EFFECT OF INNOVATIONS ON FINANCIAL PERFORMANCE OF COMMERCIAL AND SERVICE FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

NANCY JELIMO

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

NOVEMBER, 2020

DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed: _____Date: _____05/12/2020_____

NANCY JELIMO

D61/7947/2017

This research project has been submitted for examination with my approval as the University Supervisor.

Signed: _____ Date **05/12/2020**_____

DR. DUNCAN ELLY OCHIENG' (PhD, CIFA)

Department of Finance and Accounting

School of Business, University of Nairobi

ACKNOWLEDGEMENT

I take this opportunity to thank the almighty for enabling me through the completion of this project. I thank God for His blessings, knowledge, energy, strength and good health which made it possible for me to complete my studies. I am also grateful for my parents, mum and dad for their tremendous support and prayers throughout my studies. To my sisters and brothers and my friends, thank you for your support, I appreciate you all. I would also like to express my deepest gratitude to my supervisors Dr. Duncan Elly and Dr. Zipporah Onsomu for their guidance and pieces of advices during the research period.

DEDICATION

I dedicate this work to my mum and dad. I thank you very much for the love, and sacrifices that you have made for me and for the hope and encouragements you always give me. Thank you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CBK	Central Bank of Kenya
GDP	Gross Domestic Product
NSE	Nairobi Security Exchange
NSE	Nairobi Securities Exchange
R&D	Research and Development
RBV	Resource Based View
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SME	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
UNCTAD	United Nations Conference on Trade and Development

ABSTRACT

Success of many firms is dependent on efficient operational processes resulting from additional investments in innovations that promote a firm's internal efficiency. Thus innovation strategies that firms undertake should assist in identifying and exploring new revenue avenues and improving customer satisfaction via good service delivery. Innovation strategies involve the adoption of systems providing capabilities that enable and enhance processes tied to production and provision of services. The objective of this research study was assessing effect of innovations on performance of NSE listed commercial and service firms. The population for the research was all the 11 NSE listed commercial and service firms. Predictor variable in this research was innovations operationalized as the number of new products, services, processes and markets in a given year. The control variables included liquidity given by current ratio, firm size given by natural log of total assets and management efficiency given by total revenue to total assets per year. Financial performance was the response variable given by return on assets. Secondary data was for five years (January 2015 - December 2019) annually. Descriptive cross-sectional design was used in analysis of the study variables. Analysis was made using SPSS software. Findings produced R-square value of 0.284, meaning that 28.4 percent of changes in financial performance among commercial and service firms is the result of variations in the chosen independent variables while 71.6 percent variation in financial performance of NSE listed commercial and service firms was the result of other factors which are not highlighted. This research showed independent variables had a moderate association with firm's performance (R=0.533). ANOVA results showed that the F statistic was substantial at 5% with p=0.003. This showed that the overall model was appropriate in explaining how the selected independent variables impact financial performance. Findings also showed that innovations, liquidity and management efficiency have a positive and statistically substantial influence on performance of the NSE listed commercial and service firms. Firm size was statistically insignificant in this study. This recommendation is that NSE listed commercial and service firms should focus on enhancing their innovations, liquidity positions and management efficiency as these three have a significant influence on their financial performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The concept of innovation and financial performance has been topic of interest among various scholars. Prodromos and Dimitrios (2018) establish that innovations help business organizations enhance financial performance, when it greatly relies on the organization's unique capabilities and technologies. Nuryakin (2018) stated that there exist positive results between innovation and financial performance. Innovation is required so that firms produce goods of high quality, use efficient processes and systems in achieving a competitive edge (Njagi, 2016). Yilmaz, Alpkan and Ergun (2005) explains that theoretically, innovations are expected to lead to enhanced financial performance of firms as it enhances efficiency and effectiveness in a firm's operations.

This study's theoretical foundation was built on technology acceptance model, the diffusion of innovation theory and resource based view theory. Technology Acceptance Model (TAM) describes the manner in which clarifies customers embrace and utilize innovative ideas. TAM is applicable in establishing how technology acceptance impacts innovation among commercial and service firms. Diffusion of innovation is the channeling of a fresh idea to a social system's members is how a new idea is communicated to members of a certain social system using by use of a preferred channeling method (Rogers, 1995). For it to be sustainable, an innovation has to be acceptable to a large number of people. The theory has been of use in the adoption of new innovation in business. Resource Based View (RBV) theory as developed by Wernerfelt (1984) state that a firm's resources enables will enable it to have a competitive edge by enhancing innovation therefore firms should concentrate

1

on how they can identify and utilize resources to develop and maintain a competitive edge that will improve performance.

Commercial and service industry is important in growth and development of the Kenyan economy since it enables creation of employment opportunities, increasing the Gross Domestic Product (GDP) and proceeds from foreign exchange for the major period post-independence (UNCTAD, 2008). Commercial and service firms listed firms and other listed firms have faced a myriad of issues in the recent past that has brought about the debate on innovative practices among these firms. Kenya Airways, Uchumi and Deacons have all faced troubles recently and therefore need to assess factors that can help improve their performance. A survey report by Cytonn Investment (2019) indicated that 79% of commercial and service firms allocate between 0 and 5% of their turnover to innovations, 14% allocate between 6 and 10% while 7% allocate above 10%.

1.1.1 Innovations

Pisano and Teece (2011) define innovation as an act of introducing new ways of doing things that are more efficient and effective. Innovation practices involve use of improved ways to address changing customer needs. Gamal et al., (2011) defines innovation as the introduction of a new process, product or service through specific business models into the marketplace, either through commercialization or utilization. From this definition, innovation encompasses: service innovation, product innovation, business model innovation and process innovation and all leading to strengthening the company's competitive advantage (Yahya & Marwan, 2011).

Frankelius (2009) indicate that organisations practice innovation to meet customer needs and expectations. Collins and Porras (2011) explain that innovation enhances

2

product quality and customer satisfaction through customizing products or services to match customer needs. It also differentiates product or services to effectively accommodate mass market and boost consumption of products and services. Innovation aims at achieving the needs of customers through offering more competitive products and services while differentiation is intended to increase access to quality products and services at competitive prices (Jimenez & Sanz-Valle, 2011).

Innovations can be operationalized in three ways namely product, process and market. Product innovation involves the creation of products or services or the development of already existing goods and services. Process innovation is adopting new methods of doing things that will assist the organization in remaining competitive and constantly meeting customer requirements. Market innovation is the improvement of the mix of target markets and the manner of ways in which such markets are served the access to products and services using new processes of distribution in the domestic and international markets (Saemundsson & Candi, 2014). Arora, Belenzon and Rios (2014) utilized annual R&D budget as percentage of annual sales in measuring innovation. This study adopted number of new products, services, processes and markets in measuring innovation.

1.1.2 Financial Performance

This is as defined by Almajali, Alamro and Al-Soub (20120 as a firm's ability to achieve the range of set financial goals such as profitability. Financial performance is a degree of the extent to which a firm's financial benchmarks has been achieved or surpassed. It shows the extent at which financial objectives are being accomplished. As outlined by Baba and Nasieku (2016) financial performance show how a company utilizes assets in the generation of revenues and thus it gives direction to the

3

stakeholder in their decision making. Nzuve (2016) asserts that the health of the bank industry largely depends on their financial performance which is used to indicate the strengths and weaknesses of individual banks. Moreover, the government and regulatory agencies are interested on how banks perform for the regulation purposes.

The focus of financial performance is majorly on items that directly alter the statements of finance or the firm's reports (Omondi & Muturi, 2013). The firm's performance is the main external parties' tool of appraisal (Bonn, 2000). Hence this explains why firm's performance is used as the gauge. The attainment level of the objectives of the firm describes its performance. The results obtained from achieving objectives of a firm both internal and external, is the financial performance (Lin, 2008). Several names are given to performance, including growth, competitiveness and survival (Nyamita, 2014).

Measurements of financial performance take different forms that have to be consolidated. Ngatia (2012) stated that Return on Assets (ROA), firm size, Return on Equity (ROE) and Return on Sales (ROS) as financial performance measures. Carter (2010) measured performance using Tobin's Q and ROA whereas Wang and Clift (2009) used ROA and ROE. Efficiency measures such as total asset turnover ratio, fixed asset turnover and Data Envelopment Analysis (DEA) are also used in measuring performance. The two widely known measurements of performance are ROA and efficiency; hence, in this study listed firm's performance will be calculated using the two measures. ROA indicates the profitability of the companies in relation to its total assets and efficiency given by DEA indicates the ratio of total outputs to total inputs (Mwangi & Murigu, 2015).

