

**EFFECT OF INNOVATIONS ON FINANCIAL
PERFORMANCE OF PHARMACEUTICAL
MANUFACTURING FIRMS IN NAIROBI COUNTY,
KENYA**

BRENDA NANJALA WEKESA

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DECLARATION

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

Signed: 

Date: 24/10/2022

BRENDA NANJALA WEKESA

D61/19290/2019

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

Signed: 

Date: 23rd November 2022

DR. KENNEDY OKIRO

DEPARTMENT OF FINANCE AND ACCOUNTING

UNIVERSITY OF NAIROBI

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DEDICATION

I dedicate this work to my parents, Mr. Mark Wanjala and Emily Wekesa.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
ATM	Automated Teller Machine
KPLC	Kenya Power and Lighting Company
MFI	Micro Finance Institutions
PPB	Pharmacy and Poisson's Board
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SME	Small and Medium Enterprise
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
VIF	Variance Inflation Factors

ABSTRACT

Innovations play a significant role in improving customer service while decreasing client's transactional cost leading to increased customer retention which in effect enhances financial performance. The objective of the study was to determine the effect of innovation on financial performance of pharmaceutical manufacturing firms in Nairobi County, Kenya. It also aimed at reviewing the increasing body of theoretical and empirical studies that have endeavored to examine the extent and effect of innovations on financial performance. The aspects of innovation utilized in the study were; product innovation, process innovation, and market innovation. Additional control variables, which entailed; liquidity and firm size, were also incorporated. The theories utilized in the current study were; the disruptive innovation theory, diffusion of innovation theory and technological acceptance model. The target population was all the 38 pharmaceutical manufacturing firms in Nairobi County, Kenya. A census was done where the entire population was examined. A hybrid of primary and secondary sources of data was employed. Primary data collection was majorly employed, with the utilization of closed ended questionnaires as the study data collection tool. This was a cross-sectional study. The study applied both descriptive statistics as well as inferential statistics that entailed correlation and multiple linear regression analysis. The study findings were that that product innovation and process innovation were exhibited to a great extent, while market innovation was exhibited to a very great extent in the pharmaceutical manufacturing firms in Nairobi County, Kenya. Further findings were that that the pharmaceutical manufacturing companies are able to meet their financial obligations as and when they fall due. Additional findings are that the pharmaceutical manufacturing companies are medium sized companies. Other findings were that the returns of the pharmaceutical manufacturing companies are generally good. The study findings further revealed that firm size has a positive significant correlation with financial performance. However, none of the innovation aspects, as well as liquidity, are significantly correlated to financial performance. Additional findings were that the innovation aspects, liquidity, and firm size can be utilized to significantly predict financial performance. The final findings were that market innovation had a negative significant effect on financial performance. Product innovation and process innovation also had negative effects on financial performance but the effects were not statistically significant. Additionally, liquidity and firm size each had a significant positive relationship with financial performance. Policy and practice recommendations were made to the Pharmacies and Poisons Board and the Ministry of Trade and Industrialization, as well as to pharmaceutical manufacturing firms, as well as other commercial, not-for-profit, and public firms' management, and consultants not to focus on innovations when trying to augment financial performance but should endeavor to establish other factors that may enhance the financial performance. Additional recommendations are made to the policy makers and practitioners to ensure liquidity in order to minimize liquidity risk as well as aim at facilitating the firms to grow in size in order to capitalize on economies of scale. However, the firm sizes should be optimal and the scaling up should also be moderated. Final recommendations are made to the practitioners to conduct a cost benefit analysis before introducing innovations.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Scholars propose that when competing for the future market, innovations emerge as a result of skill and competencies collaboration integration (Torres, 2018). Importantly, the purpose of innovations in organizations is paramount throughout the world to the successful and profitable services delivery in those organizations and enhancement of financial performance. Additionally, innovations play a significant role in improving customer service while decreasing client's transactional cost leading to increased customer retention which in effect enhances financial performance (Ahmed, Manwani, & Ahmed, 2018).

This research drew support from disruptive innovation theory, diffusion of innovation theory and the technology adoption model. Disruptive innovation theory by Christensen (1997) was the anchor theory and it is based on the idea that innovations can transform a prevailing market by improving access, ease, cost efficiency, as well as market easiness where items as well as services are expensive. The theory holds that use of disruptive technology is crucial in attaining intended performance (Oppong, 2014). According to Rogers (1995), the mechanism by which a new idea spreads through a particular social system depends on the use of a particular preference channel. The Technology Acceptance Model (TAM) clarifies how consumers use and benefit from a cutting-edge idea (Davis, 1989). This study will use TAM to examine how pharmaceutical companies in Nairobi adopt new technologies.

