FIRMS: THE ROLE OF NETWORK TIES**

By

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(BSc. BUSINESS ADMINISTRATION)

A THESIS SUBMITTED TO THE DEPARTMENT OF MARKETING AND CORPORATE
STRATEGY, KNUST SCHOOL OF BUSINESS, KWAME NKRUMAH UNIVERSITY OF
SCIENCE AND TECHNOLOGY, IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF

MASTER OF BUSINESS ADMINISTRATION

MARCH, 2023

DECLARATION

I hereby declare that this submission is my own work towards the award of a Masters of Business Administration (Strategic Management) and that to the best of my knowledge, it contains no material previously published by another person or any material which has been accepted for the forward of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

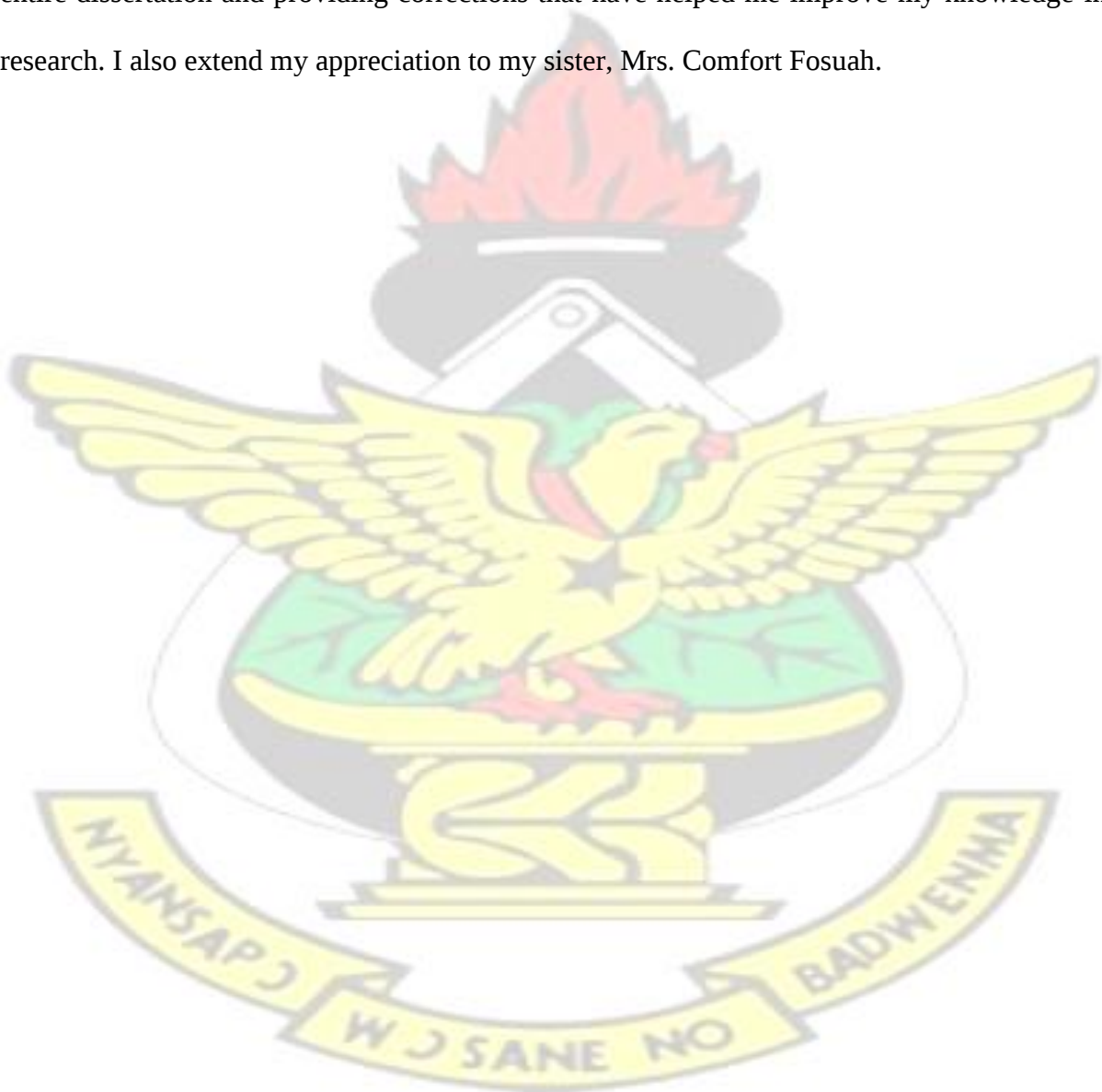
To Almighty God and my sister, Mrs. Comfort Fosuah.

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ACKNOWLEDGMENT

I would like to express my deepest appreciation to the almighty God for his grace, mercy, and protection throughout all these years of my education. Glory be unto his name. I would also like to express my deepest appreciation to my family for their prayers and support. I am also profoundly grateful to my eminent supervisor, Prof. Ahmed Agyapong of the Kwame Nkrumah University of Science and Technology, for spending a substantial part of his time reading my entire dissertation and providing corrections that have helped me improve my knowledge in research. I also extend my appreciation to my sister, Mrs. Comfort Fosuah.



ABSTRACT

Shifts in consumer tastes and preferences, as well as major competition among businesses, have put a lot of pressure on businesses, forcing them to introduce new products, processes, or ideas into their operations. Under this current dispensation of global competition, how business innovation impacts firm performance remains a hot debate. It is on the strength of this background that this study aimed to assess the impact of innovation on firm performance. The study was conducted using the manufacturing sector as a case. Primary data was collected through questionnaires as the main data collection tool for the study. The data were analysed quantitatively with the help of SPSS. Descriptive statistics, correlation, and Ordinary Least Square (OLS) regression were used to describe and analyse the data. The findings of the study revealed a positive but insignificant relationship between innovation and firm performance. The study further revealed a significant negative relationship between network ties and firm performance. It was further revealed that network ties play a moderating role in the relationship between innovation and manufacturing firms' performance. The study therefore recommended to owners and managers of manufacturing firms that they keep abreast of changes in the market, invest in research and development, engage in organisational learning, and continue to be innovative in their business processes as well as in their products and services. The study also recommends that employees continue to learn, conduct research and development, and report the findings to management to be ahead of their competitors. In line with this, management should create a channel that would enable employees to communicate freely with superiors about their ideals and innovative skills.



TABLE OF CONTENTS

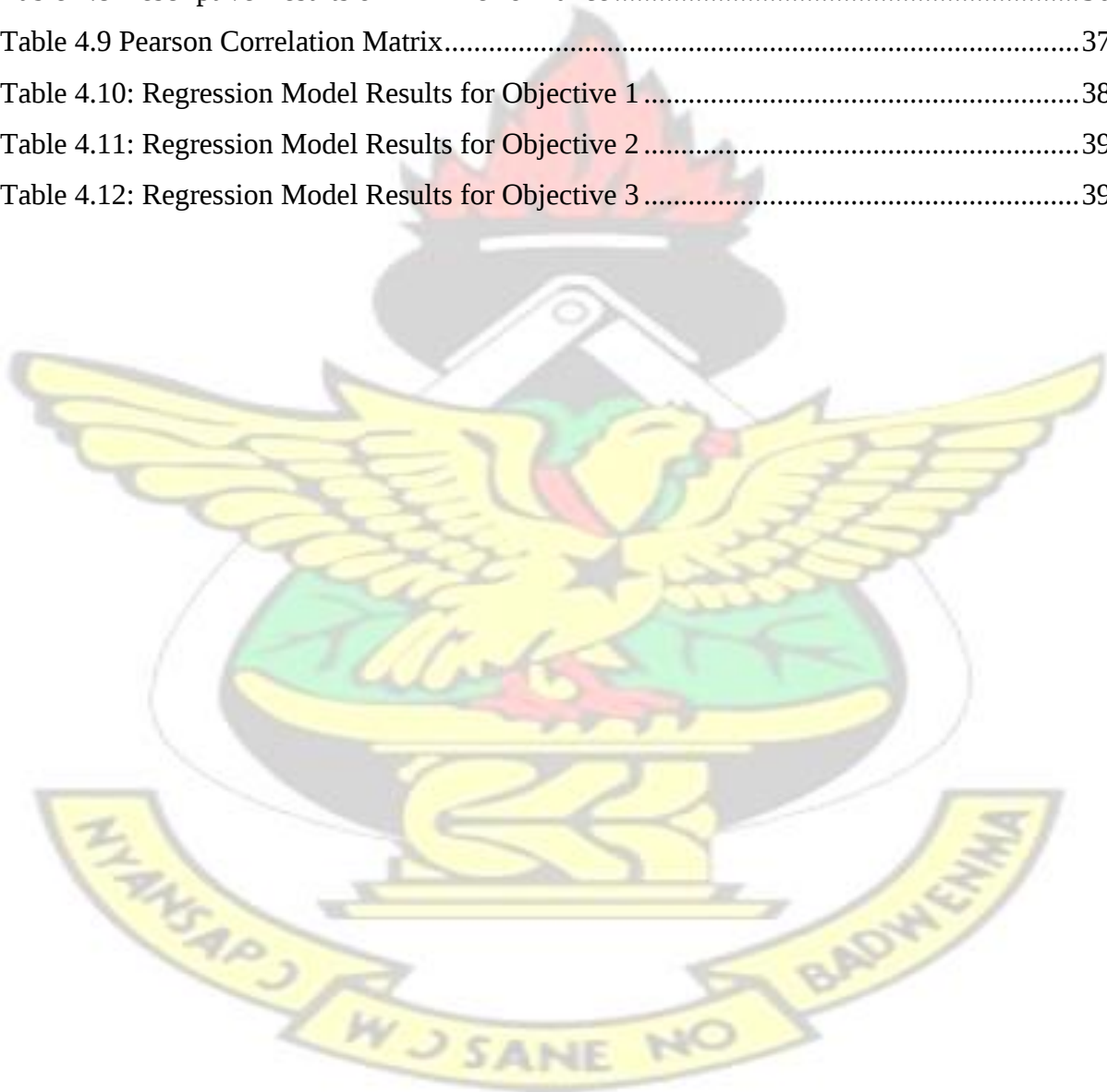
DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGMENT.....	iv
ABSTRACT.....	v
LIST OF TABLES	ix
LIST OF FIGURES	x
 CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.2 Problem Statement	3
1.3 Objectives of the Study	4
1.4 Research Questions	4
1.5 Significance of the Study	5
1.6 Scope of the Study.....	5
1.7 Limitations of the Study.....	6
1.8 Overview of Methodology	6
1.9 Organisation of the Study.....	6
 CHAPTER TWO	7
LITERATURE REVIEW	7
2.0 Introduction	7
2.1 Conceptual Review	8
2.1.1 Innovation.....	8
2.1.2 Network Ties	9
2.1.3 Firm Performance.....	9
2.1.4 Manufacturing Sector in Ghana	10
2.2 Theoretical Review	11
2.2.1 Resource-Based View	11
2.2.2 Social Network Theory	12
2.3 Empirical Review.....	13
2.3.1 Studies on Innovation and Business Performance from Developed Countries.....	13
2.3.2 Studies on Innovation and Business Performance from Developing Countries	16
2.4 Conceptual Framework and Hypothesis Formulation.....	20
2.4.1 Hypotheses Formulation	20