1.1.3 Innovations and Financial Performance

Success of many firms is dependent on efficient operational processes resulting from additional investments in innovations that promote a firm's internal efficiency (Munyoroku, 2014). Thus innovation strategies that firms undertake should assist in identifying and exploring new revenue avenues and improving customer satisfaction via good service delivery. Innovation strategies involve the adoption of systems providing capabilities that enable and enhance processes tied to production (Valacich & Schneider, 2012).

Kantor (2001) is of the opinion that innovation is responsible for economic progress in any nation and in achieving competitive advantage for various industries. A crucial role for both large firms, medium, small and micro is played by innovation (WladawskyBerger, 2008). Kemp (2003) maintains that innovation has been one of the best competitive weapons in an organization and is renowned as a business's core. It is also considered by Ruttan (1984) as a very effective means to progress business' productivity should there be resource limitations.

McAdam and Keogh (2004) opined in their research that organizations that embrace innovations have a competitive edge over their competitors. Other scholars however, suggested that product acceptance and proper timing is the best measure of how innovation contributes to performance. According to Mabrouk and Mamoghli (2010), the reasons that drive new product development as mentioned by most business persons include growth in the corporation, diversification, and the search for a competitive edge over competition. They further add that the main reason for developing new products is to explore other new opportunities since new products enhance the firms' survival in the long run growth.

1.1.4 Commercial and Service Firms Listed at the Nairobi Securities Exchange

The NSE which was founded in 1954 is responsible for the listing of firms and issuing of securities bought and sold by individual and institutions both local and foreign through the services of stockbrokers or dealers. It is the fourth-largest in the sub-Saharan Africa. It focuses in the exchange of securities issued by the Government and listed firms. The mandate of NSE is to oversee its members and provide a trading platform for the listed securities. The NSE provides the main hub for trading in the secondary market. It provides a trading floor which though available is not commonly in use after being replaced by the automated trading system. Through a wide area network, members trade at the comfort of their offices. The system is efficient, transparent and can handle large volumes of transactions at the same time (NSE, 2019).

Commercial and service sector refers to a category of enterprises that provide services to commercial and retail customers. There are currently 11 firms listed under this category namely: Express limited, Nation Media Group, Kenya Airways; Standard Group, TPS Eastern Africa, Scan Group, Uchumi Supermarket, Deacons, Sameer Africa, Longhorn Publishers and Nairobi business ventures (NSE, 2019). Commercial and service industry is crucial in growth and development of the Kenyan economy since it creates job opportunities, increasing the GDP and foreign exchange proceeds for the major period post-independence (UNCTAD, 2008). The two sectors have had a major contribution to the economy of the country which has increased from from 55 percent in 1980 to 65 per cent by 2016 in the total employment share (CBK, 2017). The service sector has a critical contribution to the trade balance in the Kenyan economy. According to UNCTAD (2008), the annual exports from this sector account for approximately 50% for since 1980.

Firms in the commercial and service sector listed at the NSE have been performing differently. While firms like Standard group, Nation media group and TPS Eastern African have posted good results, others like Kenya Airways, Uchumi and Sameer Africa have performed dismally (Njoroge, 2019). While the reason for some firms' failure to perform dismally may be due the nature of the environment they are working in and that is not under the control of the management or board, studies have shown a significance link between innovations and the performance of these companies. A survey report by Cytonn Investment (2019) indicated that 79% of commercial and service firms allocate between 0 and 5% of their turnover to innovations, 14% allocate between 6 and 10% while 7% allocate above 10%.

1.2 Research Problem

The main assumption of many studies in the area of operations improvement is that innovations adoption directly improves performance (Upton & Kim, 1999). Kemp (2003) maintains that innovation has been one of the best competitive weapons in an organization and is renowned as a business's core strategy in enhancing performance. It is also considered by Ruttan (1984) as a very effective means to progress business' productivity should there be resource limitations The development in innovations has made tasks more efficient and less costly but has come with many challenges (Aladwani, 2001).

Commercial and service firms listed firms and other listed firms have faced a myriad of issues in the recent past that has brought about the debate on innovative practices among these firms. For example, the recently published huge losses posted by Kenya Airways, the near collapse of Uchumi supermarket and the delisting of Deacons as a result of bankruptcy (Koriata, 2020). The firms' investment in innovations have been

low with 79% of them investing only 0 to 5% of their turnover on innovations and only 7% invested more than 10%. The firms need to focus on innovative ways of doing business which would mitigate against some of the risks of doing business and in essence improve financial performance (Cytonn Investments, 2019).

Different empirical studies have been directed on the influence of innovations on financial performance but the findings have been inconsistent. Hafeez (2013) in his study identified that value added innovativeness in a company has a positive relationship to its profitability. Worch and Truffer (2012) revealed that operations innovations maximize the value of a firm and increases its productivity. These studies were conducted in different countries, within different economic conditions and used different models. De Oliveira, Basso and Kimura (2018) analysed the relationship between innovations and financial performance of Brazilian companies. From the findings, it was concluded that innovation efforts are able to aid in the generation of positive impacts. They however state that these impacts may not promote positive financial performance.

Regionally, Onikoyi (2017) conducted an examination on the effect that product innovation had on operational performance of Nestle in Nigeria and concluded that product innovations had a positive influence on performance. Ndesaulwa and Kikula (2016) explored the effect that innovation had on SMEs performance in Tanzania and concluded that innovation and performance have a positive connection. These studies cannot be generalized in the current study as they applied different concepts, contexts and methodologies. Mensah (2019) examined the impact of innovations on the performance of selected banks in Ghana based on their ability to generate income or revenue, their efficiency, liquidity, profitability and general patronage of banking

services in Ghana and concluded that financial innovations improve significantly the efficiency, liquidity and profitability of the banks.

Locally, Kiggima (2018) focused on how technological innovations impact performance of SMEs in Nairobi County, Kenya. The study was applied in a differing context and operationalized innovations differently from the current study. Technological innovation was operationalized as product, process, technological and marketing innovations while the current study will adopt number of new products, services, processes and market as a measure of innovation. Mutie (2018) focused on technological innovations and performance of government agencies in Kenya. Its focus was only on technological innovations leaving a gap on other types of innovations. Ekuam (2019) focused on the effect of innovations on performance among Kenya's internet service providers. It was qualitative in nature unlike the current study. These research gaps were the motivation for answering the research question: What is the effect of innovations on financial performance of commercial and service firms listed at the NSE?

1.3 Research Objective

The study objective was to assess the influence of innovations on financial performance of NSE listed commercial and service firms.

1.4 Value of the Study

This study's results will create a deeper understanding of innovation theories and practices. It will also add to the already documented information regarding the association between innovation and financial performance of firms and also fill the gap on this relation between variables that will be beneficial to future researchers.

The study is beneficial to the commercial and service firms in understanding the linkage between the two variables which is essential in having a sound team of innovators with a wide array of ideas and abilities essential for achievement of financial success and trust building among company stakeholders.

For the government and policy formulators, it will be beneficial in aiding the formulation of policies and procedures that would steer commercial and service firms in adopting innovative practices that would improve their efficiency which in turn will improve performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section reviews theories that lay the foundation for the study. Additionally, previously conducted empirical studies on the topic and related studies will be discussed. Other relevant sections will include the determinants of financial performance and a conceptual framework showing the association between study variables.

2.2 Theoretical Framework

Key theories that explain the study phenomena will be presented. The theoretical reviews covered are the diffusion of innovation theory, the resource based view theory and the technology acceptance model.

2.2.1 Diffusion of Innovation Theory

This theory was pioneered by Rogers (1995). Mahajan and Peterson (1985), defined innovation as an idea, practice or object relayed into a social system and innovation diffusion the manner in which the innovation is spread by utilizing specified mediums overtime within the system. In this study, the theory attempts to describe how new inventions, for example mobile banking and internet banking are adopted and utilized (Clarke, 1995).