The study focused on pharmaceutical firms in Nairobi; this is because the last decade has seen pharmaceutical firms in Kenya embrace innovations (Mohamed, 2018). In the wake of a large demand for logistics services given the increasing number of patients on day to day basis during the COVID 19 outbreak, diminishing financial resources, the need to offer high quality services to customers and the requirement of being frugal in expenditure, pharmaceutical firms faced were overwhelmed in meeting the surge in demand for pharmaceutical products. Hence there was the need for innovations to meet this overwhelming need for pharmaceutical products. This study therefore sought to establish the innovations put in place by pharmaceutical firms and the effects that these innovations had on financial performance.

1.1.1 Firm Innovations

Firm innovations may be defined as the value for clients' creation, the entry into new markets, and the description of existing markets, and the enhancement of the value of services and goods to clients (Gebauer, Worch & Truffer, 2012). According to Palmer and Kaplan (2016), innovation is a comprehensive method that integrates business strategies, consumer insights, as well as strategic alignment as building blocks for development that will help the organization attain its objectives. The process therefore involves use of new business models that change the game while creating superior value to consumers, and the company. According to Tufano (2014), innovation requires creating and popularizing new tools in addition to new processes and markets.

Innovations have been used as a mechanism to an end though not the end itself. Globalization, volatility in client needs, competitiveness, and technical improvements

are examples of external environment dynamics that have produced ongoing environmental upheavals and necessitate more innovations from executives (Thompson & Strickland, 2013). As a growth technique, innovation aims to break into modern markets, share market increase, as well as provide a company a competitive advantage via employing strategies that are diverse from the competition. The rising competitiveness in international marketplaces has compelled firms to acknowledge the innovation essence as the business environment changes and traditional services as well as products lose value (Nbakk & Jensen, 2013).

In regard to operationalization, innovations have been operationalized before in various ways (Dernirguc-Kunt et al., 2018). Various innovations can be incorporated into business plans to provide outcomes like increased market share, productive operations which improve the firm's consumer perceptions, as well as overall enhanced efficiency. The following are some of the innovations that have been recognized: marketing, process, organizational, and product innovation (OECD, 2016). This study attempted to quantify innovations extent, as defined by product innovations, process innovations and marketing innovations due to their wider applicability in previous literature.

1.1.2 Financial Performance

Financial performance refers to the ability of a corporation to attain a variety of its financial goals, like profitability (Almajali, Alamro, & Al-Soub, 2012). Financial performance refers to the level up to which an organization has met or even exceeded its financial benchmark. Financial performance demonstrates the level to which a firm meets its financial objectives. Financial performance depicts how a corporation

generates money through using assets, and as a result, it aids decision making for stakeholders (Baba and Nasieku, 2016). As per Nzuve (2016), the health of any firm is mostly determined by the financial performance, that is an indication of the strengths as well as the shortcomings of such a firm. Furthermore, for regulatory purposes, the government together with regulatory agencies have a concern on the performance of corporations.

Omondi and Muturi (2013) posit that the necessity of focusing on financial performance is important since it primarily affects factors that directly affect the financial statements or the company's reporting. A company's performance is the primary criterion for evaluation by external stakeholders (Bonn, 2000). Consequently, the company's performance is employed as a metric. How well a company accomplishes its objectives determines how well it performs. According to Lin (2008), a company's financial performance results from achieving both internal as well as external goals. The terms growth, rivalry, and survival are ones that are used to characterize performance (Nyamita, 2014).

Evaluation of financial performance is done by employing several methods which are supposed to be harmonized. Asset returns (ROA), size of company, equity returns (ROE) and sales return (ROS) are the measures used to evaluate financial performance. In relation to Mwangi and Murigu, (2015). often used metrics for evaluating financial performance are ROA and ROE. In contrast to the ROE, which looks at how a firm is using shareholders' equity, the ROA measures a company's profitability using all of its assets. Market-based indicators including market capitalization, dividend yield, market to equity par value, and earnings per share could also be used to measure financial performance (Baba & Nasieku ,2016). Because

ROA has a larger range of applications in prior literature, the current study employed it to be the indicator of financial performance.

1.1.3 Innovations and Financial Performance

The diffusion of innovation hypothesis says that every economically impactful change centers on entrepreneurship, market power and innovation. This justification leads to theories regarding the technological revolution. According to Rogers (1995), an invention temporarily creates a monopoly, which is then broken up through imitation. Therefore, institutions will undoubtedly have an impact on performance if they use technology innovations and secure hedging other institutions utilizing innovative products and services.