2.4.1.1 Innovation and Firm Performance.....	20
2.4.1.2 Network Ties and Firm Performance	21
2.4.1.3 Moderating role of Network Ties	21
2.4.2 Conceptual Framework	22
CHAPTER THREE	24
RESEARCH METHODOLOGY	24
3.1 Introduction	24
3.2 Research Philosophy	24
3.3 Research Design.....	25
3.4 Research Approach	25
3.5 Population of the Study	26
3.6 Sample and Sampling Technique.....	26
3.7 Source of Data.....	26
3.8 Data Collection tool	27
3.9 Data Analysis	27
3.10 Ethical Consideration	27
3.11 Research Setting.....	28
CHAPTER FOUR.....	29
PRESENTATION OF DATA AND ANALYSIS OF FINDINGS	29
4.0 Introduction	29
4.1 Response Rate	29
4.2 Background Data of Firms under Study.....	29
4.2.1 Firm Operating Years.....	30
4.2.2 Annual Income Level.....	30
4.2.3 Number of Employees.....	31
4.2.4 Size of Organization.....	31
4.3 Reliability Test.....	31
4.4 Validity Test.....	32
4.5 Descriptive Statistics.....	33
4.5.1 Process.....	34
4.5.2 Product and Services	34
4.5.3 Business Network Ties.....	35
4.5.4 Political Network Ties.....	35

4.5.5 Firm Performance.....	36
4.6 Correlation Analysis.....	37
4.7 Regression Analysis	38
4.7.1 Effect of Innovation on Firm Performance	38
4.7.2 Effect of Network Ties on Firm Performance.....	38
4.7.3 Moderating Role of Network Ties on the Relationship Between Innovation and Firm Performance	39
4.8 Discussion of Findings.....	40
4.8.1 The Relationship between Innovation and Firm Performance.....	40
4.8.2 The Relationship between Network Ties and Firm Performance	41
4.8.3: Moderating Role of Network Ties on the Relationship Between Innovation and Firm Performance	41
CHAPTER FIVE	43
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS	43
5.1 Introduction	43
5.2 Summary of Findings.....	43
5.3 Conclusion.....	44
5.4 Recommendations to Stakeholders	44
5.4.1 Owners/Managers of Manufacturing firms	44
5.4.2 Employees	45
5.4.3 Policy Makers.....	45
5.5 Suggestions for Future Studies.....	45
REFERENCES.....	47
APPENDIX.....	51

LIST OF TABLES

Table 4.1 Background Data of the Responding Firms.....	30
Table 4.2: Construct Reliability Results	32
Table 4.3: Validity Test Results.....	33
Table 4.4 Descriptive Results on Process as Innovation Construct.....	34
Table 4.5 Descriptive Results on Product and Service as Innovation Construct.....	34
Table 4.6 Descriptive Results on Business Network Ties	35
Table 4.7 Descriptive Results on Political Network Ties	36
Table 4.8 Descriptive Results on Firm Performance	36
Table 4.9 Pearson Correlation Matrix.....	37
Table 4.10: Regression Model Results for Objective 1	38
Table 4.11: Regression Model Results for Objective 2	39
Table 4.12: Regression Model Results for Objective 3	39



LIST OF FIGURES

Figure 2.1: Conceptual Framework Model.....	23
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The concept of innovation has piqued the interest of scholars as a result of its implications in this turbulent business environment. Changes in consumer tastes and preferences, as well as major competition among businesses, have put a lot of pressure on businesses, forcing them to introduce new products, processes, or ideas into their operations. In the success of business operations, one key component that has been identified in the literature is innovation (Prajogo, 2006; Dato et al., 2018). Innovation has to do with the ability of a firm to introduce new products, processes, or ideas into their operations (OECD, 2010). Following Hurley et al. (2018), the capacity of a firm to innovate impacts their learning process and ultimately their expansion and growth.

For firms to be successful in their innovative ideas, they need to be financially sound, possess the needed resources, spend much on research and development (R & D), and also have the needed expertise (Baldwin and Gellatly, 2003). A lack of these factors impedes innovation. As many manufacturing organisations are limited as a result of these factors, they are impeded in their innovative ideas and ultimately in their performance. To overcome these challenges, manufacturing firms need to team up with other firms by building strong relationships with other actors (Dato et al., 2018). Manufacturing firms can complement their R&D and resources with other firms through their network ties. The researcher contended that one benefit arising from network ties had to do with support for innovative activities required by firms to advance.

As a sequel to the above argument, manufacturing companies foster these connections in a variety of ways, including through social alliances with the community, family, and friends.

By joining business and trade associations, manufacturing companies can also network with organisations in the same or related industries. These later alliances can be categorised as strategic since manufacturing companies join them in part to obtain tactical knowledge about the competitive environment that could improve performance (Liu et al., 2022). Hence, network ties as a variable are imperative in the study of innovation and business performance.

Generally speaking, many manufacturing firms are often considered resource-constrained, limiting their ability to take advantage of opportunities in the market (Fatema and Islam, 2021). Even though they have fewer tangible and financial resources (Liu et al., 2022), manufacturing firms, under this current dispensation of an unstable business environment, have recently been seeking innovative ideas. According to the resource-based view theory, which informs this study, manufacturing companies can still succeed if they leverage their network ties to obtain rare resources. Zhang et al., (2018). Penrose (1959), for instance, was one of the first scholars to recognise the importance of resources, arguing that a firm is made up of a collection of productive resources whose growth is determined by how those resources are deployed. Scholars have emphasised the importance of resources in exploiting opportunities in markets (Tseng et al., 2007; Kaleka, 2012).

Most studies on innovation and performance of manufacturing firms, which are well documented in the literature, have been carried out in advanced countries, with a dearth of studies in developing countries (Gunday et al., 2011). In addition, many of these studies have been biased due to the neglect of other variables, such as network ties. It is therefore imperative to conduct a study of this nature by introducing such variables to reflect the true findings and generalizability of the concepts. Within this framework, this present study on the innovation-performance nexus is carried out using manufacturing firms within the Ghanaian economy.

1.2 Problem Statement

Most researchers worldwide have studied the concept of innovation extensively. Mention should be made of previous studies linking the concept of innovation to business performance (Gunday et al., 2011; Atalay et al., 2013; Bucktowar et al., 2015; Data et al., 2018; Guerrero-Villegas et al., 2018; Bustinza et al., 2019; Ramadani et al., 2019; Suebsook and Chaveesuk, 2020; Kefetzopoulos et al., 2019; Corral et al., 2019). Studies done on the concept of innovation and firm performance have reported two outcomes: a significant relationship (Kiss et al., 2022; Lee et al., 2019; Li, 2021); and no significant relationship (Phan, 2019). With these outcomes, it can be said that studies on innovation and firm performance are inconclusive.

Amidst these findings, there is the possibility that other essential variables have been neglected. These might have resulted in different findings reported by various scholars on the phenomenon under study (Suebsook and Chaveesuk, 2020). In this study, the researcher argued that when firms are innovative, they need to strengthen their network ties to be able to perform in this turbulent environment. In addition, there are several studies that have analysed the moderating role of network ties in the innovation-performance nexus.

Also, most studies carried out on innovation and business performance have been carried out outside Ghana. Basically, most of such studies have been carried out in advanced countries (Guerrero-Villegas et al., 2018; Zhang et al., 2019; Turuila and Bajjgoric, 2019; Moretti and Biancardi, 2020; Breier et al., 2021; Lu et al., 2022; Kiss et al., 2022). Generalising the findings from such studies to the context of Ghana might be problematic since differences exist with respect to the new ways companies create products and solve problems.

Most studies carried out on innovation and firm performance have concentrated mostly on SMEs (Saunila, 2020; Suwaidi et al., 2020; Adam and Alarifi, 2021). Others have also concentrated on the banking sector (Yusheng and Ibrahim, 2019; Lee et al., 2019), while other studies have been carried out in the hospitality sector (Breier et al., 2021) and automobile sector (Atalay et al., 2013; Suebsook and Chaveesuk, 2020). Looking at the importance of the manufacturing sector to the economy of Ghana, it becomes imperative to conduct a study of this nature within that sector. Centrally, the purpose of this study was to assess the moderating role of network ties in the relationship between innovation and the performance of manufacturing firms.

1.3 Objectives of the Study

The main objective of the study is to analyse the effect of innovation on the performance of manufacturing firms. Specifically, the study seeks to achieve the following objectives:

1. To examine the effect of innovation on performance of manufacturing firms in Ghana.
2. To analyse the effect of network ties on performance of manufacturing firms in Ghana.
3. To assess the moderating role of network ties on the relationship between innovation and the performance of manufacturing firms in Ghana.

1.4 Research Questions

The study seeks to answer the following questions;

1. What is the effect of innovation on performance of manufacturing firms in Ghana?
2. What is the effect of network ties on performance of manufacturing firms in Ghana?
3. Do network ties moderate the relationship between innovation and performance of manufacturing firms in Ghana?

1.5 Significance of the Study

The main purpose of the study is to examine the role of network ties in innovation and the performance of manufacturing companies in Ghana. Specifically, findings from this study would have relevance for both practitioners and academicians as to a better understanding of how innovation impacts the performance of manufacturing companies in Ghana. That is, due to the turbulent business environment, innovation has recently gained increasing attention from both practitioners and the academic profession.

First and foremost, this empirical study contributes to both theory and practice by closely analysing how innovation dimensions influence firm performance, especially in the manufacturing sector of Ghana. After carefully reviewing the literature, this current study is the only empirical study that analyses the role of network ties in the innovation-performance nexus in Ghana. Thus, investigating how network ties moderate innovation and performance relationships may be beneficial for both firms and policymakers.

Similarly, it is expected to contribute to senior management focusing on innovation reforms. This study intends to pave the way for research in the Ghanaian manufacturing industry. The study also represents one of the few studies that account for the role of network ties in the innovation-performance nexus in the manufacturing industry.

1.6 Scope of the Study

The study covers innovation, network ties, and firm performance. The study will be conducted in Ghana. Data were gathered from manufacturing firms within the Kumasi metropolis in the Ashanti Region of Ghana. The Kumasi metropolis was chosen due to its geographical proximity and because it has major industrial locations within the metropolis.

1.7 Limitations of the Study

This study is limited by the inability of the researcher to choose a large sample size as a result of the dispersed nature of manufacturing firms within the chosen metropolis. The sample size of 120 manufacturing firms is not ideal, and the researchers admit that the chosen sample size could impact the findings and the generalizability of the results. In addition, during the data collection, getting access to some manufacturing firms was difficult.