Sevcik (2004), stated that the process of innovation adoption occurs overtime. Additionally, this process is directly influenced by change resistance slowing the process down. There are five main factors that influence innovation adoption namely: relative advantage, compatibility, complexity, observability and triability (Rogers, 1995). He further stated that the adoption process of new inventions is dependent on

the manner in which an organization recognizes its relative advantage, triability, compatibility, complexity and observability. When a company in Kenya recognizes the benefits of internet banking, it will adopt the innovation provided other prerequisite tools are availed. The adoption process is quicker in companies that have IT departments compared to the organizations without. The theory relates to this study since it describes adoption process.

2.2.2 Resource Based View Theory

The concept of resource based view was pioneered by Penrose (1959) who projected that a firm exceptionality is derived from the heterogeneity rather than the homogeneity of the productive resources available. The concept of an organization's resources heterogeneity is the main theme of resource based view. According to Penrose (1959) both the internal and external growth of an organization through means such as merging and acquisition and diversification can be determined by how well the organization's resources are deployed. An organization is comprised of a mixture of valued resources and these resources can only add to a firm's competitive advantage if they are positioned and used in a way that these fruitful resources, are simply reachable to the association. As such, firms have to understand what their strengths and weakness are so that they can come up with strategies on how to beat their rivals using the available resources (Wernefelt, 1984).

RBV holds that organizations valuable resources are the ones that determine the performance and competitiveness of the firm. RBV states that the major forces that influence and impact on the competitive advantage and how excellent an organization performs is derived from the features of the capabilities as well as the resources of the company that are hard to imitate and are valued (Barney, 1991). Through RBV, firms

can design and carry out their firm strategy by looking at where their capabilities and internal resources stand (Sheehan & Foss, 2007).

The model is essential for this study since it acknowledges the processes of the organization, the sharing of knowledge as well as working relationships that are close as resources that could be utilized to make improvements in organizations' competitiveness. If a commercial and service firm possesses a resource that is unique and difficult to imitate, it creates a competitive strategy using the resource and achieves competitive advantage over rivals. This in turn improves its overall performance.

2.2.3 Technology Acceptance Model

This model was founded by Davis (1989). This model explains how customers adopt technology. This process is necessary in determining the usable system that will be useful and provide convenience to the customers. Previous authors researched on the key ideas behind TAMs validity in predicting individuals' acceptance made the conclusion that TAM provides no explanation for how the acceptance of users is influenced by technology and other usage factors (Moon & Kim, 2015). Davis (1989) contends that anticipated usability refers to the belief by an individual that the technology adopted will significantly improve job performance after its adoption. Anticipated ease of use shows how easy it is for the individual to learn how to use the new technology and information system. The model emphasizes on ease of use as a method of predicting how useful a system will be (Gefen, Karahanna & Straub, 2013).

Pikkarainen et al. (2014) conducted a survey in Finland aimed at establishing the actual impact of predicted usefulness and made the conclusion that it involved use of innovative, autonomous, self-service and user friendly technology to users through the

13

banking system to provide financial services to clients in the twenty first century. Evidence points at how important the perceived usability of a technology lies in the intention to adopt it. Tan and Teo (2013) states that this foreseen usefulness of a technology impacts its adaptation. In conclusion, the greater the predicted usefulness of using technological innovations, the higher the probability that innovations will be used (Potaloglu & Ekin, 2015). The key influences in innovation acceptance are called the TAM variables and include the elements of predicted ease in use and usefulness.

2.3 Determinants of Financial Performance

The firm's performance can be impacted by components either outside or within the organization. The internal factors include innovations, management efficiency, dividend decisions, liquidity of the firm, leverage, firm size, organization culture among others. External factors cannot be manipulated by the management. Firms are not usually in control over such factors but are required to formulate strategies that will manage them (Athanasoglou et al., 2005).

2.3.1 Innovations

Munyoroku (2014) posit that efficient operational process requires firms to invest a lot in innovations which in turn results to enhanced internal efficiencies and majorly result to success of firms. It is therefore important for innovation strategies implemented by firms to help in identification and exploration of new revenue generation opportunities and increase customer satisfaction by reliable delivery.

Kantor (2001) is of the opinion that innovation is a key determinant of economic progress of any nation and in achieving competitive advantage for various sectors. A crucial role for both large firms, medium, small and micro is played by innovation

(WladawskyBerger, 2008). Kemp (2003) maintains that innovation has been one of the best competitive weapon in an organization and is renowned as a business's core.

2.3.2 Firm Size

The amount of economies of scale earned by a firm is dependent on its size. The bigger the firm, the lower the average production scale and the more the efficiency in operating activities resulting from large economies of scale that the firm generates is high. Despite their size, large firms may lose control of their strategic and operational activities by their management which may ultimately cause a decline in their efficiency (Burca & Batrinca, 2015).

Larger firms command a big market power and can engage in more diversification. They are also more likely to suffer from organizational slack in case the business experiences boom. Size of the firm is a large determinant of the amount of investments of cash flow that can be made. In determining this size of the firm, the number of its workers, property held and sales volume are the critical elements taken into account (Almajali, 2012).

2.3.3 Firm Liquidity

Liquidity is the degree that a firm is able to fulfil its debt obligations that are due in one year using cash or its equivalents. These are assets which are short term are easily converible into cash with ease. Liquidity arises from the managers' ability to accomplish commitments falling due without resorting to the liquidation of financial assets (Adam & Buckle, 2003).

Liargovas and Skandalis (2008) stated that, firms can utilize liquid assets to finance operations and to make investments in case external financing is unavailable. Companies with high liquidity are able to cope with unpredicted emergencies and

cash demands that may arise. Almajali et al., (2012) stated that the liquidity of a firm may have highly impact firm efficiency; thus, firms should work towards increasing current assets while lowering liabilities. However, Jovanovic (1982) stated that high liquidity levels may be harmful to a firm.

2.3.4 Management Efficiency

This is a critical internal qualitative element that is used to measure and determine a firm's operational efficiency. Management's ability to efficiently use its resources, increase their funding and allocate such funds are examples of ways in which this variable will be assessed (Kusa & Ongore, 2013).

This variable being a determinant of operational efficiency is a qualitative measure demonstrated through staff quality, how effective and efficient internal controls are, organization-wide discipline and management systems' effectiveness (Athanasoglou, Sophocles & Matthaois, 2009). Management quality is influential to the operating expenses level which in effect influences the firm's bottom line hence management efficiency substantially influences efficiency of firms (Kusa & Ongore, 2013).

2.4 Empirical Review

Research has been done locally, regionally and internationally to assess how innovations impact financial performance, with varied results.

2.4.1 Global Studies

Kajewski (2014) studied the benefits, drawbacks, and recommendations related to innovation for practice in Australia in the banking sector. A descriptive design was adopted. Secondary data was derived from risk manuals and financials of a sample of 38 commercial banks in Australia. The data was analyzed by use of correlation analysis, autocorrelation techniques and regressions analysis. The study observed a

16

positive significant effect of innovation on banks profitability in that it reduced the cost of doing business and delivered services that were more efficient to the customers.

Carroll (2016) researched on the effect of adoption of IT innovation in German service industry. The findings concluded that firms' embraces technology with suspicion believing that it will enhance delivery of services and better the performance for example perceived relationship between technology and progress. The findings also revealed that outsourcing technological services and accountability was perceived as way of shifting blame for service failures.

De Oliveira, Basso and Kimura (2018) analysed the relationship between innovations and financial performance of Brazilian companies. Through the use of the Brazilian Institute of Geography and Statistics' (IBGE), official databases related to innovation and performance, they sampled 5,025 firms using exploratory factor analysis and structural equation modeling. From the findings, it was concluded that innovation efforts are able to aid in the generation of positive impacts. They however state that these impacts may not promote positive financial performance. Therefore, even though a firm's efforts may create new products, they may not generate financial gains in the short run, which is a reflection of the risks and costs related to innovation.

2.4.2 Regional Studies

Ndesaulwa and Kikula (2016) explored the effect that innovation had on SMEs performance in Tanzania with the help of a survey design. A population of 500 sampled SMEs in Dar es Salaam was studied and both raw and published sources of data were used. A regression equation was employed for testing the connection amid innovation and SMEs' performance while descriptive statistics was used in analyzing

the trend of the variables. Innovation and performance were found to have a positive connection.