Despite the perceived benefits of the innovations and the electronic commerce, there is still a debate on if and how the adoption of this technology improves the performance of firms (Matevu & Kerongo, 2015). The investment in innovation and technology and electronic commerce by organizations needs innovation costs which comes along with various risks that the firms should be willing to take in order for them to accurately assess the effect of the adoption on financial performance (Idun & Aboagye, 2014).

According to Asongu (2015) the growth of technology and innovations has impacted almost each aspects of life. Innovation has changed and has redefined the way firms are running since the technology is now regarded as a major input for the organization's achievement, for firms as they transform inputs to outputs. According to Dasgupta (2011) in the recent years, firms have developed innovative products and

services and offered a wide range of services in the effort to increase efficiency which is the most critical goal of any firm.

1.1.4 Pharmaceutical Manufacturing Firms in Nairobi County

The Pharmacy and Poisons Board (PPB), which was founded under a particular Act of Parliament, regulates all enterprises dealing in pharmaceutical items in Kenya. The PPB has put in place several processes and rules to help companies manufacturing, transporting, retailing, and selling pharmaceuticals to final customers in the nation work more efficiently. This is done to guarantee the overall efficacy, efficiency, and industry quality (Pharmacy & Poisons Board, 2020). Manufacturers, distributors, as well as retailers are the three main segments that make up the pharmaceutical industry.

The government's attempts to enhance the pharmaceutical industry have had a positive impact on the sector's growth (Economic Survey, 2016). In Nairobi County, there are 38 significant companies that manufacture pharmaceutical items (Ministry of Health, 2021). The sector has experienced considerable expansion, requiring its companies to develop appropriate innovation strategies in order to remain competitive.

Today's pharmaceutical companies' experience a hyper-competitive environment. There have been numerous examples of fraudulent medications in the country, indicating that the country's current regulatory mechanism is ineffective. There have been multiple instances **PPB** seized several among the nation's already-distributed pharmaceuticals, putting these manufacturers at a competitive disadvantage.

Innovation strategies are critical to regaining market share and competitive advantage that have been challenged by these problems (Bartlett & Beamish, 2018). Subsequently, the study aimed at determining how these innovations affect the financial performance of the pharmaceutical manufacturing enterprises.

1.2 Research Problem

Financial performance is one of the most significant unresolved financial issues. The issue confronting companies is to provide innovative products and services as an outlet for enhanced performance (Mullan, Bradley & Loane, 2017). Ahmed et al. (2018) claim that innovations play a significant role in improving customer service as well as reducing the costs of transactions for customers leading to increased customer loyalty and financial performance. The majority of customers are educated, conscious of the times they live in, and have their own needs, tastes, as well as preferences. In this sense, innovation is viewed as a potential tactic companies may use to meet their financial performance goals and endure in the current competitive corporate environment.

Pharmaceutical firms are also facing increased rivalry as the number of traditional and herbal therapeutic items grows. As per Ameade, Ibrahim, Ibrahim, Habib, and Gbedema (2018), traditional medicine is used by around 70% of Kenya's population. The entire pharmaceutical business, particularly those that manufacture pharmaceuticals, is concerned about this trend. It puts their financial performance and long-term viability in jeopardy. In attempts to reclaim a competitive edge in this instance, manufacturing pharmaceutical businesses must innovate. In the wake of a

large demand for logistics services given the increasing number of patients on day to day basis during the COVID 19 outbreak, diminishing financial resources and the need to provide quality services to their clients, pharmaceutical firms have developed innovations to enhance their financial performance in this environment.

Despite the fact that several surveys have been undertaken for this topic, their focus has been mostly on a few aspects of innovations as related to financial performance. Karabul (2015) focused on how innovation strategy influenced performance of manufacturing enterprises of Turkey. This study discovered that there was substantial positive relationship linking innovation to performance in Turkey manufacturing firms. In Yemen, Alqershi, Bin Abas, and Mokhtar (2018) focused on how strategic innovation affected the performance of Yemen manufacturing SMEs. This research discovered that strategic innovation absence was the poor performance root cause. Hujud and Hashem (2017) examined the connection between Lebanon's financial innovations and profit statuses of commercial banks and discovered that financial innovations have a positive and substantial relation to profitability. Since each of this research was carried out in a diverse environment, the conclusions cannot be generalized to the current research.

Locally, Mwangi and Wekesa (2017) investigated how technological innovations affected Kenya Airways' overall performance. From their findings of the research, technological innovations have an impact on Kenya Airways Limited's overall performance. In contrast, Kariu (2017) studied the financial technology and profitable business banking in Kenya and concluded financial technology has no statistically

substantial link to commercial bank profitability. Abdulkadir (2019) investigated how the usage of financial innovations affected the financial performance of Kenyan commercial banks and came to the conclusion that the technology incorporated in the financial industry positively influences performance.