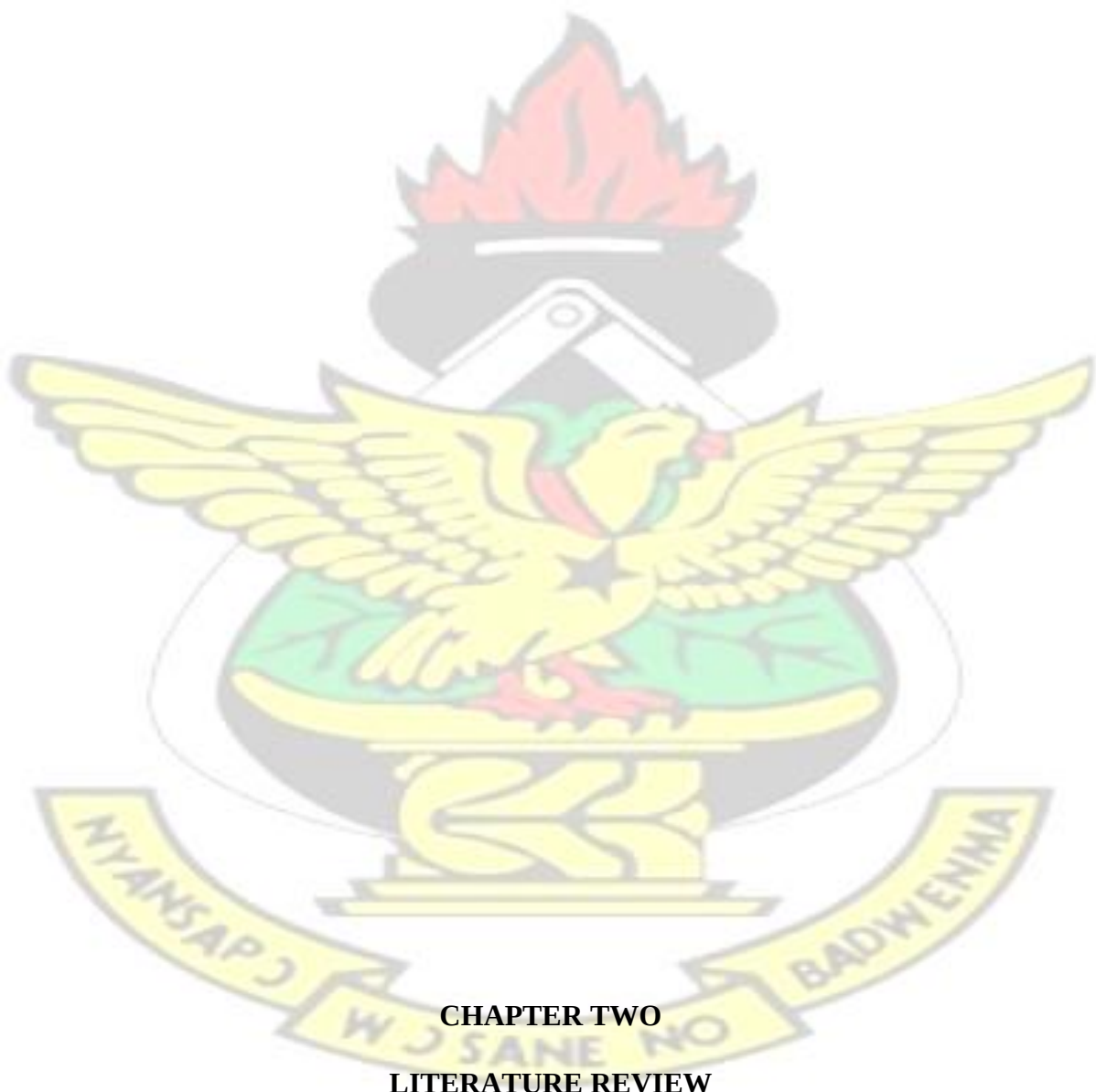
1.8 Overview of Methodology

This research is an explanatory and descriptive study that seeks to assess the role of network ties in the innovation-performance nexus. Model development and testing of the study explores the relationship between three constructs: innovation, network ties, and firm performance. This study focuses on manufacturing firms that have adopted innovation in their operations. The explanatory study design would enable the researcher to explain the relationship among innovation, network ties, and firm performance. In this study, innovation, network ties, and firm performance represent independent, moderating, and dependent variables, respectively. This study made use of primary data from questionnaires distributed to the selected respondents using a convenient sampling technique. The study employed the multiple regression technique to assess the relationships among the variables. Pearson correlation was employed to assess the presence of multicollinearity among the predictive variables.

1.9 Organisation of the Study

This study is organised into five chapters. The first chapter presents the study's background, problem statement, methodology, and the essence of conducting this study, among others. Chapter two presents the review of literature and explores the concepts under study as well as the review of literature on the theories guiding the study. It further presents the conceptual

framework guiding the study. Chapter three presents the study's methodology. It explains the study's approach and research design, population and sample size, as well as the data analysis techniques, among others. Chapter four presents the data and analyses the results thereof. The final chapter presents the conclusion, summarises the key findings, and makes recommendations to appropriate stakeholders.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this chapter, the researcher presents a literature review on the topic “moderating role of network ties on the relationship between innovation and business performance”. The chapter

is presented in four sections. Section 2.1 presents the conceptual review; Section 2.2 presents the theoretical review; and Section 2.3 presents the empirical review. In addition, Section 2.4 presents the empirical review and hypothesis formulation.

2.1 Conceptual Review

In this section, the researcher presents the conceptual review of the study. The review covers major concepts such as innovation, network ties, and firm performance.

2.1.1 Innovation

At various levels of firms, innovation has become a key and significant variable that many organisations have adopted to enhance their performance. Many authors have approached the term innovation from different angles. Following Vyas (2009), innovation is seen as a driving force for development. The researcher proposed five facets of innovation, which include the creation of new products, the use of a new industrial process, the introduction of new markets, the development of new raw materials, and new forms of industrial organisation. Innovation, as defined by the OECD (2005), is the implementation of new ideas meant for the improvement of products, processes, and marketing techniques. On the other hand, Hurley and Hult (2008) defined innovation as an aspect of an organisational culture geared towards the development of new ideas. According to Gunday et al. (2011), globalisation has triggered many firms to be competitive and become innovative in their business operations to enhance performance. As revealed by Humpheys et al. (2015), firms align the adoption of innovations into their strategy as a way of competing, surviving, and creating niche markets. Innovation as a multi-faceted concept covers technological, organisational, financial, as well as commercial activities, and as such, it is critical for the success of a firm.

2.1.2 Network Ties

Network ties have been categorized in a number of different ways in the literature. While Zhang et al. (2015) distinguish between economic and political ties, Kontinen and Ojala (2011) make a distinction between official, informal, and intermediary ties. Through knowledge obtained from other firms which enable firms to understand the kind of product and services, or process of innovation, it is advisable for firms to develop network ties for domestic and international markets. Companies actively engage with outside parties (customers, government agencies, and other enterprises) in order to absorb knowledge and produce innovation (Galati et al., 2019). The knowledge exchange that results from the development of networks helps businesses over time become more innovative, though Belso-Martinez and Diez-Vial (2018) contend that activities aimed at establishing global connections or absorptive capacity have a negative moderating effect on the effect of network growth on innovation. In reality, Conto' et al. (2014) investigate the networking potentialities of cross-border cooperation and highlight the advantages at both the level of the specific winery and the larger regional economy, with network collaboration involving both businesses and institutions.

2.1.3 Firm Performance

According to Ho et al. (2021), performance of firms can be measured using proxies such as return on asset, sales margin, return on equity, earnings per share, among others. Organizational performance should be judged in terms of financial and operational efficiency (Venkatraman and Ramanujam, 2018). It is critical for a company to achieve goals, targets, and objectives that lead to improved business performance (Van Der Hoek et al., 2018). Performance is measured not only from a financial standpoint, but also from a non-financial standpoint, such as the customer's perspective, internal business procedures, learning, and growth (Kaplan & Norton, 2004). This study measured the performance of firms using proxies such as market

share, ROA, ROE, and sales margin, among others. The concept of financial performance addresses all the attributes or conditions that demonstrates how efficient or effective the firm has been in the exploitation of its resources to offer goods and services to the market (Rajesh et al., 2011). Commonly used financial performance measures in the literature include the ROE, ROA) and ROI. In this study, firm performance is measured using a measurement instrument adopted from Rehman et al. (2020).

2.1.4 Manufacturing Sector in Ghana

In Ghana, many manufacturing companies are subsidiaries of global companies. With the present government flagship initiative of one district, one factory, it is expected that most districts will be densely populated with industrial companies (Adu-Gyamfi et al., 2020). According to the Association of Ghana Industries (2013), poor performance is due to competition, ongoing technological problems, poor power stability, and high business costs. These issues in the manufacturing sector have led to the closure of many businesses in the industry, such as when the country was beset by significant power outages between 2014 and 2016, which impacted most manufacturing businesses.

Between 2003 and 2013, the manufacturing sector grew by 3.3 percent, whereas other industrial sectors such as mining, water production, and construction grew by 9.1% on average (Davies & Karr, 2015). Manufacturing's proportional contribution to GDP has decreased from around 10% in 1990 to 6.9% in 2013. According to Davies and Karr (2015), the majority of this drop occurred after 2007. However, the manufacturing sector increased at a rate of 9.5% in 2017, up from 7.9% in 2016 and 3.7% in 2015 (Adu-Gyamfi et al., 2020). This reflects the country's rising industrial potential. However, because the electricity supply is dependable, most manufacturing enterprises in Ghana are increasing their output.

The importance of manufacturing firms to the economy of Ghana is immense as they contribute to the Gross domestic product (GDP) of the country, employment creation, and also provides raw materials to feed our industries. They contribute to the country's revenue mobilization through the payment of corporate taxes. Their activities are vital to individuals, other organisations and the economy in general. Notwithstanding these benefits to the economy of Ghana, the manufacturing sector of Ghana is saddled with so many challenges that derail their progress. These challenges include the high cost of production, less support from the government, low managerial skills, lack of access to credit for expansion, inadequate infrastructure, high taxes as well as stiff global competition (Adu-Gyamfi et al., 2020).

2.2 Theoretical Review

In this section, the researcher presents the major theories guiding the study of innovation, network ties and business performance. This study is premised on resource-based view and social network theory. The researcher explains these two theories and their relevance to the conduct of this study.

2.2.1 Resource-Based View

Barney (1991) put forward that resource-based view consist of all tangible and intangible human and non-human assets that helps to add value to the organizational products and services. In accordance with the market needs and resources available, decisions are taking by management that shapes the RBV of the firm in the long run (Melnyk et al., 2009). According to the RBV, these resources are divided into physical, human, organizational technological, financial, as well as reputational (Filho and Moon, 2020). The physical resources of the organization include equipment, location and production scale (Barney, 1991). Human resource includes the social and human capital involving knowledge, skills, and ability acquired through training, education and experience (Fink and Neumann, 2009).

Organizational resources on the other hand include the management of IT, marketing, quality as well as organizational culture, among other. Technological resource of the firm encompasses innovation, patent, investment in IT and others (Fink and Neumann, 2009). Financial resource of the firm takes care of the capital, budget and financing nature of the firm.

RBV consists of all organizational assets, abilities, competencies, processes in organizational operations, knowledge and information, controlled by the organization (Dosi et al., 2000). When these resources are not well managed or combined during operations, innovation becomes a challenge. For instance, if management fail to the scares resources at their disposal to produce goods and services that will add value to the firm, they will usually be overtaken by their competitors in the market. Firms must rely on their innovative ideas to some extent to exploit their resources in a manner that will spell well with the current market conditions they find themselves in (Wang et al., 2020). When innovative firms are able to network and make prudent use of the scares resources at their disposal, Rass et al. (2016) revealed that such firms will usually enjoy some level of competitive advantage.