Onikoyi (2017) conducted a survey on how product innovation impacted operational performance of Nestle in Nigeria. This study involved the interviewing of 340 management personnel n several departments like marketing, research and development, sales, production and quality control. They were chosen because they were directly involved in product production process. Regression and correlation analysis were then applied with the findings showing that product innovation directly improved organizational performance. Customers recognized the distinctness and benefits associated with product innovation.

Mensah (2019) examined the impact that financial innovations have on performance of selected banks in Ghana based on their ability to generate income or revenue, their efficiency, liquidity, profitability and general patronage of banking services in Ghana. The study surveyed bank executives from universal banks in Accra and Kumasi. Questionnaires were issued to these executives to assess their opinions on the impact of financial innovations on performance. From the study, it was discovered that financial innovations improve significantly the efficiency, liquidity and profitability of the banks.

2.4.3 Local Studies

Waweru (2018) studied how innovations impacted firms in the agricultural sector with a listing at the NSE. A qualitative design was chosen in this study with the survey method being the primary tool for collecting data that was primary in nature. An interview guide was used in this process. Content analysis was part of the qualitative analysis which was used in evaluating the responses, making conclusions

and to deriving recommendations. The conclusion of the study was that technological capability and firm performance are positively related.

Kiggima (2018) sought to examine how technological innovation on enterprise performance of MSEs in Nairobi, Kenya. The target population consisted of MSEs from different sectors. The study was based on 10% of the intended population of 1539 hence obtaining a sample of 155 MSEs as respondents. Primary data was relevant to this study. Analysis was made using descriptive and inferential statistics. The study concluded that adoption of technological innovations gave the MSEs a competitive edge which boosted their performance.

Ekuam (2019) sought to assess the effect of innovations on organization performance of providers of internet services in Kenya. Primary data was relevant in this study and was obtained by an interview guide. The targeted respondents in this study were managers of six largest ISPs in Kenya or their representatives. The primary data collected was qualitative data and was analyzed by content analysis. The study concluded that innovations, that is product and process, process, marketing and technological innovation have affected organization performance of internet service providers in Kenya positively.

2.5 Summary of the Literature Review and Knowledge Gaps

Table 2.1: Summary of Gaps

Author	Focus of Study	Methodology	Findings	Research/Knowledge Gaps
Ekuam (2019)	Innovations and performance of internet service providers in Kenya.	Qualitative research design with the study population consisting of the six major internet service providers in Kenya	The study concluded that innovations, that is product and process, process, marketing and technological innovation have affected organization performance of internet service providers in Kenya positively.	The investigation was qualitative in nature while this study will be quantitative taking into account secondary data
Mensah (2019)	Impact of financial innovations on the performance of selected banks in Ghana.	Descriptive survey design was employed and the association between the study variables established using multiple linear regression model.	Financial innovations improve significantly the efficiency, liquidity and profitability of the banks	The study considered commercial banks which are different from commercial and service firms
Kiggima (2018)	Effect of technological innovation on enterprise performance of MSE's in Nairobi County, Kenya	Descriptive design relying on primary data collected using questionnaires.	adoption of technological innovations gave the MSEs a competitive edge which boosted their performance	This study relied on primary data while the current study will utilize secondary data. In addition, the contexts are different

De Oliveira, Basso and Kimura (2018)	Relationship between innovations and financial performance of companies in Brazil	Exploratory factor analysis and structural equation modeling	Innovative efforts possibly create impacts which do not necessarily improve financial performance	The study was done in a different setting thus findings cannot be generalized to reflect commercial and service firms in Kenya
Onikoyi (2017)	Product innovation and operational performance of Nestle in Nigeria	Regression and correlation methods of analysis	Product innovation enhanced organization performance.	The focused on a single aspect of innovation leaving out others such as process and market innivations

2.6 Conceptual Framework

The model below illustrates the expected association amongst the variables. The predictor variable for the study were innovations measured as number of new products, services, processes and markets on a yearly basis. The control variables were firm size, liquidity and management efficiency. The dependent variable was performance given by ROA.

Figure 2.1: The Conceptual Model

Predictor variable   **Response variable**

Control Variables

Source: Researcher (2020)
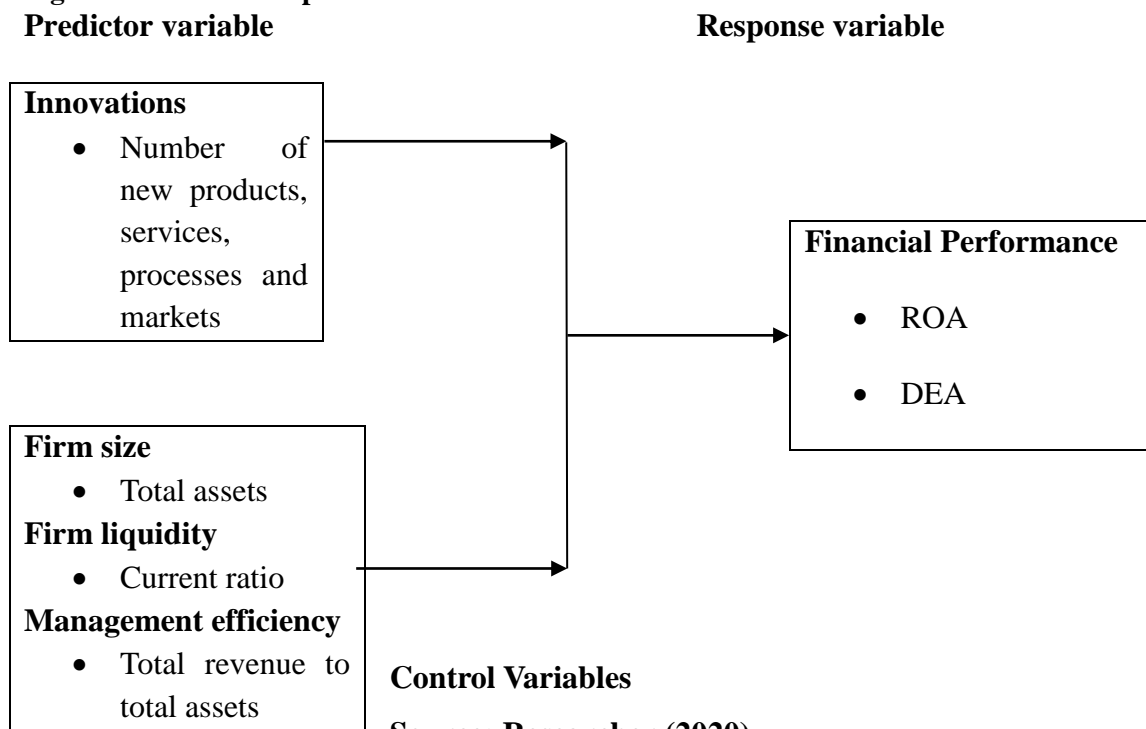
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In determining the effect of innovations on financial performance, a research methodology was essential to outline the manner in which the study was carried out. The section outlined the design, population, the data collection method and analysis techniques.

3.2 Research Design

A descriptive cross-sectional design was selected for this purpose. A descriptive study aims at discovering the what, where and how of an event (Cooper & Schindler, 2008). The design was selected because the researcher sought to describe the nature of affairs as they are (Khan, 2008). The fact that the researcher of this study has insight on the area under examination but seeks more knowledge regarding the relationship between the variable being studied make this research design suitable. Moreover, descriptive research purpose to provide an authentic and correct variable representation being studied and this assist in getting response to the study query (Cooper & Schindler, 2008).

3.3 Population and Sample

Burns and Burns (2008) define population as the number of all of the observations of interest within a particular collection such as people or events as described by an investigator. The population was the entire 11 commercial and service firms listed as at 31st December 2019 (see Appendix I). Because of its small population, no sampling will be conducted.

3.4 Data Collection

Published annual financial reports of the commercial and service firms listed in NSE were drawn from Capital Markets Authority (CMA) and individual firm's annual reports between January 2015 and December 2019 and provided secondary data which was recorded in a data collection sheet. The specific data collected included number of new products, services, processes and markets, total assets, current assets, current liabilities, total expenses and net income, total revenue and total operating expenses.

3.5 Data Analysis

SPSS version 23 was applied performing the analysis. The researcher presented the results quantitatively by use of graphs and tables. Descriptive statistics like measures of central tendency, percentages and dispersion were applied in reporting the data. Multiple regressions, Pearson correlation coefficient of determination and ANOVA were applied for inferential statistics.