The present research gains its motivation from the idea that despite the increased adoption of innovations among pharmaceutical firms, some of them are still experiencing financial performance challenges. Despite the existence of prior studies there exists contextual, conceptual and methodological gaps that need to be filled. Conceptually, prior studies have operationalized innovations differently hence findings depend on the operationalized method. Contextually, prior studies have mostly focused on commercial banks which operate differently compared to pharmaceutical firms. Methodologically, the research methodologies adopted have not been uniform hence explaining variance in results. This study has been based on the outlined gaps and it attempts answering the study question; how innovation influence financial performance of pharmaceutical manufacturing firms in Nairobi County?

1.3 Research Objective

This research had an objective of determining the influence of innovation on financial performance of pharmaceutical manufacturing firms in Nairobi County, Kenya.

1.4 Value of the Study

The results of this research are going to contribute to the existing theoretical and empirical literature on innovation and performance. The findings from this study are going to help in developing theories by pointing out the shortcomings and offering

insights of these existing theories to the study. On the basis of the suggestions for additional research, additional research may also be conducted.

The findings of the research will help the government as well as the regulator PPB during the process of development of regulations to regulate the population that is under the study. It will also be crucial to potential investors who might be interested in making their investment on the population under this study. It can do this by giving information on the risk-return tradeoffs existing in such organizations and how they affect performance.

Conclusions are going to aid investors as well as practitioners comprehend the link connecting these two variables, this will be important in ensuring strong management team having diverse viewpoints and competences streamlining operations as well as managing innovation, at the same time to build confidence between corporate stakeholders, eventually optimizing performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The theories that underpin innovation and performance are explained in this chapter. It also reviews the prior empirical research, identifies knowledge gaps, as well as offers a summary of conceptual framework and hypotheses illustrating the anticipated link between the variables under consideration.

2.2 Theoretical Framework

The following section surveys all theories underpinning this research of innovation and performance. This study reviewed the disruptive innovation theory, diffusion of innovation theory and technological acceptance model.

2.2.1 Disruptive Innovation Theory

It was pioneered by Christensen (1997). It is based on the idea that innovations can transform a prevailing market by improving access, ease, cost efficiency, as well as market easiness where items as well as services are expensive. Disruptive innovation, according to Christensen (1997), is best pertinent in an unappealing market where new products and services later reshape the market. Comprehending the natural laws that leverage disruptive technologies in new markets as well as products creation is the most effective path to success (Kostoff, Boylan, & Simons, 2004). Other critical concerns include understanding the disruptive technology dynamics or if management will be able to adapt correctly to taking advantage of emerging chances.

Firms begin by focusing on the market's lower end clients (lower tier consumers) by offering goods as well as services which they can afford (Christensen, Baumann, Ruggles, & Sadtler, 2006). Disruptive innovation allows customers to buy products or services which previously they could not afford (Baumann, Ruggles, & Sadtler, 2006). This may not be the situation; there are variables that allow consumers to buy items and services that they could not formerly afford, such as competition and government rules.

According to Kostoff et al. (2004), moreover, this theory posits that enterprises that maintain innovation exclusively target high-end clients attempting to improve their performance. However, this might not always be the situation; the world's most inventive organizations target all types of clients. They can broaden their market segments scope, boost revenue, and improve performance this way. The theory hypothesizes a positive innovation impact on financial performance.

2.2.2 Diffusion of Innovation Theory

It was pioneered by Rogers (1962). An innovation refers to any newly introduced ideas, practices or item into a social structure whereas, on the contrary, innovation dissemination is the way the new concept is transmitted in a certain time to the social system via a default route. In this regard, this theory attempts to outline how new innovations are accepted and utilized in a social system such as mobile banking and online banking (Clarke, 1995). Rogers (1995) broadened the idea by saying that the study on technological diffusion was insufficient, further explaining that the technology cluster had additional distinctive characteristics that were thought to be fully linked. That is why the advantages and repercussions of embracing or refusing to

embrace innovation should be notified to people and societies at large. Rogers (2003) says plainly that interpersonal connections are necessary because dissemination includes a social process.

Robinson (2009) criticizes the theory for taking a dramatically different view of other change theories. It is not about attempting to persuade people to change, though about making progress or re-inventing goods and character, so that they can better suit what the person wants or needs. In this idea, people do not change, but innovations have to adapt to the demands of the people. The invention process takes time, as per Sevcik (2004), and it does not happen immediately. He also believes that the spread of innovation and the opposition to changes has the greatest impact on the process of innovation because it delays it down.