2.2.2 Social Network Theory

Firms are able to network in a variety of ways, including through social alliances with the community, family, and friends. By joining business and trade associations, manufacturing companies can also network with organizations in the same or related industry. These later alliances can be categorized as strategic since companies join them in part to obtain tactical knowledge about the competitive environment that could improve performance (Liu et al., 2022). The understanding of the social capital theory is premised on social ties, interaction, trust, as well as reciprocity. Scholars such as Putman (2020) drew attention to the role of social relationship which collectively supports an action. According to Bjornskov and Sonderskov (2013), firms are able to build trusted relationships and network through their interaction with

suppliers, competitors, customers, community and other associations which provides an opportunity for a relationship for mutual their benefits. As such, firms are able to learn, acquire knowledge and share information with one another through their social network ties with others. According to Bandura (2008), since organization is an open system, they need to build network with others to get their raw materials and innovative ideas and to market for their products. Due to globalizations, firms that network will be able to break through barriers to acquire high market share to enhance their performance (Huang et al., 2012).

2.3 Empirical Review

In this section of the study, the researcher presents the empirical review on the phenomenon under study. The empirical review of literature has been done based on studies from both developed and developing countries.

2.3.1 Studies on Innovation and Business Performance from Developed Countries

Studies on innovation and business performance have been carried out extensively in developed countries to determine their connectivity. Various scholars have reported different findings on their linkages. Among such studies, Bigliardi et al. (2020) sampled 324 firms in USA to study open innovation and performance of firms within the manufacturing sector. In their study, the researchers regressed inbound and outbound innovation on performance. The results of the study after the OLS regression analysis revealed that both inbound and outbound innovation impact positively on firm performance.

Rass et al. (2013) utilized the SEM-PLS to analyse the mediating role of social capital on open innovation and firm performance nexus. Drawing on the social capital theory, this study assesses the role of social relation on open innovation setting. The study results following the regression analysis revealed a positive impact of innovation on performance. The study also

confirmed that social capital has a direct impact on firm performance. In addition, the study revealed that social capital mediate innovation-performance nexus. In addition, Wang et al. (2020) employed survey data from semiconductor and pharmaceutical companies in China to study innovation, relational ties and performance. The study employed the SEM technique to test the hypothesis. The study after running the multiple regression test revealed that innovation play a partial mediating role on relational ties-performance nexus. In addition, the study found that business and political ties bring about value addition firms which in turn enhance competitive advantage in innovation.

Dato et al. (2018) also sampled 100 small firms and utilised primary data via questionnaires to study innovation and firm performance from the perspective of social capital. After running the multiple regression analysis, findings of the study revealed that social capital provides small firms with innovation support which in turn enhance firm performance. Also, Huang et al. (2012) drew data from 222 founders of start-up firms in China to study the role of resource on business networks, start-up innovation and firm performance. To test for the hypothesis formulated, the study employed SEM technique. The results of the regression model revealed that network ties mediate innovation-performance nexus. The study also revealed that network ties also mediate founders' human capital and innovation nexus.

Kiss et al. (2022) utilised primary data from questionnaire to study CEO proactiveness, innovation and firm performance. The study highlighted that CEO proactiveness is manifested in 3 facets: problem solving, feedback-seeking behaviour as well as network building. The study revealed that CEO proactiveness exerts an influence on innovation, which in turn impact positively on firm performance. The study also revealed that a positive and significant relationship among CEO proactiveness, innovation and firm performance. This study therefore extends future research on strategic leadership, innovation and performance. In addition, Wang

et al. (2018) sampled 297 local manufacturing firms in China to assess network ties on firm innovation performance. The study utilised the path analysis to test for the hypothesis. Using the SEM approach, the study found network ties exert a positive influence on innovation performance of firms. The study also found that global network ties enhance innovation performance through absorptive capacity. The study also revealed that the asymmetric effects are been caused by knowledge heterogeneity.

Qiao et al. (2014) utilised panel data from SMEs quoted on Shenzhen Stock Exchange with data spanning from 2007 to 2011 to study innovation, networks and firm performance in China. The results of the study were analysed using the fixed effect model. The study results revealed a positive impact between R & D and innovation at SMEs. The study also found that network ties improve innovation of SMEs in China. Also, the study confirmed the direct link between innovation and performance. Lastly, the study also revealed that network ties moderate innovation-performance nexus.

Montresor and Vezzani (2017) sampled more than 1200 European firms from the EC innobarometer survey to study innovation, design and performance of firms in Europe. The econometric model of their study utilised the fixed effect model for the analysis. The study results revealed that investments made in designs do not trigger firms to introduce innovation to impact on their performance. The study also found that higher innovativeness is linked to non-systematic resort to design. Similarly, Atalay et al. (2013) sampled 113 top level managers operating in automobile industry to study the nexus between innovation and firm performance. The data was obtained through questionnaire, coded in SPSS, and analyse quantitatively using various descriptive and inferential statistical tools. The results from the analysis demonstrated that innovation and firm performance has positive and significant relationship. However, the

study found no significant relationship between non-technological innovation-performance nexus.

2.3.2 Studies on Innovation and Business Performance from Developing Countries

Studies on innovation and business performance have been carried out extensively in developing countries to determine their connectivity. Various scholars have reported different findings on their linkages. Among such studies, Jugend et al. (2018) utilised data from different manufacturing firms in Brazil to study open innovation, innovative performance, firm size and government support. The result of the study revealed that innovative performance of products is enhanced considering government support for innovation. The results of the study also revealed that the level of innovative performance of a manufacturing firm depends on the size of the firm to an extent. In terms of methodological contribution, this study is the first of its kind to test different levels of radicalism in innovation,

Younas and Rehman (2021) utilised innovation follow-up survey carried out in 2015 by the World Bank for the economy of Pakistan to study innovation and firm performance among manufacturing firms within the capital of Pakistan. The results of the study revealed that firm performance is been enhanced by product and process innovation. The study also revealed that research and development have a direct link with innovation output. The study also found no significant link between marketing innovation and firm performance. Also, Prifti and Alimehmeti (2017) sampled 99 manufacturing firms operating in Albania to study innovation, market orientation and firm performance. The study was analysed quantitatively and the hypotheses formulated were tested using SEM-PLS technique. The study confirmed extant literature that have revealed a direct link between innovation and firm performance. The study also revealed that market orientation moderate innovation-performance nexus.

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Zainurossalamia et al. (2016) also employed 164 respondents who are managers of manufacturing SMEs in Indonesia to study innovation, firm performance and competitive advantage. The data was collected through online questionnaire, coded and imported into SPSS and analysed using various descriptive and inferential statistics. The results of the study revealed a direct impact of innovation on competitive advantage. The study results also revealed innovation as a strategic management tool has the power to make better products to enhance the performance of manufacturing SMEs in Indonesia. Also, Shaukat et al. (2013) sampled 150 respondents and utilised questionnaires to collect data to assess innovation and performance of manufacturing firms in Pakistan. The analytical techniques of the study include regression, correlation as well as CFA and EFA. The innovation variables analysed in this study include product, process, marketing and organizational. The study brought to light that innovation variables impact on firm performance positively. The study recommends that firms invest high in R & D and innovation to enhance firm performance.

Salim and Sulaiman (2011) collected data via electronic survey from 115 SMEs in Malaysia to study innovation and firm performance. The study was conducted at firm-level using 115 ICT firms in Malaysia capital. The results of the study found that business innovation impact significantly on the performance of ICT firms in Malaysia. The study therefore recommends to ICT firms in Malaysia to adopt innovation in their operation to enhance their performance. In addition, Ismanu and Kusmintarti (2019) sampled 84 respondents from selected manufacturing SMEs in Indonesia to study innovation and firm performance. The data was collected through online questionnaire survey with hypotheses of the study tested using path analysis. The results from the regression analysis revealed that innovation still remains a strategic management tool employ to enhance the performance of firms. The study therefore recommends that companies in Indonesia should continue to rely on innovation as a strategy to boost their performance.

Hoang and Ngoc (2019) sample 374 electronic firms in Vietnam to analyse innovation capacity and firm performance. The study performed various tests including EFA, CFA, Cronbach's alpha and regression analysis using the SEM-PLS technique. The study found that institutional factors, marketing factors as well as attitude of leadership have direct impact on performance of firms under study. The study therefore recommends to management of businesses to consult and introduce effective support policies. In addition, Mugogo (2020) sampled 89 firms in Zimbabwe that have adopted innovation in their operations to study innovation and performance using manufacturing SMEs. The study utilised both primary and secondary data. The study utilised various descriptive and inferential statistical tools to analyse the data. It was found from the analysis that process innovation correlates positively with product innovation. The study also revealed that product innovation improves revenue performance of manufacturing SMEs in Zimbabwe.

Chandrashekar et al. (2019) drew data from 101 manufacturing companies in India to study innovation and firm performance. The study employed stratified random sampling, descriptive and explanatory study design to achieve the aim of the study. To analyse the impact of firm-level innovation on performance, the study utilised the fuzzy-set qualitative comparative analysis. The findings of the study revealed no significant effect of innovation on performance. The study also found that variables which include firm size, firm age and nature of firm moderate innovation-performance nexus. Also, Asunka et al. (2020) utilised 8551 firms in sub-Saharan African countries between 2014 and 2016 to study the role of trade liberalization on innovation-performance nexus. The study utilised OLS regression technique to test for the relationships among the variables employed. The study found that the relationship between foreign technology and domestic R & D is positive and significant. The study also found a negative impact of import on domestic R & D. the study also found a positive relationship on innovation-performance nexus. The study also found trade liberalization to moderate innovation-performance nexus.

Tuan et al. (2016) utilised primary data from questionnaire to collect data from 150 respondents of selected industries in Vietnam to study innovation and firm performance. The study performed various tests including reliability, regression analysis as well as factor analysis. The study results revealed positive and significant effect on innovation-performance nexus. The study also revealed a direct impact of process, marketing and organizational innovation on innovative performance. In addition, Gunday et al. (2011) sampled 184 manufacturing firms in Turkey using the stratified random sampling to study innovation on firm performance. The innovation variables explored in this study include process, product and marketing. The study found a significant and positive relationship on innovation-performance nexus among the selected manufacturing firms.

Ndemezo and Kayitana (2020) employed 56 manufacturing firms in Rwanda to study innovation and firm performance. The data of their study was retrieved from a survey conducted in Rwanda by the World Bank in 2006. Their study was carried out at a firm-level. Drawing on the structural multistage framework, the results of their study revealed that there is a connection between product and process innovation. The study also revealed that innovation output is linked to the use of technology in manufacturing firms.

2.4 Conceptual Framework and Hypothesis Formulation

In this section of the study, the researcher presents the conceptual framework model as well as the hypotheses formulated for the study after review of literature.

2.4.1 Hypotheses Formulation

This section presents the hypothesis formulation of the study after literature review.