3.5.1 Diagnostic Tests

The study undertook several diagnostic tests to assess the applicability of the research structure. The study first assessed for normality through the Kolmogorov-Smirnov and Shapiro-Wilk tests of the residuals where in both tests, a non-important result (a p factor of greater than 5%) will be deemed an indication for normality. The study also assessed for multicollinearity using the tolerance and the variance inflation factors (VIF) where a tolerance figure of greater than 0.2 or a VIF of more than 10 was an indication of the presence of multicollinearity. Additionally, the study assessed for heteroskedasticity using the Levene test and the plotting of residual graphs and assess

for serial correlation (autocorrelation) using the Durbin Watson test where a value of between 1.5 and 2.5 indicated that there exists no auto-correlation (Khan, 2008).

3.5.2 Analytical Model

The model below was used:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y = Financial performance given by annual return on assets and the ratio of weighted total revenues to weighted total operating expenses. The intention is to develop a profitability and efficiency matrix as borrowed from Xaba et al. (2018). This will be useful in classifying firms as stars, dogs, question marks and so on

α = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4$ = are the regression coefficients

X_1 = Innovations given by the number of new products, services, processes and markets

X_2 = Firm size as measured by natural logarithm of total assets

X_3 = Firm liquidity as measured by current assets divided by current liabilities

X_4 = Management efficiency measured as the ratio of total revenue to total operating expenses

ε = error term

3.5.3 Operationalization of Variables

Financial performance	ROA and total revenue to total operating expenses computed annually
Innovations	Number of products, services, processes and markets launched in the last one year
Firm size	Natural logarithm of total assets
Firm liquidity	Ratio of current assets to current liabilities on an annual basis
Management efficiency	Ratio of total revenue to total assets on an annual basis

3.5.4 Tests of Significance

Parametric tests were carried out by the researcher to establish the model's significance and of individual variables. The F-test was used in the determination of the relevance of the entire model derived from Analysis of Variance (ANOVA) while a t-test determined statistical relevance of variables.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

4.1 Introduction

The chapter presents analysis of data from CMA to establish how innovations influence commercial and service firms' financial performance. Using descriptive statistics, correlation and regression, results were tabulated as shown in sections below.

4.2 Descriptive Analysis

This analysis shows the maximum, average, minimum, standard deviation, skewness as well as kurtosis of the variables for the study. Table 4.1 illustrates statistics for the variables. SPSS was used in the analysis for the period stated (2015 to 2019) for all the 11 commercial and service firms whose data was obtained. The values are illustrated below.

Table 4.1: Descriptive Statistics

|	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
ROA	53	-.9823	.2018	-.0589	.22091	-2.430	.327	6.675	.644
Innovations	53	2	26	13.92	5.636	-.487	.327	-.107	.644
Firm size	53	5.1575	8.2602	6.7511	.70086	.104	.327	.300	.644
Liquidity	53	.0827	2.9022	1.3321	.76341	.419	.327	-.831	.644
Management efficiency	53	.0000	.8165	.28620	.21743	.788	.327	-.189	.644
Valid N (listwise)	53								

Source: Research Findings (2020)

4.3 Profitability Efficiency Matrix

The study formed a profitability efficiency matrix showing the profitability in contrast to the efficiency of commercial and service firms listed at the NSE. From the results

the Median for profitability was 0.005 whereas the median for efficiency was 0.22. A matrix comprising of four quadrants as shown in table 4.2 below was created. Quadrant I is referred as sleepers, quadrant II is referred as stars, Quadrant III is referred as Question Mark and Quadrant IV referred as the Dogs. Quadrant I contains those commercial and service firms listed at the NSE with high profitability and low efficiency, Quadrant II is those commercial and service firms that have high profitability and high efficiency, Quadrant III is those commercial and service firms with low profitability and low efficiency and Quadrant IV is those commercial and service firms with low profitability and high efficiency. From the findings (3/11) of the commercial and service firms were sleeper in Quadrant I and they included TPS, Scangroup ltd and Atlas having a high profitability and low efficiency, 3/11 of commercial and service firms listed at NSE were in stars having high profitability and high efficiency and they included Nation Media Group, Longhorn Publishers and Standard Group, Quadrant IV(DOGS) also hade 3/11 commercial and service firms listed at NSE having high efficiency and low profitability and they comprised of Express Kenya, Kenya Airways and Uchumi. Finally, quadrant III had 2/11 commercial firms having low profitability and low efficiency and they included Sameer Africa and Deacons East Africa Plc

Table 4.2: Profitability-Efficiency Matrix
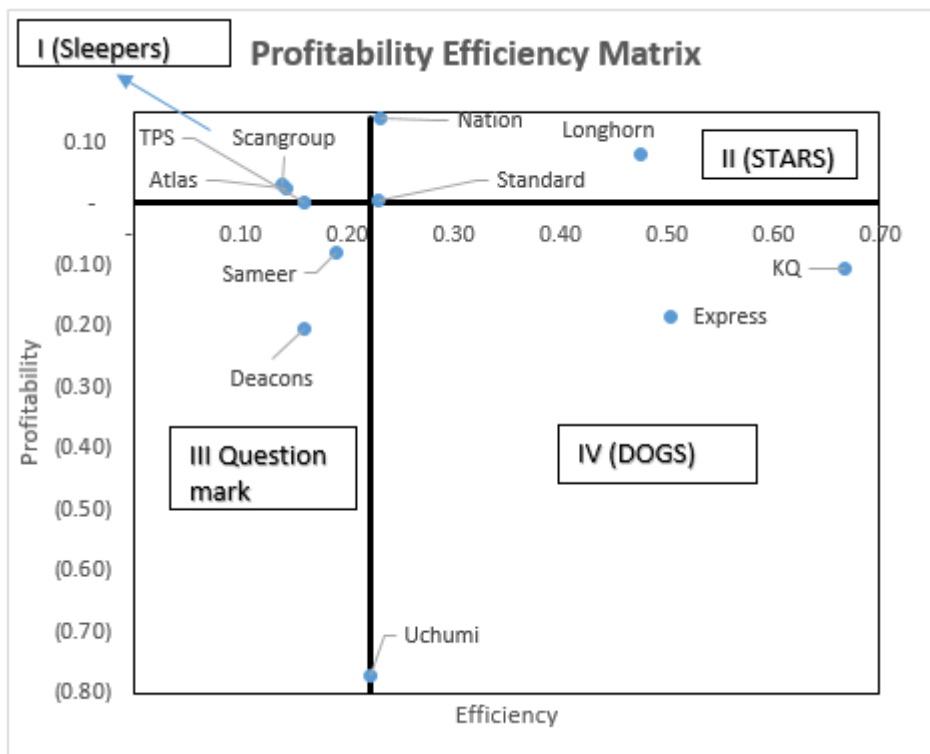
4.4 Diagnostic Tests

The data collected was subjected to diagnostic tests. The study presumed a 95% confidence interval or 5% level of significance so as to make variable deductions on the data adopted. Diagnostic tests were useful for ascertaining the falsity or truth of the data. Therefore, the nearer to 100% the confidence interval, the more accurate the data used is presumed to be. In this case, the tests conducted were normality test, Multicollinearity test, heteroskedasticity tests and autocorrelation.

4.4.1 Normality Test

The normality test of the data was done using the Kolmogorov-Smirnov test. The threshold was that, if the probability higher than 0.05, there is normal distribution in the data.

Table 4.3: Normality Test

	Kolmogorov-Smirnova		
	Statistic	**df**	**Sig.**
ROA	0.486	53	0.234
Innovations	0.326	53	0.112
Liquidity	0.408	53	0.207
Management efficiency	0.394	53	0.179
Firm size	0.272	53	0.063

Source: Research Findings (2020)

The findings above indicated that data was normality distributed since the p values were greater than 0.05. Therefore, the null hypothesis of normal distribution was accepted meaning the researcher failed to reject the null hypotheses.

4.4.2 Multicollinearity Test

William et al. (2013), defined this property as the presence of correlations between the predictor variables. VIF was used to test for this property. Field (2009) noted that VIF values higher than 10 indicate the presence of this property.

Table 4.4: Multicollinearity Test

Variable	VIF	1/VIF
Innovations	1.30	0.771
Liquidity	1.27	0.785
Management efficiency	1.02	0.978
Firm size	1.20	0.833

Source: Research Findings (2020)

The findings in Table 4.3 show the VIF results which were found to be lower than and 10 and therefore according to Field (2009) there was no presence of Multicollinearity.