Rogers (2003) argues that the perception of these characteristics by an organization affects the degree of breakthrough technology adoption. If an organization realizes the benefits arising from innovation, these innovations will be taken into account when additional technologies are available. Innovation is quicker adopted in companies having internet access as well as information technology than in those lacking. The hypothesis is based on the present research, which shows how innovations like innovation are taken up by financial institutions. This theory was appropriate to the research as it aided in comprehending how innovation is taken up by pharmaceutical firms and how this influences performance.

2.2.3 Technology Acceptance Model

It is sometimes called the Davis model because it was created by Davis (1989). The model takes into account how users embrace new technologies. It is used to choose a systems which are both practical and advantageous to users. User acceptance is influenced by the usage of technology and other usability factors rather than the fundamental design of TAMs (Moon & Kim, 2015). The assumption that a technology or computer system will significantly improve work performance once it is implemented defines its anticipated usefulness (Davis, 1989).

The simplicity with which a system can be utilized is still valued; it is a sign that the user has mastered its use and the current technology. A lot of emphasis on the ease of use as a way to forecast system utility is promoted by the model (Gefen, Karahanna & Straub, 2013). As per Potaloglu and Ekin, (2015) people are more willing to use innovation when they believe it works. Aspects such as perceived usability simplicity and perceived utility are seen as essential to the promotion of e-banking.

Research methodology has changed due to the theory of technology acceptance. The current research main objectives are to determine the advantages and disadvantages of introducing innovation into pharmaceutical manufacturing enterprises and to assess how simple or challenging it is to apply innovation in Kenya's pharmaceutical industry. This theory is pertinent research as it helped in understanding how innovation is accepted among pharmaceutical manufacturing firms and how this influences performance.

2.3 Determinants of Financial Performance

A firm financial performance could get affected by a number of elements found in the company either internally or externally. Firm-specific internal variables that are possible to change internally. They include innovation, liquidity risk, asset base as well as capital adequacy. As per Athanasoglou et al., (2005) external factors that affect a company's efficiency include; inflation, GDP, political stability as well as interest rates.

2.3.1 Firm Innovation

Innovation entails making investments with cutting-edge technology in order to raise revenue and the effectiveness and efficiency of the system (Sheleg & Kohali, 2011). Innovation, as per John, Fredrick, and Jagongo (2014), is the use of new innovation to facilitate institutionally regulated transactions that take place on digital platforms instead of the over-the-counter transactions which are considered traditional.

World Bank (2016) has identified that digital platforms and innovation positively affect financial performance and efficiency levels. Despite the perceived benefits of the innovations and the electronic commerce, there is still a debate on if as well as in what manner adoption of this technology improves the performance of firms (Matevu & Kerongo, 2015).

2.3.2 Firm Liquidity

There is a correlation linking the financial performance of a firm to its liquidity (Cheluget, Gekara, Orwan & Keraro's, 2014). They also discovered that liquidity management has a significant impact on performance. Increases in cost efficiency

were significantly influenced by indices of liquidity and solvency; when these indications are taken into consideration, enterprises with higher bought input costs similar to capital have a lower likelihood of becoming efficient (Arif, 2012).

Firms with higher spending while purchasing inputs compared to capital have a low chance of boosting efficiency whenever the indicators of liquidity and solvency are included (Levi, Russell, & Langemeier, 2013). Liquidity or corporate liquidity is the total quantity of liquid assets recorded in the accounting records (Liang Fu, 2016). According to Liang Fu (2016), family businesses have less tolerance for the danger of financial distress when investing in companies with liquidity risk, as seen by their substantially higher levels of corporate liquidity (Liang Fu, 2016).

2.3.3 Firm Size

A company's earnings from economies of scale are inversely correlated with its size. Due to significant economies of scale, firm operational activities have a higher efficiency the larger it is. Large organizations, irrespective of its size, risk losing control of both their operational and strategic activities, which would reduce their efficiency (Burca & Batrinca, 2015).

Large companies can spread their portfolios more and have more market power. They are the ones exposed to organization waste too especially when their expansion occurs rapidly. Amount of invested cash flow greatly depends on the size of the firm. When determining a company's size, as per Almajali et al., (2012) it is crucial to take its workforce, property holdings, and sales volume into account.

2.3.4 Financial Leverage

Based on the sort of debt as well as the manner in which finances are used by the finance officers, financial leverage can be beneficial or cause financial distress. According to Salazar, Soto and Mosqueda (2012), prudent usage and deployment of borrowed funds results in enhanced financial performance. Essentially, debt financing is anticipated to have an effect on a company's working capital amounts, which in turn affects the degree of financial performance (Eckbo, 2008).