2.4.1.1 Innovation and Firm Performance

Innovation is crucial to the success, survival and development of new products. In terms of product innovation and manufacturing process, an organization that is capable of generating new information and combining it with current knowledge through various ways is expected to perform effectively (Tuan et al., 2016). Firms who are innovative are able to come out with new ideas to help many facets of their organization such as their products, marketing, process as well as their organizational. Many studies that have established a positive relationship between innovation and performance argued that innovation brings about new ideas of doing things at the workplace to stay ahead of competitors. Notable among such studies are Chandrashekar et al. (2019), Asunka et al. (2020; Funday et al. (2011); Bigliardi et al. (2020). Following Ataley

et al. (2013), firms that are more innovation are able to respond to turbulent business environment and to compete successfully with their major competitors. Such firms are in a position to respond to both internal and external factors that impact on their operations better than their other firms in the same industry who are not innovative enough. Based on this argument, the study hypothesized that:

H1: innovation has a significant positive impact on firm performance

2.4.1.2 Network Ties and Firm Performance

No firms can operate successfully without proper network that will expose their business to other organizations across the globe. Network ties is one essential variable management of organization have adopted and began to build as a well of given a new face look to their company (Huang et al., 2012). Studies such as Qiao et al. (2014) and Huang et al. (2012) revealed that when firms build their network with other firms and agencies, they are able to operate in a large scale, gain competitive advantage and as well enter different market to operate as a result of globalization. The key revelation from these studies is that firm network ties contain valuable information which provides the firm with strategic advantage. Firms that build proper network are able to utilize their scarce resources to inure to their benefits. Based on this argument, the study hypothesized that:

H21: network ties have a significant positive impact on firm performance

2.4.1.3 Moderating role of Network Ties

Studies done on the concept of innovation and firm performance have reported two outcomes; significant relationship (Kiss et al., 2022; Lee et al., 2019; Li, 2021); no significant relationship (Phan, 2019). With these outcomes, it can be said that studies on innovation and firm performance is inconclusive. As noted by Baron and Kenny, such inconsistencies in previous

studies call for the introduction of either a mediating or moderating variable since there can be an omission of an important variable. In this study, the researcher argued that when firms build network ties, they are exposed to much knowledge and new ways of doing things which in turn enhance their performance. Qiao et al. (2014) in their study confirmed the moderating role of association network in innovation-performance link. To expand and sustain in turbulent environment, network ties is a strategic management tool firms need to build. Consequently, this study hypothesized that:

H3: Network ties moderate innovation-performance nexus

2.4.2 Conceptual Framework

In this section of the study, the conceptual framework model depicting the independent, dependent, moderating and control variables are presented diagrammatically in Figure 2.1. Basically, innovation, firm performance and network ties represents the independent, dependent and moderating variables of the study respectively. The variables used as control include firm age, firm size, number of employees as well as ownership structure. Hypothesis were developed after review of literature that needs to be tested. Figure 2.1 presents the framework model guiding the study.

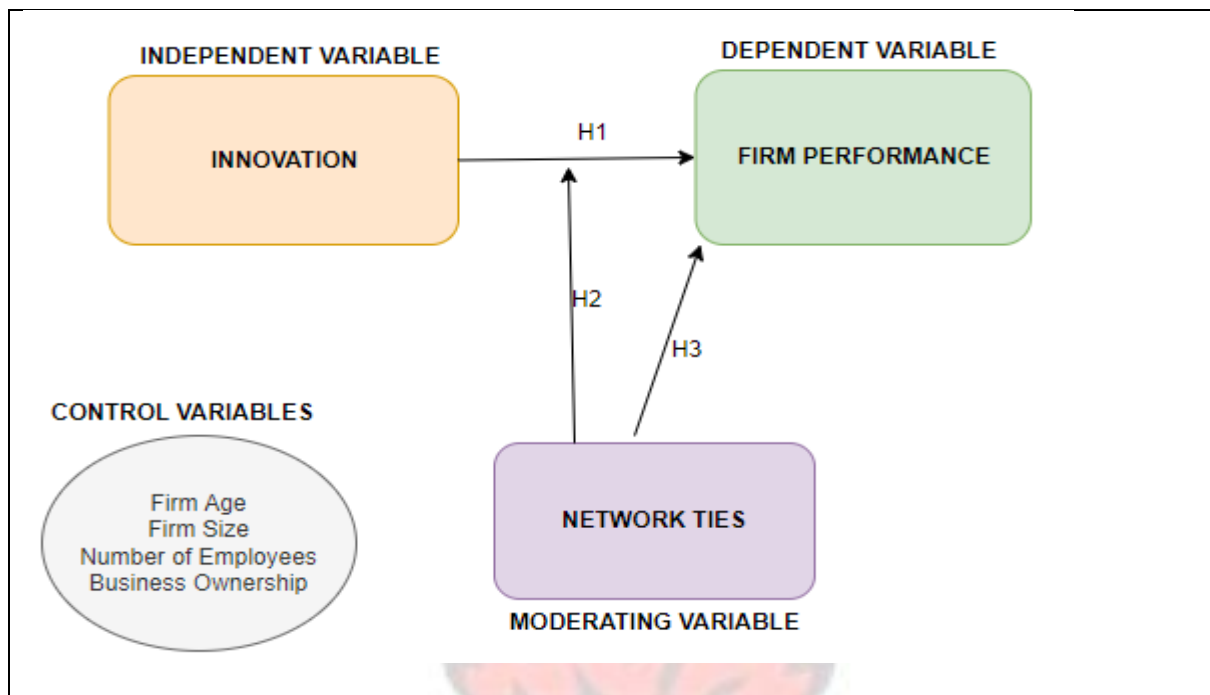
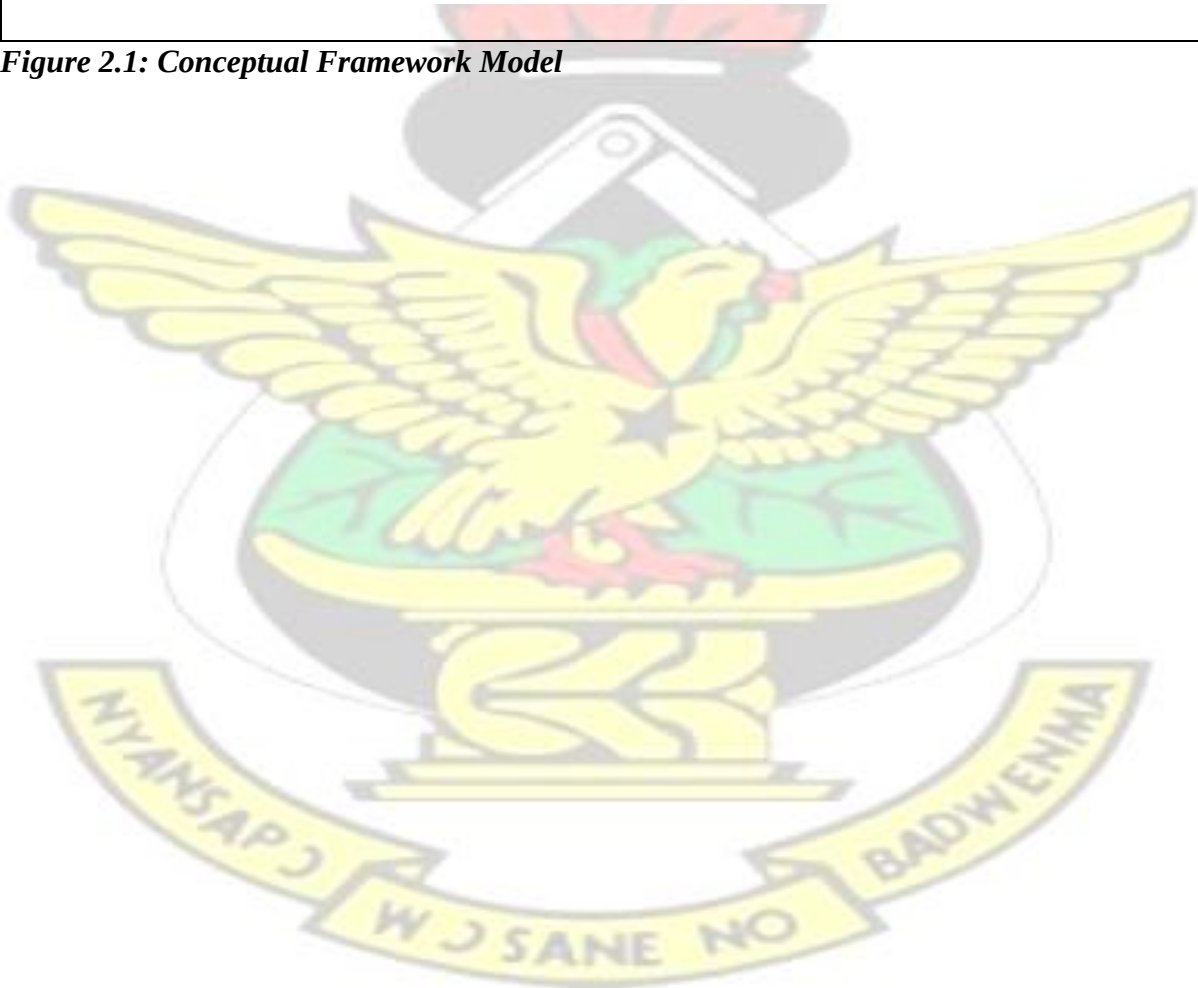


Figure 2.1: Conceptual Framework Model



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the methodology followed by the researcher to assess the role of network ties in the relationship between innovation and the performance of manufacturing firms in Ghana. The chapter expounds on the research philosophy, research approach, research setting, research design, population, sample and sampling technique, data collection tool, and data analysis method. In addition, the chapter discusses the ethical issues pertaining to the conduct of this study.

3.2 Research Philosophy

Saunders et al. (2007) view on research philosophy is concerned with questions on a specific view of the association between knowledge development and the nature of that knowledge. Three assumptions are known in social science studies. These assumptions are epistemology, ontology and axiology (Punch, 2014). Epistemology, according to Crotty (2003) is concerned with the way of expatiating and explaining how individuals know what we know, and thus, describes the process of uncovering reality. Social science researchers tend to argue from a number of perspectives such as positivism, interpretivism, realism and pragmatism in the process of uncovering reality.

The belief of positivism is premised on the assumption that there is a single reality which can be measured and known, and thus more likely to adopt qualitative study approach (Gill and Johnson, 2002). On the other hand, realism relies on the idea of independence of reality from the minds of individuals. Its assumption is based on using scientific approach to formulate knowledge. Pragmatism is premised on the assumption that reality is constantly debated and interpreted, and as such, the best approach to adopt is the one that has remedy to the

phenomenon under study. The argument put forward by the assumption of interpretivism is that it is crucial for a researcher to have a thorough understanding of individual differences. This study being quantitative in nature employs positivism to gain insight into the phenomenon under study.

3.3 Research Design

The research design of a study can be classified as exploratory, explanatory, or descriptive (Saunders et al., 2017). The research design a researcher will choose for a study depends on the nature and objectives of the study. While descriptive study design seeks to describe a phenomenon under study, exploratory design is adopted for studies where not much information can be obtained or where limited studies have been carried out. An explanatory study approach was used to analyse the phenomenon under investigation. The researcher adopted the explanatory study design to enable the explanation of the relationship between the variables. The explanatory study design would enable the researcher to utilise research tools to explain and analyse the relationship among innovation, firm performance, and network ties.

3.4 Research Approach

The research approach to social science studies can either be quantitative, qualitative or a mixed study approach (Yin, 2013). The research approach that underpins this study is the quantitative approach. This study indeed calls for a quantitative approach looking at the nature of the phenomenon under investigation. The quantitative make use of numeric numbers and statistical tools to draw analyse a study and draw conclusions from it. The qualitative study place emphasis on process and meanings. According to Creswell (2009), the qualitative study approach usually relies on non-numerical dataset, interviews and observations. The quantitative study approach would enable the researcher to utilize numbers and statistical tools

to analyse the role of network ties on the relationship between innovation and performance of manufacturing firms.