4.4.3 Heteroskedasticity Test

The error process may be Homoskedastic among cross-sectional units, but have different variances across units: this is called group wise Heteroscedasticity. The hettest command is used in calculating Breuch Pagan for group wise Heteroscedasticity among residuals. The null hypothesis states that $\sigma_{2i} = \sigma_2$ for i

=1...Ng, where Ng is the number of cross-sectional units

Table 4.5: Heteroskedasticity Test

Modified Wald test for group wise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (53) = 312.78
Prob>chi2 = 0.0782
Source: Research Findings (2020)

As per the Table 4.4 the p value is 0.0782 which show that the null hypothesis of Homoskedastic error terms is not rejected.

4.4.4 Autocorrelation Test

Because of the biases in standard errors caused by serial correlation makes the results less efficient, the Breusch-Godfrey test for autocorrelation was adopted which identifies serial correlation in the idiosyncratic error term in a model.

Table 4.6: Autocorrelation Test

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 52) = 0.336
Prob>F = 0.6450
Source: Research Findings (2020)

No serial correlation exist as per the result on Table 4.5 since the p-value=0.6450 therefore null hypothesis is not rejected.

4.5 Correlation Analysis

To test the association existing amongst two variables a correlation analyses was done. A negative and positive correlation coefficient indicates a negative and positive correlation respectively. The Pearson correlation was used in establishing how commercial and service firms' performance and variables for this study (innovations, liquidity, firm size and management efficiency) are related.

The findings showed that innovations, firm size and management efficiency were positively but weakly correlated with the commercial and service firms' financial performance given by (r = .027, p = .849; r = .220, p = .114; r = .026, p = .851) in that order. Liquidity exhibited a positive substantial correlation with firm financial performance shown by (r = .417, p = .002). Although they were related, the relation was insignificant in establishing multicollinearity since the r values were less than 0.70.

Table 4.7: Correlation Analysis

		ROA	Innovations	Liquidity	Firm size	Management efficiency
ROA	Pearson Correlation	1				
	Sig. (2-tailed)					
Innovations	Pearson Correlation	.027	1			
	Sig. (2-tailed)	.849				
Liquidity	Pearson Correlation	.417**	.203	1		
	Sig. (2-tailed)	.002	.145			
Firm size	Pearson Correlation	.220	.111	.123	1	
	Sig. (2-tailed)	.114	.428	.381		
Management efficiency	Pearson Correlation	.026	.351*	.348*	.039	1
	Sig. (2-tailed)	.851	.010	.011	.784	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
c. Listwise N=53

Source: Research Findings (2020)

4.6 Regression Analysis

Variables against which financial performance was regressed were; innovations, liquidity, firm size and management efficiency. The analysis was at 5% significance. Critical value given by F – table was compared with the figure from the regression model. The findings are given in table 4.7.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.533[a]	.284	.225	.1945397	2.328

a. Predictors: (Constant), Management efficiency, Firm size, Liquidity, Innovations
b. Dependent Variable: ROA

Source: Research Findings (2020)

R square shows changes in the response variable resulting from variations in predictor variables. From results in table 4.7 above, R square was 0.284, a revelation that 28.4% variations in financial performance of commercial and service firms stems from variations in innovations, liquidity, firm size and management efficiency. Alternative variables outside the model account for 71.6% variations in financial performance. Additionally findings showed that the independent variables exhibited moderate relationship with financial performance as evidenced by a 0.533 correlation coefficient (R). A durbin-watson statistic of 2.328 provided evidence that the residuals of variables were not serially correlated because it was lower than 1.5.

Table 4.9: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	.721	4	.180	4.764	.003[b]
1	Residual	1.817	48	.038		
	Total	2.538	52			

a. Dependent Variable: ROA
b. Predictors: (Constant), Management efficiency, Firm size, Liquidity, Innovations

Source: Research Findings (2020)

The significance figure is 0.003 that is lower than p=0.05. This indicates the model was sufficient in estimating how innovations, liquidity, firm size and management

efficiency influence financial performance of NSE listed commercial and service firms.

R- square was used in indicating the direction of the relation between variables. The p-value under sig. column indicated the significance of the relation between the response and the predictor variables are. The 95% confidence, implies a p-value lower than 0.05. Consequently, a p-value that is higher than 0.05 shows an insignificant relationship between the predictor and response variable. Results are in table 4.9

Table 4.10: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.889	.282		-3.155	.003
	Innovations	.079	.037	.138	2.112	.036
	Liquidity	.152	.038	.524	3.973	.000
	Firm size	.185	.139	.182	1.326	.191
	Management efficiency	.089	.039	.283	2.271	.028

a. Dependent Variable: ROA

Source: Research Findings (2020)

From the findings, with the exception of firm size, the other variables produced positive substantial values (high t-values, $p < 0.05$). Firm size produced positive but not statistically significant value as shown by a p value of higher than 0.05.

The equation below was determined:

$Y = -0.889 + 0.079X_1 + 0.152X_2 + 0.089X_3$

Where,

Y = Financial performance

X_1 = Innovations

X_2 = Liquidity

X_3 = Management efficiency

From the model, the constant = -0.889 shows that if the variables (innovations, liquidity, firm size and management efficiency) were at zero, performance would be -0.889. A unit increase in innovations, liquidity or management efficiency would increase in financial performance by 0.079, 0.152 and 0.089 respectively while firm size was insignificant.

4.7 Discussion of Research Findings

The study's intent was assessing how innovations influence performance of NSE listed commercial and service firms. Innovations was the dependent variable given by the number of new products, services, processes and markets per annum. The control variables were liquidity given by current ratio, management efficiency given by total revenue to total assets and firm size given by debt to assets ratio. Financial performance was response variable given by ROA.

The Pearson correlation coefficients showed that liquidity has a positive substantial correlation with performance. Innovations exhibited a positive but not substantial relation with financial performance of commercial and service firms listed at the NSE. The study also showed a positive but not substantial correlation between firm size and management efficiency with performance of NSE listed commercial and service firms.

The summary showed that the predictor variables: innovations, liquidity, firm size and management efficiency explains 28.4% changes in response variable given by R^2 which implies that different factors outside the model explain 71.6% of variations in financial performance. The model was sufficient at 95% confidence since the F-value is 4.764. This confirms that the model was sufficient in predicting and explaining how

the variables relate.

Findings concur with De Oliveira, Basso and Kimura (2018) who analysed the relationship between innovations and financial performance of Brazilian companies. Through the use of the Brazilian Institute of Geography and Statistics' (IBGE), official databases related to innovation and performance, they sampled 5,025 firms using exploratory factor analysis and structural equation modeling. From the findings, it was concluded that innovation efforts are able to aid in the generation of positive impacts.

The findings are also in line with Ndesaulwa and Kikula (2016) who explored the effect that innovation had on SMEs performance in Tanzania with the help of a survey design. A population of 500 sampled SMEs in Dar es Salaam was studied and both raw and published sources of data were used. A regression equation was employed for testing the connection amid innovation and SMEs' performance while descriptive statistics was used in analyzing the trend of the variables. Innovation and performance were found to have a positive connection.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings, conclusion, and limitations encountered in the investigation. It also recommends policies that will be useful to policy formulators in improving the expectations of listed commercial and service firms in achieving improved performance. Additionally, will give suggestions for future researchers.

5.2 Summary of Findings

The objective of this research was to assess how innovations influence financial performance of NSE listed commercial and service firms. The selected variables for investigation included innovations, liquidity, firm size and management efficiency. A descriptive cross-sectional design was selected for this purpose. Secondary data was sourced from CMA and analyzed using SPSS. Annual data for 11 commercial and service firms for five years was obtained from the commercial and service firms' reports.

From correlation analysis, liquidity had a positive substantial correlation with financial performance of commercial and service firms. Innovations exhibited a positive but not substantial association with financial performance of NSE listed commercial and service firms. The research also showed a positive but not statistically significant correlation between firm size, management efficiency and financial performance of NSE listed commercial and service firms.