The trade-off theory includes the fact that using debt has tax benefits for a business. This is one of two sets of conclusions; other study has shown that higher leverage causes share values to fluctuate more when sensitive information is involved; a company's ultimate fate depends on issues that are kept secret from the general public (Nyamboga, Omwario & Muriuki, 2014).

2.4 Empirical Review

Internally and worldwide, studies have established the link between innovation and performance. This section looks into the objectives, methodology as well as findings of such studies.

2.4.1 Global Studies

Karlsson and Tavassoli (2015) performed research in Europe on strategic innovation practices impact on telecoms firm performance; a correlational research methodology was used in a 15-telecommunication firm's sample. Questionnaires were used to collect data, and firm repository offered secondary sources. The study discovered a beneficial contribution to business performance utilizing descriptive statistics and

content analysis. As per the research, there is a connection between strategic innovation and performance. The performance of new products has improved.

Pri:fti and Alimhmeti (2016) focused their research on market innovation impact and organizational performance in Albania. Descriptive research was used, and 99 companies were chosen by random sampling. Primary data was obtained via a structured questionnaire, whereas the analysis was carried out using structural equation modeling. The conclusions revealed a link between artificial intelligence and marketing innovation. The study further revealed that marketing innovation enhances organization performance.

Chatzoglou and Chatzoudes (2018) conducted a study to see how innovation can aid a company gain a competitive edge. The data was examined using the structural equation modeling technique in this empirical study. The results reveal that a firm's competitive positioning and innovation are directly linked. This demonstrates that as businesses improve their ability to innovate, their prospects of staying competitive improve as well.

Le, Ho and Mai (2019) focused on how financial innovations affects income disparity in economies transformation. Assessing the effect of financial innovations on income inequality in 22 transitional economies from 2005 to 2015 involves using the two-stage least squares model and two financial innovations indices. The research outcomes depicted presence of a negative link between the financial innovations index and the income inequality coefficient. One of the proposals made is that policy

recommendations are necessary to reduce income disparity through the creation of financial innovations.

Fatema and Islam (2021) investigated the effects of technological and non-technological innovations to performance of Indian manufacturing enterprises, as well as the mediation and synergy effects in the innovation-performance correlation. On a combined data set from the World Bank Enterprise Survey and the follow-up Innovation Survey for India in 2014, the research utilized the partial least squares structural equation modeling technique. The findings suggest that technological innovations (product and process innovation) have a substantial impact on the overall performance of an institution, and that innovation strategy moderates these impacts significantly, whereas non-technological innovations (marketing and organizational innovation) are fully influenced by innovative performance.

2.4.2 Local Studies

Dore (2018) explored the connection between innovation strategies and competitive advantage across health-care product manufacturers. The chosen design was descriptive. The population comprised of 22 Nairobi's pharmaceutical manufacturing businesses. This research used information from all 22 firms. Questionnaires were utilized in collecting data for the research. Tables were used to present the research conclusions. The research concluded that the innovation strategies in place at the manufacturing pharmaceutical companies investigated account for 88.0 percent of the shift in competitive advantage (process, product, technology and market innovation). As per the conclusions, innovation initiatives have a significant effect on competitive advantage.

Wanalo's (2018) research focus were centered on determining if the adoption of financial technology possessed a substantial effect on financial performance. To do this, he looked at the financial status of commercial banks and their performances. This investigation was completed using the descriptive research methodology. All commercial banks were taken into consideration for this research. In total, 15 people were sampled for this study, including banks from commercial as well as non-commercial segments. In addition to data acquired from CBK and the websites of banks, other information was obtained from annual reports delivered from 2012 to 2016 by commercial banks. The study made use of panel data analysis. The Prais Winstein regression model was utilized to find the outcomes. Despite being more widely used, agency banking and ATMs possess minimal effect on financial stability of the bank.

Ogwen (2019) concentrated on financial innovations impact on the Kenyan regulated MFI market's financial performance. The population of the research is now served by 13 regulated microfinance institutions (MFIs). Every year over the first five years of the project's existence, data were collected. The results show that a descriptive cross-sectional design was made use of for this research methodology, and a multiple linear regression model was employed in order to assess the connection linking variables. The conclusions from this research showed deposit, mortgage, as well as bank size all possessed a significant influence on the growth and balances of savings accounts. The number of ATMs, agency banking, and bank financial performance were not significantly correlated.