3.5 Population of the Study

Following Creswell and Creswell (2017), a study population is the entire unit of observation from which samples can be drawn for a study. In this study, the population is manufacturing firms within Kumasi metropolis of the Ashanti Region. This study therefore has a total population of 850 manufacturing companies within the Kumasi Metropolis of the Ashanti Region.

3.6 Sample and Sampling Technique

The researcher cannot utilise the entire population of the study; hence, a sample needs to be chosen. When choosing a sample size for a study, Singh (2006) advised a large sample size to be selected. The sample size for this study involves 120 manufacturing firms within the Kumasi metropolis. The process of selecting respondents to partake in a study is called sampling. Sampling techniques for a social science study include convenience, snowball, and purposive sampling. This study made use of convenience sampling techniques to reach the 120 respondents within the selected manufacturing companies to partake in the study.

3.7 Source of Data

Data for a study can be obtained from primary or secondary source. The main data source for this study is primary as it made use of structured questionnaire to gather data to achieve the objectives of this study. In addition, secondary data were also sourced from scholars' journals, documents, magazines, and books to comprehend the subject matter under study.

3.8 Data Collection tool

The measuring instrument used in the study was developed from the literature. As the primary tool for measurement, a questionnaire was introduced. While testing the elements of the questionnaire, the researcher conducted a pilot test. The degree to which a participant agrees or disagrees with each element in the model was measured using a five-point Likert scale. Where 1= strongly disagree, 2= disagree, 3=neutral, 4=agree and 5= strongly agree. All of the structures and their associated objects were adapted from literature. The questionnaire is structured into 2 parts. The first part covers the demographic background of the responding firms. The second aspect is sub-ground into three parts and covers innovation, network ties and firm performance.

3.9 Data Analysis

The ability to break down data and clarify the nature of the component pieces and their relationships is known as data analysis (Saunders et al., 2017). SPSS version 21 was used to code and analyse the data. In order to analyse the data, an exclusively quantitative technique was used. Both descriptive and inferential statistics were used to analyse the data. The multiple regression technique was utilised to assess the relationships among innovation, network ties, and firm performance. To test for mediation effects, regression analysis was used. A correlation matrix was employed to test for the presence of multicollinearity amongst the predictive variables of the study.

3.10 Ethical Consideration

The ethical issues considered in the conduct of this study include informed consent, anonymity, and confidentiality of the responses. First of all, the researcher took an introductory letter from the Marketing and Corporate Strategy Department to gain access to restricted institution and

as well command the confidence of the participants. All participants were duly informed and were allowed to participate in the study at their free will. The data collection took place after permission granted by these respondents. No respondent was coerced to partake in the gathering of the data. The researcher ensure anonymity by making no provision for the respondents to give their names, address and contacts. Confidentiality of the data were ensured when the researcher restricted any third party from gaining access to the data gathers. Besides, the data were not doctored and were also used for the intended academic purpose. The right safety Covid-19 protocols were duly observed in the field during the data collection process.

3.11 Research Setting

Kumasi Metropolis has about 1,730,249 residents, which represents 36.2 percent of the total residents of Ashanti Region, according to the 2010 Population and Housing Census. Kumasi provides the avenue for marketing this produce to traders, not only from other parts of Ghana but also from the West African sub-region. The Kumasi Metropolis has an extensive range of infrastructure that provides social services to its residents. As Kumasi is one of the largest cities in Ghana and also the capital of Ashanti Region, it is expected to be well advanced in infrastructural development, but according to the Human Development Index (2018), Ashanti Region ranks 3rd in terms of medium human development in Ghana with a score of 0.608. Considering the size and population of Kumasi and the region at large, it should be higher, but it is not so due to developmental challenges. The metropolis boasts Menhyia Palace and Komfo Anokye Teaching Hospital, two of the biggest hospitals in Ghana. Over the years, Kumasi has had its 'fair' share of abandoned projects under various governments. Tracking the progress of projects across years is challenging since many projects do not have commencement dates reported (Williams, 2017).

CHAPTER FOUR

PRESENTATION OF DATA AND ANALYSIS OF FINDINGS

4.0 Introduction

This chapter basically presents the data and analyses the findings of the study. To achieve the aim of assessing the role of network ties in the relationship between innovation and firm performance, both inferential and descriptive statistics were utilised. In this chapter, the researcher presents the descriptive statistics of the constructs, correlation analysis, validity and reliability tests, as well as the regression analysis model. Specifically, the multiple regression technique was used for the study. To assess the relationships among network ties, innovation, and firm performance, the OLS regression was utilised. The chapter also discussed the findings to confirm or contradict existing literature.

4.1 Response Rate

The sample size of the study involves 120 manufacturing firms within the Ashanti Region of Ghana. Out of the 120, 112 partook and responded to the questionnaire. Hence, the study's response rate is 93.33%.

4.2 Background Data of Firms under Study

This section of the study presents the background information of the firms that engaged in the study. The background information assessed includes firm age, firm size, number of employees, and annual income level. Frequencies and percentages are used to analyse the background data of the responding firms. Table 4.1 presents the background data of the responding manufacturing firms.

Table 4.1 Background Data of the Responding Firms

Variables	Factors	Frequency	%
Firm Operating Years	Up to 9	13	11.6
	10-20	47	42.0
	21-50	50	44.6
	Above 50 years	2	1.80
Annual Income level	Up to GHS50,000	-	-
	GH50,001-GHS1,000,000	91	81.3
	GHS1,000,001-GHS10,000,000	21	18.8
	Above GHS10,000,000	-	-
Number of employees	Up to 10	23	20.5
	11-50	76	67.9
	51-100	12	11.6
	Above 100	-	-
Size of organization	Small	41	36.6
	Medium	21	21.2
	Large	50	42.0

Source: Field Survey (2023)

4.2.1 Firm Operating Years

This section of the study assesses the years the manufacturing firms under study had been in operation. From Table 4.1, it can be indicated that 13 (11.6%) of these firms have been in operation up to nine years. 47 (42.0%) have operated from 10-20 years. In addition, 50 (44.6%) and 2 (1.80%) have been in operation from above 21-50 and above years respectively.

4.2.2 Annual Income Level

With respect to the annual level of income of the firms under study, data from Table 4.1 revealed that 91 (81.3%) obtain annual level of income of GH50.001-GHS1,000,000. In addition, 21

(18.8%) of these manufacturing firms under study have an annual income level of GHS1,000,000 to GHS10,000,000.

4.2.3 Number of Employees

The researcher assessed the number of workers employed by these firms under study. Per available data, it was revealed that 23 (20.5%) have employed workers between up to 10, while 76 (67.9%) have employees numbering between 11-50. In addition, 12 (11.6%) have employees between 51-100.

4.2.4 Size of Organization

Manufacturing firms under study were grouped into small, medium and large. The researcher further attempts to analyse the size of the firms engaged in the study. The study revealed that 41 (36.6%) of these firms classified themselves under “small”, while 21 (21.2%) and 50 (42.0%) classified themselves under medium and large enterprises respectively.

4.3 Reliability Test

To measure the internal consistency of the constructs, the researcher employed the Cronbach’s alpha tests. As noted by Palant (2005), the averages of these constructs were taken to run the test. An alpha value of 0.7 is acceptable for a sound statistical analysis. After the averages were taken, all the 5 constructs were subjected to Cronbach’s alpha tests. From Table 4.2, it is indicated that all the constructs have a strong internal consistency.

Table 4.2: Construct Reliability Results

Construct	No. of items	Cronbach's alpha
Process	4	0.832
Product & Service	4	0.818
Business Network Ties	7	0.778
Political Network Ties	5	0.925
Firm Performance	5	0.769

Source: Field Survey (2023)

4.4 Validity Test

In order to check for validity, exploratory factor analysis (EFA) was used. Exploratory Factor Analysis (EFA) was run for dependent variables using the principal component analysis as the extraction method and the varimax criterion as the rotation method. (Cheng and Choy, 2007), and where appropriate, eliminate items that are not factorially pure (Weiss, 1970, cited in Cheng and Choy, 2007). The unidimensionality of each success factor is assessed by examining the factor loadings. Variables with factor loadings greater than 0.50 on the factor that they are hypothesised to load on are considered adequate variables for that factor. Therefore, factors loading below 0.50 were deleted.

The KMO statistic varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations (hence, factor analysis is likely to be inappropriate) (Field, 2005). A value close to 1 indicates that patterns of correlations are relatively compact, and so factor analysis should yield distinct and reliable factors. (Field, 2005). Hutcheson and Sofroniou (1999), as cited in Field (2005), indicated that values between 0.8 and 0.9 are great. From the analysis in Table 4.3 below, it can be observed that the conditions were met for the variables in the study.

Table 4.3: Validity Test Results

	Component				Extraction
	1	2	3	4	
PROCESS2				0.842	0.417
PROCESS3				0.761	0.728
PROCESS4				0.58	0.772
P&S6			0.797		0.706
P&S7			0.756		0.666
P&S8			0.852		0.785
BNT1		0.794			0.674
BNT2		0.697			0.693
BNT4		0.863			0.783
PNT1		0.868			0.805
PNT2		0.612			0.567
PNT3	0.706				0.665
PERF1	0.792				0.816
PERF3	0.847				0.773
PERF4	0.861				0.793
PERF5	0.669				0.614
PERF6	0.844				0.771
PERF7	0.799				0.648
Total	4.827	3.69	2.548	1.606	
% of Variance	26.819	20.499	14.154	8.921	
Cumulative %	26.819	47.318	61.472	70.393	
KMO and Bartlett's Test					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.779			
Bartlett's Test of Sphericity		Approx. Chi-Sq	1416.471		
		Df	153		
		Sig.	0		

Source: Field Study (2023)

4.5 Descriptive Statistics

This section of the study employed the mean, standard deviation, minimum and maximum to presents the descriptive results of the study. The descriptive statistical model was presented on all the five (5) constructs under study. These are presented in the next sub-sections.

4.5.1 Process

The first sub-construct of innovation got to do with business process. It measures the extent to which manufacturing firms are innovative in their process of business operations. The results on Table 4.4 revealed an overall construct mean of 4.31, which indicates that firms under study are innovative in their process of business operations (Mean>4.00).

Table 4.4 Descriptive Results on Process as Innovation Construct

Items	N	MIN	MAX	Mean	S.D.
PROCESS1	112	4	5	4.26	0.440
PROCESS2	112	4	5	4.43	0.497
PROCESS3	112	3	5	4.24	0.507
PROCESS4	112	3	5	4.29	0.548
Construct Mean				4.31	

Source: Field Study (2023)

4.5.2 Product and Services

The second sub-construct of innovation got to do with products and services. It measures the extent to which the firms under study are innovative in their product and services. As indicated in Table 4.6, the construct mean of 4.23 is an indication that the firms under study have adopted innovation practices in their products and services.

Table 4.5 Descriptive Results on Product and Service as Innovation Construct

Items	N	MIN	MAX	Mean	S.D.
PRODUCT & SERVICE 1	112	3	5	4.29	0.531
PRODUCT & SERVICE 2	112	4	5	4.44	0.498
PRODUCT & SERVICE 3	112	3	5	4.10	0.657

PRODUCT & SERVICE 4	112	3	5	4.08	0.686
Construct Mean				4.23	

Source: Field Study (2023)

4.5.3 Business Network Ties

The first sub-construct of network ties got to do with business network ties. It measures the extent to which the firms under study are building their business network ties. The results of the data achieved a mean of 4.24, which indicates that firms under study have built strong business ties with their customers, suppliers and competitors as well (Mean>4.00).