From the results of regression analysis, R square was found to be 0.284, a revelation that 28.4% of the changes in financial performance of NSE listed commercial and

service firms stems from variations in innovations, liquidity, firm size and management efficiency. Other factors outside the model account for 71.6% of the changes in financial performance. Results showed a moderate correlation between the selected predictor variables and commercial and service firms' financial performance (R=0.533). Findings from ANOVA test showed that the F computed at 5% significance level was higher than the critical value while the p value was 0.003 implying that the model was statistically substantial in predicting the influence of the four selected independent variables on financial performance of NSE listed commercial and service firms.

Regression results show that when all variables (innovations, liquidity, firm size and management efficiency) were at zero, performance would be -0.889. A unit increase in innovations, liquidity or management efficiency would increase in financial performance by 0.079, 0.152 and 0.089 respectively while firm size was not found to be statistically significant.

5.3 Conclusion

Findings show that the listed commercial and service firms' financial performance is significantly influenced by innovations. The study shows that a unit increase in this variable substantially increases performance of commercial and service firms. Firm liquidity had a positive substantial relation to performance and hence increasing liquidity improves performance to a significant extent. The study also showed that management efficiency was statistically significant in determining financial performance and hence the study concluded that management efficiency has a profound impact on performance of the selected firms. Further, the study found that

firm size has a positive but weak influence on financial performance hence concluding that firm size is not a significant determiner of firm size.

The conclusion is that the independent variables selected; innovations, liquidity, firm size and management efficiency notably impact performance of the selected firms. These variables have a notable impact on the financial performance of commercial and service firms given that the p value in ANOVA is less than 0.05. The fact that that selected variables explain 28.4% variations in performance implies that 71.6% of variations in financial performance of commercial and service firms are as a result of other factors not considered in the model.

This study agrees with the findings of Waweru (2018) who studied how innovations impacted firms in the agricultural sector with a listing at the NSE. A qualitative design was chosen in this study with the survey method being the primary tool for collecting data that was primary in nature. An interview guide was used in this process. Content analysis was part of the qualitative analysis which was used in evaluating the responses, making conclusions and to deriving recommendations. The conclusion of the study was that technological capability and firm performance are positively related.

This study also agrees with Ekuam (2019) who sought to assess the effect of innovations on organization performance of Kenya's internet service providers. Primary data was relevant in this study and was collected using an interview guide. The targeted respondents in this study were managers of six largest ISPs in Kenya or their representatives. The data collected was primary and qualitative and was analyzed through content analysis. The study concluded that innovations, that is product and

process, process, marketing and technological innovation have affected organization performance of internet service providers in Kenya positively.

5.4 Recommendations

Findings showed that the relation between innovations and financial performance is positive and substantial. Recommendations for policy change include: NSE listed Commercial and service firms should invest on innovations to enhance financial performance. The study also recommends that listed commercial and service firms should lay infrastructure as well as purchase technological equipment that are needed to fast-track adoption of innovations. This would help them to position themselves in readiness for adoption of new technology as technology is changing constantly. This would thus help increase their competitiveness both locally and internationally and in essence boosting their performance.

The study showed a positive relation between financial performance and liquidity. The recommendation is that a thorough assessment of listed commercial and service firm's liquidity position should be carried out to make sure the companies are operating at sufficient liquidity levels thereby improving financial performance. The reason is that liquidity is highly important as it impacts firm operations.

Management efficiency had a substantial positive impact on performance of NSE listed commercial and service firms. The recommendation is that commercial and service firms should develop best talent management strategies to ensure attraction and retention of talented and dedicated employees as this will go a long way in enhancing financial performance. Some of the talent management practices they should pay keen attention are workforce planning, recruitment, learning and development and employee rewards and compensation.

5.5 Limitations of the Study

This study focused on some factors that are hypothesized to influence performance of NSE listed commercial and service firms. Specifically, the study focused on four explanatory variables. In reality however, other variables are likely to influence financial performance of firms some which are internal such as financial leverage and corporate governance while others are not under the control of management such as economic growth exchange rates, balance of trade, and unemployment rate among others.

The study adopted the analytical approach which is highly scientific. The research also disregarded qualitative information which could explain other factors that influence the association between innovations and performance of commercial and service firms. Qualitative methods such as focus group discussions, open ended questionnaires or interviews can help develop more concrete results.

The research concentrated on 5 years (2015 to 2019). It is not certain whether the findings would hold for a longer time frame. It is also unclear as to whether similar outcomes would be obtained beyond 2019. In completing the analysis of the data, multiple linear regression model was used. Because of the limitations involved when using the model like misleading findings from a change in variable financial performance, the researcher cannot generalize findings accurately. When data is added to the regression model, the model may produce different findings.

5.6 Suggestions for Further Research

The study's focus was on how innovations influence performance of NSE listed commercial and service firms and relied on secondary data. A similar study based on

primary data collected by in depth questionnaires and interviews on all the 11 NSE listed commercial and service firms would be sufficient in complimenting this study.

This study did not consider all the factors influencing financial performance of NSE listed commercial and service firms and hence recommends that additional studies be made on variables like growth opportunities, industry practices, age of the firm, political stability and other macro-economic variables. By determining the influence of these variables on performance, the policy formulators will implement an appropriate tool that will impact performance.

The research only focused on the commercial and service firms listed at the NSE. The study's recommendations are that further studies be carried out on other firms operating in Kenya. Future studies can also focus on how innovations influence other aspects other than financial performance such as financial inclusion, poverty eradication and overall economic growth.

The attention of this study was drawn to the latest five years because it was the readily available information. Subsequent studies may cover big time frame like ten or twenty years which can be very impactful on this study by either complementing or disregarding the findings of this study. The advantage of a longer study is that it will enable the researcher to capture effects of business cycles such as booms and recessions.

Finally, this study was based on a multiple linear regression model, which has its own limitations such as erroneous and misleading results resulting from a change in variable financial performance. Future researchers should focus on other models like the Vector Error Correction Model (VECM) in exploring the various relations between innovations and financial performance

REFERENCES

Aladwani, A. (2001). Change management strategies for successful ERP implementation. *Business Process Management Journal*, 7 (3), 266-275.

Arora, A., Belenzon, S., & Rios, L. A. (2014). Make, buy, organize: The interplay between research, external knowledge, and firm structure. *Strategic Management Journal*, 35(3), 317-337

Burns, R. B. & Burns, R. A. (2008). *Business Research Methods and Statistics using SPSS*. London. Sage Publications Limited.

Carroll, N. (2016). So that's what the impact of IT innovation looks like? Examining the socio-technical dynamics of public service innovation. *Journal of Enterprise Information Management*, 9 (5) 20-25

Clarke, V. (1995). *Situational Crime Prevention. In Michael Tonry and David P. Farrington (eds.)*, Building a Safer Society: Strategic Approaches to Crime Prevention. Chicago: University of Chicago Press.

Collins, J. & Porras, I. J. (2011). *Built to last successful habits of visionary companies*. New York: Harper Business.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–339.

De Oliveira, K., Basso, S., & Kimura, R. (2018). Relationship between innovations and financial performance of Brazilian companies, *International Journal of Innovative Studies*, 2(4), 153-164

Frankelius, P. (2009). Questioning two myths in innovation literature, *Journal of High Technology Management Research*, 20 (1), 40–51

Gamal, D., Salah, T., & Elrayyes, N. (2011). *How to measure organization innovativeness?* An overview of innovation measurement frameworks and innovation Audit/Management tools. Innovation Support Department

Gefen, D., Karahanna, E., & Straub, D. (2013). Trust and TAM in online shopping. *Management information systems Quarterly Journal*, 27(1),51-90

Hafeez, M. H. (2013). *Does Innovation and Relational Learning Influence SME Performance?* Pakistan Study. Canada: Canadian Center of Science and Education

Jimenez, J.D., & Sanz-Valle, R. (2011). Innovation, organizational learning and performance, *Journal of Business Research*, 64(4), 408-417

Kantor, P. (2001). *Innovation and business performance*. Chicago: Chicago International Publishers.

Kemp, R. (2003). Innovation and Firm Performance, *Scales Research Reports*, EIM Business and Policy Research, Zoetermeer

Khan, J. A. (2008). *Research Methodology*. New Delhi. APH Publishing Corporation

Kiggima, C. W. (2018). *Technological innovations and performance of micro and small enterprises in Nairobi County, Kenya*, Unpublished MSC project, University of Nairobi

Mabrouk, A., & Mamoghli, C. (2010). Is financial innovation influenced by financial liberalization? Evidence from the Tunisian banking industry. Journal of Banks and Bank Systems, 5(3), 97-111.