Abdulkadir (2019) did an in-depth research on how financial technology affects ROA of banks in Kenya. The quantity of transactions made via mobile and internet banking was a factor in the adoption of digital internet banking. In this instance, all of the data originates from commercial banks. The study used financial institution and capital adequacy ratio variables to explain the bank sizes. A descriptive research design was used to collect information on all of the Kenyan commercial banks. Using Pearson correlation, the simple linear link was produced. Regression analysis was employed in order to reveal the dynamics of this association. This research came up with a finding that financial technologies aided in achieving financial performance

Keter (2021) sought to determine strategic innovations impact on performance of KPLC. This research used a case study methodology and adopted an interviewing guide in data collection. The data was qualitative with the analysis being via content analysis. According to the report, KPLC has improved its understanding of consumers by offering them specialized products or services likely to directly address their needs in important areas through close client connections. It has been ascertained that system robotization, prepayment systems, automatic meter reading systems, advanced metering infrastructure and billing systems all impact the performance of a firm. This research makes the conclusion that the innovations put in place by KPLC like the Smart Meter Technology together with the billing technology have continuously been adopted by their target market simply because of the efficiency they give as well as their value addition.

2.5 Summary of the Literature Review and Research Gaps

Theoretical reviews demonstrated the anticipated link connecting innovation to financial institution performance. Performance-related key determinants have been examined. A knowledge gap that needs filling exists based on these surveys we analyzed. Diverse findings on the link between innovation and performance have been drawn from the research that have been analyzed. The variations across the studies can be attributed to the diverse operationalizations of innovation by the various researchers, showing that the operationalization model affects the conclusions.

Additionally, numerous studies used various designs, some of which depended on empirical analysis to draw conclusions and others of which relied on existing literature to gauge the relationships between the variables. Research conclusions were inconsistent and inconclusive, and they were unable to pinpoint the precise impact of innovation on financial performance as assessed by product, process, and market. This highlights the necessity of additional study in upcoming research to bridge these gaps by conceptualizing the impact of innovation on performance.

2.6 Conceptual Framework

Displayed in Figure 2.1 is the anticipated link between the variables. The predictor variable is innovation obtained from product innovation, process innovation and market innovation. Financial performance as measured by net income to total assets ratio serves as the response variable. The control variables are firm liquidity and firm size.