Table 4.6 Descriptive Results on Business Network Ties

Items	N	MIN	MAX	Mean	S.D.
BNT 1	112	3	5	4.27	0.531
BNT 2	112	3	5	4.05	0.498
BNT 3	112	3	5	4.29	0.657
BNT 4	112	3	5	3.98	0.686
BNT5	112	3	5	4.29	0.703
BNT6	112	3	5	4.35	0.532
BNT7	112	3	5	4.45	0.583
Construct Mean				4.24	

Source: Field Study (2023)

4.5.4 Political Network Ties

The second sub-construct of network ties got to do with political network ties. It measures the extent to which the firms under study are building their political network ties. The results of

the data achieved a mean of 4.22, which indicates that firms under study have built strong political ties with government officials (Mean>4.00).

Table 4.7 Descriptive Results on Political Network Ties

Items	N	MIN	MAX	Mean	S.D.
PNT 1	112	3	5	4.44	0.550
PNT 2	112	3	5	4.45	0.567
PNT 3	112	3	5	4.34	0.609
PNT 4	112	3	5	3.99	0.622
PNT5	112	3	5	3.92	0.784
Construct Mean				4.22	

Source: Field Study (2023)

4.5.5 Firm Performance

This construct measures the extent to which the respondent firms are performing in comparison with their major competitors in the same industry. The construct achieved overall mean of 4.24. By indication, firms under study are performing well when compared to their major competitors.

Table 4.8 Descriptive Results on Firm Performance

Items	N	MIN	MAX	Mean	S.D.
PERF1	112	3	5	4.33	0.621
PERF2	112	3	5	4.37	0.602
PERF3	112	3	5	4.39	0.591
PERF4	112	3	5	4.36	0.535
PERF5	112	3	5	4.26	0.596

PERF6	112	4	5	4.01	0.621
PERF7	112	4	5	3.97	0.522
Construct Mean				4.24	

Source: Field Study (2023)

4.6 Correlation Analysis

Pearson correlation matrix was employed to measure the level of multicollinearity amongst the predictive variables. For a sound statistical analysis, the variables in a study shouldn't be highly correlated. In obtaining the scores for organizational learning capability, the sum of these constructs was added and the average was taken as proposed by Pallant (2005). The inter item correlations of the sub-constructs is presented in Table 4.9. The table shows that there exists significant correlation among the sub-constructs of organizational learning capability.

Table 4.9 Pearson Correlation Matrix

Constructs	PRO	P & S	BNT	PNT	PERF
PROCESS	1.000				
PRODUCT & S	.044	1.000			
BUS. N. TIES	.168	-.034	1.000		
POL. N. TIES	.654	-.432	.198	1.000	
FIRM PERF	-.085	-.153	-.334	0.762	1.000

Source: Field Study (2023)

4.7 Regression Analysis

In this section of the study, the researcher employed the ordinary square regression analysis technique to assess the relationships among network ties, innovation and firm performance. The next sub-sections present the regression model results based on the objectives of the study.

4.7.1 Effect of Innovation on Firm Performance

The first objective of the study was to analyse the effect of social capital on export performance. To achieve this objective, a regression analysis was run with export performance as the dependent variable and social capital as the independent variable of the study. The results of the OLS regression model are presented in Table 4.10.

Table 4.10: Regression Model Results for Objective 1

Items	Export performance	Sig.
	Beta (t-value)	
Innovation	0.0129 (1.079)	0.283
Control Variables		
Firm Age	0.068 (2.000)	0.048
Firm Size	-0.052 (-0.901)	0.037
Number of Employees	0.029 (0.546)	0.586
Annual Income	-0.019 (-0.258)	0.079
Model Indices		
R	0.259	
R Square	0.167	
F-statistics	24.383	

Source: Field Study (2023)

4.7.2 Effect of Network Ties on Firm Performance

The second objective of the study was to analyse the impact of network ties on firm performance. To achieve this objective, a regression analysis was run with firm performance as the dependent variable and network ties as the independent variable of the study. The results of the OLS regression model are presented in Table 4.11.

Table 4.11: Regression Model Results for Objective 2

Items	Firm financial performance	Sig.
	Beta (t-value)	
Network Ties	-0.053 (-3.681)	0.000
Control Variables		
Firm age	.074 (2.314)	0.023
Firm size	-.036 (-0.688)	0.049
Number of Employees	.057 (1.032)	0.305
Annual Income	-.022 (-0.328)	0.743
Model Indices		
R	0.404	
R Square	0.164	
F-statistics	23.086	

Source: Field Study (2023)

4.7.3 Moderating Role of Network Ties on the Relationship Between Innovation and Firm Performance

In this section of the study, the researcher performed a test to confirm whether network ties moderate the relationship between innovation and firm performance. The rule of moderation states that a significant interaction exists between the interaction term, and the dependent variable as well as the independent variable. The researcher obtained the interaction variable by multiplying innovation (independent variable) with network ties (moderating variable). The results obtained from the model indicates that network ties moderate the relationship between innovation and firm performance because the p-value of the interaction term is less than 0.05. Table 4.12 presents the regression model results.

Table 4.12: Regression Model Results for Objective 3

Model	Coefficient	Standard Error	t	Sig
Constant	12.833	9.838	1.304	0.019
Innovation	4.491	2.313	1.941	0.055
Network ties	4.251	2.350	1.809	0.073
Interaction term	-1.106	0.552	-2.003	0.048

Source: Field Survey (2023)

4.8 Discussion of Findings

This section of the study discusses the findings in line with the objectives of the study and backed the discussion with existing literature. The researcher discusses the impact of innovation on firm performance, the effect of network ties on firm performance as well as the moderating role of network ties in the relationship between innovation and network ties.

4.8.1 The Relationship between Innovation and Firm Performance

To achieve the first objective of analysing the relationship between innovation and the performance of manufacturing firms, the researcher ran a regression model with firm age, firm size, number of employees, and annual income as control variables. The regression model results reveal a parameter estimate of 0.0129, indicating a positive relationship between innovation and firm performance. A parameter estimates of 0.0129 is an indication that a unit increase in a firm's innovation practices is expected to enhance their performance by 1.29%. At a 5% level of significance, the model revealed an insignificant impact of innovation on performance ($p\text{-value} = 0.283$). The model obtained an R-squared of 0.167. This means that 16.7% of the variations in innovation can be explained by changes in a manufacturing firm's performance. Extant literature supports the positive relationship between innovation and firm performance (Chandrashekar et al., 2019; Asunka et al., 2020; Funday et al., 2011; Bigliardi et al., 2020). Proponents of the positive relationship argued that innovation brings about new ideas for doing things at the workplace to stay ahead of competitors. My first projection (H1) is that innovation has a positive impact on firm performance. This has been confirmed by the findings of the study.

4.8.2 The Relationship between Network Ties and Firm Performance

To achieve the second objective of analysing the relationship between network ties and the performance of manufacturing firms, the researcher ran a regression model with firm age, firm size, number of employees, and annual income as control variables. The regression model results reveal a parameter estimate of -0.053, indicating a negative relationship between network ties and firm performance. A parameter estimate of -0.053 is an indication that a unit increase in a firm's network ties is expected to reduce the performance of manufacturing firms by 5.30%. At a 5.00% level of significance, the model revealed a significant impact of network ties on performance ($p\text{-value} = 0.000$). The model obtained an R-squared of 0.164. This means that 16.4% of the variations in network ties can be explained by changes in a manufacturing firm's performance. Extant literature contradicts the negative relationship between network ties and firm performance (Qiao et al., 2014; Huang et al., 2012). Proponents of the positive relationship argued that firm network ties contain valuable information that provides the firm with a strategic advantage. My second projection (H2) is that network ties have a positive impact on firm performance. This has been contradicted by the findings of the study.

4.8.3: Moderating Role of Network Ties on the Relationship Between Innovation and Firm Performance

To achieve the third objective of analysing the moderating role of network ties in the relationship between innovation and firm performance, the researcher obtained the interaction variable by multiplying innovation (independent variable) with network ties (moderating variable). The rule of the moderation analysis states that if the $p\text{-value}$ of the interaction term is less than 0.05, then the variable can be seen as playing a role as a moderator. Per the results of the regression model, a $p\text{-value}$ of 0.048 which is less than 0.05 was achieved. This is an indication that network ties play a moderating role in the relationship between innovation and

manufacturing firms' performance. The model revealed an R-squared of 0.156. This is an indication that 15.6% of the changes in network ties can be employed to explain the association innovation and firm performance. My third projection (H3) is that network ties moderate innovation-firm performance nexus. This has been confirmed by the findings of the study.



CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter of the study detailed the summary of findings, conclusions, and recommendations made by the researcher to key stakeholders. The chapter further presents a direction to guide the conduct of future studies.

5.2 Summary of Findings

The first objective of this study was to analyse the impact of innovation on firm performance. The results of the regression model revealed a positive but insignificant relationship between innovation and firm performance. The model obtained an R-squared of 0.167. This means that 16.7% of the variations in innovation can be explained by changes in a manufacturing firm's performance. The first hypothesis of the study was confirmed.

The second objective of the study was to assess the impact of network ties on firm performance. The results of the regression model revealed a significant negative relationship between network ties and firm performance. The model obtained an R-squared of 0.164. This means that 16.4% of the variations in network ties can be explained by changes in a manufacturing firm's performance. The second hypothesis of the study was rejected.

The third objective of the study was to assess the moderating role of network ties in the relationship between innovation and firm performance. Per the results of the regression model, a p-value of 0.048, which is less than 0.05, was achieved. This is an indication that network ties play a moderating role in the relationship between innovation and manufacturing firms' performance. The third hypothesis of the study had been confirmed.

5.3 Conclusion

The main aim of the study was to assess the role of network ties in the innovation-firm performance nexus. Geographically, the study was conducted in Ghana, in Kumasi metropolis, to be precise. The study was conducted at a firm level, using manufacturing companies within the study settings. The study involves an explanatory and descriptive approach. The explanatory study approach enabled the researcher to explain the relationship among innovation, network ties, and firm performance. The quantitative nature of the study made the researcher use primary data (a questionnaire) as the main data collection tool. The researcher distributed 120 questionnaires to owners and managers of the selected manufacturing companies within the study settings. Both descriptive and inferential statistics were used to analyse the data. The analytical techniques include mean, standard deviation, percentages, correlation, and regression models, among others. The study employed validity and reliability tests as a way of purifying the data for sound statistical analysis. The study found a positive relationship between innovation and firm performance. The study further revealed a negative relationship between network ties and the performance nexus. The study concludes that network ties play a moderating role in the relationship between network ties and firm performance.

5.4 Recommendations to Stakeholders

This section of the study made recommendations of owners/managers of manufacturing firms, policy makers and employees.

5.4.1 Owners/Managers of Manufacturing firms

The findings of this study revealed a positive and significant impact of innovation on firm performance. As innovation brings about new ideas of doing things at the workplace to stay ahead of competitors, this study recommends to owners and managers of manufacturing firms

that they keep abreast of changes in the market, invest in research and development, engage in organisational learning, and continue to be innovative in their business processes as well as in their products and services.

The study further recommends to them that they continue to build strong network ties, as it has been found to moderate the innovation-performance nexus. The study recommends to them that they join associations such as the National Board for Small Scale Industry (NBSSI) and the Ghana Industry Association and engage their businesses to partake in trading activities such as the national trade fair.