Mahajan, V. & Peterson, R.A. (1985). *Models for Innovation Diffusion.* Sage, Thousand Oaks.

McAdam, R., & Keogh, W. (2004). Transitioning towards creativity and innovation measurement in SMEs. *Creativity and Innovation Management,* 13(2), 126-139.

Mensah, M. (2019). Impact of financial innovations on the financial performance of selected banks in Ghana, *North American Academic Research,* 1(1), 1-35

Moon, J., & Kim, Y. (2001). Extending the TAM for a World-Wide-Web context. *Information &Management, 38* (4), 217-230.

Munyoroku, E. (2014). *Factors influencing implementation of enterprise resource planning in the mobile communications sector in Kenya.* Unpublished MBA project University of Nairobi, Nairobi, Kenya.

Mutie, A. (2018). *Technological innovations and performance of government agencies in Kenya,* Unpublished MBA, University of Nairobi

Ndesaulwa, A. P., & Kikula, J. (2016). The impact of innovation on performance of small and medium enterprises (SMEs) in Tanzania: A Review of Empirical Evidence. *Journal of Business and Management Sciences,* 4(1), 1-6

Njagi, E.M (2016). *The effect of product innovation on the profitability of private manufacturing firms in Nairobi County.* Unpublished MBA Project, University of Nairobi

Nuryakin, U. M. (2018). Financial performance and product innovation: Key Success of Batik SMEs Marketing Performance in Indonesia. *Academy of Strategic Management Journal, 17*(2). 50-89

Onikoyi, I.A. (2017). Impact of product innovation on organisational performance (A Survey of Nestle Nigeria Plc), *Journal of Marketing and Consumer Research,* 37(1), 2422-8451

Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnila, S. (2014). Consumer acceptance of online banking: An extension of the Technology Acceptance Model. *Journal of Internet Research,* 14(3), 224-235

Pisano, G. P., & Teece, D. J. (2011). How to capture value from innovation: shaping intellectual property and industry architecture, *California Management Review,* 50 (1), 278-296

Potaloglu, V., & Ekin. S., (2015). An empirical investigation of the Turkish consumer acceptance of Internet banking services. *International Journal of bank marketing,* 19(4)156-165

Prodromos, C. & Dimitrios C. (2018). The role of innovation in building competitive advantages: an empirical investigation. *European Journal of Innovation Management,* 21(1), 144-169

Rogers, E. M. (1995). A prospective and retrospective look at the diffusion model. *Journal of Health Communication,* 9(S1), 13-19.

Ruttan, H. (1984). *Innovation and diffusion.* London: Cambridge Publishers.

Sevcik, P. (2004). Innovation diffusion. *Business Communication Review.* 34(9):8-11.

Tan, M. & Teo, T.S.H. (2000). Factors influencing the adoption of internet banking. *Journal of the Association for Information Systems,* 1 (5), 1-42.

Upton, D.M., Kim, B. (1999). Alternative Methods of Learning and Process Improvement in Manufacturing, *Journal of Operations Management,* 16, 1-20.

Waweru, V. (2018). Effect of innovations on *performance of agricultural firms listed at the Nairobi Securities Exchange,* Unpublished MBA, University of Nairobi

Worch, H., & Truffer, B. (2012). Absorptive capacity, learning processes and combinative capabilities as determinants of strategic innovation. *European Management Journal,* 30(1), 57 – 73

Yilmaz, C., Alpkan L., & Ergun, E. (2005). Cultural determinants of customer and learning oriented value systems and their joint effects on firm performance. *Journal of Business Research* 58 (10), 40-52

APPENDICES

Appendix I: Commercial and Service Firms Listed at the NSE

1. Atlas Development and Support Services
2. Express Ltd
3. Kenya Airways Ltd
4. Longhorn Kenya Ltd
5. Nation Media Group
6. Scangroup Ltd
7. Standard Group Ltd
8. TPS Eastern, Africa (Serena) Ltd
9. Uchumi Supermarket Ltd
10. Deacons (East Africa)
11. Nairobi Business Ventures

Appendix II: Research Data

Firm	Year	ROA	Innovations	Firm size	Liquidity	Management efficiency
Express	2019	-0.2247	17.0000	5.5064	0.6187	0.8165
	2018	-0.2507	12.0000	5.5562	0.5974	0.5144
	2017	-0.2550	13.0000	5.5793	0.8521	0.5295
	2016	-0.1358	14.0000	5.6453	1.1256	0.4197
	2015	-0.0484	12.0000	5.6794	0.5926	0.2391
TPS	2019	0.0102	10.0000	7.2455	0.4338	0.2560
	2018	0.0068	11.0000	7.2427	1.0792	0.2181
	2017	0.0076	9.0000	7.2300	1.6347	0.1629
	2016	-0.0177	9.0000	7.1991	1.0404	0.1247
	2015	0.0172	10.0000	7.2025	0.8038	0.0348
Scan Group	2019	0.0357	21.0000	7.1591	2.0699	0.2365
	2018	0.0372	20.0000	7.1386	2.2816	0.0141
	2017	0.0305	19.0000	7.1299	2.3779	0.0221
	2016	0.0221	19.0000	7.0958	2.7557	0.2429
	2015	0.0438	18.0000	7.1233	2.4602	0.1798
Longhorn Publishers Limited	2019	0.0718	17.0000	6.3816	1.2090	0.0605
	2018	0.0638	17.0000	6.2692	1.3700	0.4567
	2017	0.0540	16.0000	6.2711	1.6456	0.6456
	2016	0.0915	17.0000	5.8384	1.5002	0.6042
	2015	0.1266	18.0000	5.8765	2.3867	0.6121
KQ	2019	-0.0553	7.0000	8.1356	0.2160	0.8117
	2018	-0.0626	7.0000	8.1692	0.3649	0.5988
	2017	-0.1908	6.0000	8.1922	0.4073	0.6589
	2016	-0.1878	2.0000	8.2602	0.5021	0.6398
	2015	-0.0200	3.0000	8.1722	0.4648	0.6294
Nation Media	2019	0.0944	18.0000	7.0491	1.9536	0.0057
	2018	0.1193	19.0000	7.0539	2.0223	0.2672
	2017	0.1343	18.0000	7.0854	2.0727	0.2726
	2016	0.1631	24.0000	7.1037	2.0954	0.2747
	2015	0.2018	20.0000	7.0772	2.3651	0.3414
Standard Group	2019	0.0559	18.0000	6.6699	0.9120	0.3769
	2018	-0.0473	18.0000	6.6493	0.8469	0.1996
	2017	0.0451	26.0000	6.6439	1.1693	0.2519
	2016	-0.0665	17.0000	6.6390	0.9537	0.1449
	2015	0.0538	18.0000	6.6129	1.2192	0.1746
Sameer	2019	-0.2673	21.0000	6.4129	0.9038	0.0058
	2018	0.0271	17.0000	6.4727	1.5485	0.4094

Firm	Year	ROA	Innovations	Firm size	Liquidity	Management efficiency
	2017	-0.1229	15.0000	6.5173	1.5805	0.2166
	2016	-0.0012	13.0000	6.5742	2.2050	0.3170
	2015	-0.0235	16.0000	6.5863	2.5238	0.0000
Atlas Development and Support Services	2019	0.0266	11.0000	7.0075	0.9903	0.0415
	2018	0.0129	10.0000	6.9670	1.0299	0.1184
	2017	0.0224	12.0000	6.9870	1.0054	0.0786
	2016	0.0237	12.0000	6.9537	1.0562	0.3178
	2015	0.0435	11.0000	6.9113	1.1994	0.1621
Uchumi	2017	-0.9823	2.0000	6.6362	0.0827	0.2897
	2016	-0.7197	3.0000	6.6992	0.2587	0.2735
	2015	-0.6129	2.0000	6.8071	0.3431	0.1038
Deacons (East Africa) PLC	2019	-0.1221	13.0000	5.1575	1.2285	0.2560
	2018	-0.5426	14.0000	6.1911	0.8003	0.2181
	2017	-0.1218	16.0000	6.3583	1.6445	0.1629
	2016	0.0405	16.0000	6.3955	2.9022	0.1247
	2015	0.0296	14.0000	6.2927	2.8984	0.0348