5.4.2 Employees

The study recommends that employees continue to learn, conduct research and development, and report the findings to management to be ahead of their competitors. In line with this, management should create a channel that would enable employees to communicate freely with superiors about their ideals and innovative skills.

5.4.3 Policy Makers

This study therefore recommends to policymakers that they implement decisions that would ensure the benefits and survival of manufacturing companies in the country. They should implement policies for all manufacturing companies in the country to register their businesses, build alliances with other competitors, and engage in other governmental activities that aim to promote their businesses.

5.5 Suggestions for Future Studies

This study has examined the moderating role of network ties on the innovation-firm performance nexus. First of all, the study was carried out using manufacturing companies. The study recommends that future studies be carried out in different sectors of the Ghanaian

economy, like the banking sector, for comparison purposes. The study was also carried out in Ghana, an emerging market economy. Future studies should be carried out in advanced markets where innovation and network ties are crucial in their operations for comparison. In addition, further studies should also test the mediating role of network ties in the relationship between innovation and firm performance.



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APPENDIX
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF MARKETING AND CORPORATE STRATEGY
QUESTIONNAIRE

Dear respondent,

This research is an academic exercise and it intends to study “the role of network ties on the relationship between innovation and firm performance in partial fulfilment of a Master’s degree in Strategic Management. Your responses and suggestions are very crucial to the success of the study. Please bear in mind that your suggestions will be guarded with outmost confidentiality and will be used for the intended purpose. Thank you.

DIRECTIONS: Please indicate your response to each question by selecting the most appropriate answer for each question.

SECTION A: DEMOGRAPHIC DATA

1. Firm Operating Years

- A. up to 5 years ☐
- B 6-10 year ☐
- B. 11-20 years ☐
- C. Above 20 years ☐

2. Firm Size

- A. Small ☐
- B. Medium ☐
- C. Large ☐

3. Number of Employees

- A. up to 20 ☐
- B. 21-50 ☐
- C. 51-200 ☐
- D. Above 200 ☐

4. Monthly Income

- A. Up to GHS10,000 ☐
- B. GHS10,001-GHS1,000,000 ☐
- C. GHS1,000,000-GHS10,000,000 ☐

D. Above GHS10,000,000

[]

SECTION B: INNOVATION

Please answer the following items with respect to how innovative your firm is (Please make sure to answer each question and circle the correct response based on the number that best corresponds to your answer).

Strongly disagree	- 1
Disagree	- 2
Neither agree nor disagree	- 3
Agree	- 4
Strongly agree	- 5

Process						
1	In my organization we improve new methods when we cannot solve a problem using conventional methods	1	2	3	4	5
2	We develop new processes to deliver products/services to customers	1	2	3	4	5
3	My organization introduces new service delivery processes to add value	1	2	3	4	5
4	My organization pursues continuous improvement in operational processes	1	2	3	4	5
Product\Service						
5	My organization develops new products that enhance service to customers	1	2	3	4	5
6	My organization delivers cutting-edge services/products that are not delivered by competitors	1	2	3	4	5
7	My organization promotes new product offerings	1	2	3	4	5
8	My organization constantly experiments with new products/services	1	2	3	4	5

SECTION C: NETWORK TIES

Please answer the following items with respect to your firm's network ties (Please make sure to answer each question and circle the correct response based on the number that best corresponds to your answer).

Strongly disagree	- 1
Disagree	- 2
Neither agree nor disagree	- 3
Agree	- 4

BUSINESS NETWORK TIES						
1	Our firm has built good connections with suppliers	1	2	3	4	5
2	Our firm has built good connections with customers	1	2	3	4	5
3	Our firm has built good connections with competitors	1	2	3	4	5
4	Our firm has built good connections with technological collaborators	1	2	3	4	5
5	Our firm has built good connections with marketing-based collaborators	1	2	3	4	5
6	Top managers at our firm spent good time and effort in cultivating connections with financial institutions	1	2	3	4	5
7	Our firm devoted substantial resources to establish and maintain good relationships with financial institutions	1	2	3	4	5
POLITICAL NETWORK TIES						
8	Top managers at our firm have maintained good relationships with federal level government officials.	1	2	3	4	5
9	Our firm has developed good connections with officials in regulatory and supporting organizations such as tax bureaus and commercial administration bureaus.	1	2	3	4	5
10	Top managers at our firm have good relationship with state and local level government officials	1	2	3	4	5
11	Our firm has spent substantial resources from the company in building good relationships with government officials.	1	2	3	4	5
12	We have good relationships with host community leaders such as community chiefs and youth leaders who are in politics	1	2	3	4	5

SECTION D: FIRM PERFORMANCE

Indicate the performance of your company relative to your major competitor for the past years ticking the one that best suits your response.

FIRM PERFORMANCE

Much worse	- 1
Worse	- 2
At the same level	- 3
Better	- 4
Much better	- 5

	PERFORMANCE MEASURES	1	2	3	4	5
1	Future outlook	1	2	3	4	5
2	Sales growth	1	2	3	4	5
3	Profitability growth	1	2	3	4	5
4	Market share growth	1	2	3	4	5
5	Return on Investments (ROI)	1	2	3	4	5
6	Industry leadership	1	2	3	4	5
7	Overall response to competition	1	2	3	4	5
8	Success rate in new product/service launches	1	2	3	4	5

THANK YOU FOR YOUR PARTICIPATION

APPENDIX

		Firm Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-9	13	11.2	11.6	11.6
	10-20	47	40.5	42.0	53.6
	21-50	50	43.1	44.6	98.2
	above 50	2	1.7	1.8	100.0
	Total	112	96.6	100.0	
Missing	System	4	3.4		
Total		116	100.0		

		Firm Size			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	small	41	35.3	36.6	36.6
	medium	71	61.2	63.4	100.0
	Total	112	96.6	100.0	
Missing	System	4	3.4		
Total		116	100.0		

		Number of employees			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-10	23	19.8	20.5	20.5
	11-20	76	65.5	67.9	88.4
	21-100	13	11.2	11.6	100.0
	Total	112	96.6	100.0	
Missing	System	4	3.4		
Total		116	100.0		

		Annual Income level			
		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	GHS50,000- GHS1,000,000	91	78.4	81.3	81.3
	GHS1,000,001- GHS10,000,000	21	18.1	18.8	100.0
	Total	112	96.6	100.0	
Missing	System	4	3.4		
Total		116	100.0		

CORRELATION

Correlations

		PROCESS	PRODUCTS SERVICE	TIES	PERF
PROCESS	Pearson Correlation	1	.044	.168	-.085
	Sig. (2-tailed)		.647	.077	.372
	N	112	112	112	112
PRODUCTSERVICE	Pearson Correlation	.044	1	-.034	-.153
	Sig. (2-tailed)	.647		.719	.106
	N	112	112	112	112
TIES	Pearson Correlation	.168	-.034	1	-.334**
	Sig. (2-tailed)	.077	.719		.000
	N	112	112	112	112
PERF	Pearson Correlation	-.085	-.153	-.334**	1
	Sig. (2-tailed)	.372	.106	.000	
	N	112	112	112	112

**, Correlation is significant at the 0.01 level (2-tailed).

DESCRIPTIVE STATISTICS-PROCESS

Descriptive Statistics

N	Minimum	Maximum	Mean	Std. Deviation
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In my organization we improve new methods when we cannot solve a problem using conventional methods	112	4	5	4.26	.440
We develop new processes to deliver products/services to customers	112	4	5	4.43	.497
My organization introduces new service delivery processes to add value	112	3	5	4.24	.507
My organization pursues continuous improvement in operational processes	112	3	5	4.29	.548
Valid N (listwise)	112				

DESCRIPTIVE STATISTICS-PRODUCT AND SERVICES

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
My organization develops new products that enhance service to customers	112	3	5	4.29	.531
My organization delivers cutting-edge services/products that are not delivered by competitors	112	4	5	4.44	.498
My organization promotes new product offerings	112	3	5	4.10	.657
My organization constantly experiments with new products/services	112	3	5	4.08	.686

Valid N (listwise)	112				
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DESCRIPTIVE STATISTICS-BUSINESS NETWORK TIES

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Our firm has built good connections with suppliers	112	3	5	4.27	.585
Our firm has built good connections with customers	112	3	5	4.05	.598
Our firm has built good connections with competitors	112	3	5	4.29	.650
Our firm has built good connections with technological collaborators	112	3	5	3.92	.686
Our firm has built good connections with marketing-based collaborators	112	3	5	4.29	.703
Top managers at our firm spent good time and effort in cultivating connections with financial institutions	112	3	5	4.35	.532
Our firm devoted substantial resources to establish and maintain good relationships with financial institutions	112	3	5	4.45	.583
Valid N (listwise)	112				

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DESCRIPTIVE STATISTICS-POLITICAL NETWORK TIES

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Top managers at our firm have maintained good relationships with federal level government officials.	112	3	5	4.44	.550
Our firm has developed good connections with officials in regulatory and supporting organizations such as tax bureaus and commercial administration bureaus	112	3	5	4.45	.567
Top managers at our firm have good relationship with state and local level government officials	112	3	5	4.34	.609

Our firm has spent substantial resources from the company in building good relationships with government officials	112	3	5	3.99	.622
We have good relationships with host community leaders such as community chiefs and youth leaders who are in politics	112	3	5	3.92	.784
Valid N (listwise)	112				

DESCRIPTIVE STATISTICS-FIRM PERFORMANCE

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Sales growth	112	3	5	4.33	.621
Profitability growth	112	3	5	4.37	.602
Market share growth	112	3	5	4.39	.591
Return on Investments (ROI)	112	3	5	4.36	.535
Industry leadership	112	3	5	4.26	.596
Valid N (listwise)	112				

REGRESSION-INNOVATION ON FIRM PERFORMANCE

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.259 ^a	.067	.023	.24383

a. Predictors: (Constant), Annual Income level, Firm Age, INNO, Firm Size , Number of employees

Coefficients ^a				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
1	(Constant)	4.801	.508		9.458	.000
	INNO	.129	.119	.110	1.079	.283
	Firm Age	.068	.034	.196	2.000	.048
	Firm Size	-.052	.058	-.102	-.901	.370
	Number of employees	.029	.053	.066	.546	.586
	Annual Income level	-.019	.072	-.030	-.258	.797

a. Dependent Variable: PERF

REGRESSION-NETWORK TIES ON FIRM PERFORMANCE

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.404 ^a	.164	.124	.23086

a. Predictors: (Constant), Annual Income level, Firm Age, TIES, Firm Size, Number of employees

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	6.636	.668		9.928
	TIES	-.533	.145	-.380	-3.681
	Firm Age	.074	.032	.214	2.314
	Firm Size	-.036	.052	-.071	-.688
	Number of employees	-.057	.055	-.130	-1.032
	Annual Income level	-.022	.066	-.035	-.328

a. Dependent Variable: PERF

MODERATING ROLE OF NETWORK TIES

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.395 ^a	.156	.133	.22973

a. Predictors: (Constant), INTERACTIONTERM, TIES, INNO

		Coefficients^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-12.833	9.838		-1.304	.195
	INNO	4.491	2.313	3.846	1.941	.055
	TIES	4.251	2.350	3.028	1.809	.073
	INTERACTIONTER RM	-1.106	.552	-5.479	-2.003	.048

a. Dependent Variable: PERF



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