Independent variables

Dependent variable

Innovations

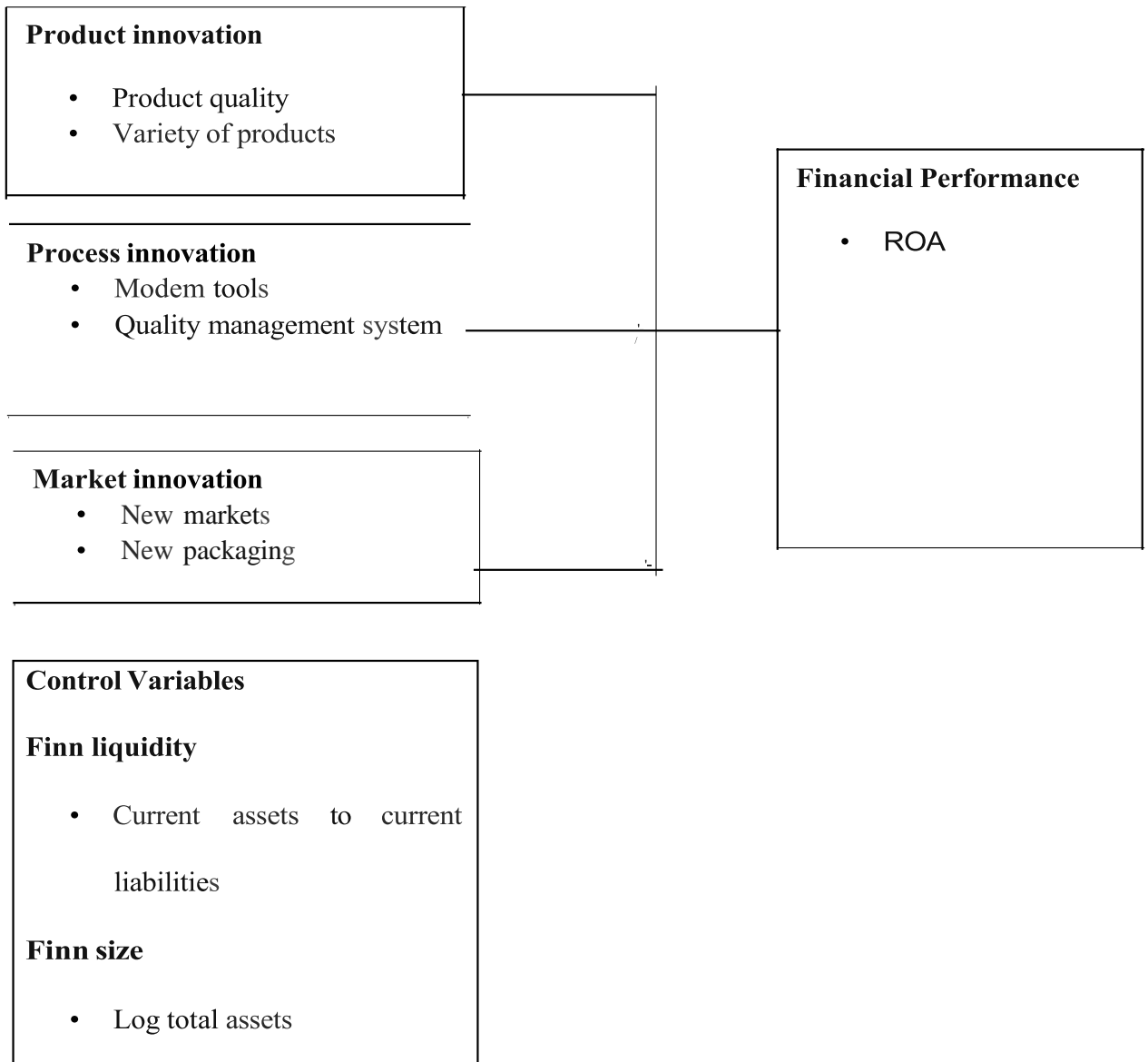


Figure 2.1: The Conceptual Model

Source: Researcher (2022)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section describes all approaches to be employed in realizing this study's goal which is to establish the effect of innovation on performance of pharmaceutical manufacturing firms in Nairobi County. Particularly, this chapter highlights; the design, collection of data and analysis.

3.2 Research Design

This study employed a descriptive design to establish the relationship of innovation and financial performance of pharmaceutical manufacturing firms in Nairobi County. The design is suitable because it permits the researcher conduct the comparison of the study findings which consequently aids in giving the answers to the questions of what, where or how (Khan, 2008). Additionally, it is adequate for describing how the occurrences are related to one another. Cooper and Schindler (2008) claim that by properly and precisely representing the variables in this design, the study questions will be adequately addressed.

3.3 Population and Sample

Population refers to every observation that is part of interest like events that are promoted in any research (Burns & Burns, 2008). This research target population included the pharmaceutical manufacturing firms in Nairobi. According to Pharmacy and Poisson's Board (PPB) (2020), there are thirty eight pharmaceutical firms in Kenya. A census was conducted because the research population proved to be quite low.

3.4 Data Collection

The study employed both primary as well as secondary data. Primary data was gathered via a structured questionnaire. The questionnaires had closed ended questions. Closed questions are made using a specific sequence and have response options provided. This questionnaire was split up into four segments, that is demographic information, product innovations; process innovations and market innovations. The researcher gave these questionnaires to all managers of the pharmaceutical manufacturing firms selected and who can be able to respond through Google forms. Google forms were preferred during the Covid-19 pandemic.

The secondary data was obtained from annual published financials of the pharmaceutical manufacturing companies in Nairobi in 2021 and it was outlined in the forms of data collection. These reports had to be extracted from individual pharmaceutical manufacturing companies' financial statements and annual reports. This data collection process tried to obtain information on net income, total assets, current assets and current liabilities.

3.5 Data Analysis

To evaluate the data, SPSS software version 25 was employed. These results were presented quantitatively in tables and graphs. Measures of central tendency and dispersion was calculated using descriptive statistics, and standard deviation was provided for each variable. Inferential statistics which entailed correlation as well as multiple linear regression were utilized. The size of the relationship between the research variables was determined by correlation, and cause and effect relationships linking these variables was determined using multiple linear regression.

3.5.1 Diagnostic Tests

Several diagnostic tests, including those for normality, multicollinearity, homogeneity, and autocorrelation, were performed to determine the model's viability. According to the normality assumption, the residual of the dependent variable would show normal distribution and be nearer to the mean. The Kolmogorov-Smirnov test and the Shapiro-Wilk test were utilized to achieve this. If one of the variables does not have a normal distribution, standardization is done to correct it. A time series autocorrelation is a measurement of how equivalent it is to its lagged value across subsequent timings. The Durbin-Watson statistic was employed to measure this test, and the model sought to apply lagged transformations to the predictor variables if the assumption is violated. (Khan, 2008).

Whenever a perfect or nearly perfect linear relationship is established among several independent variables, multicollinearity exists. The tolerance levels and Variance Inflation Factors (VIF) statistics will be utilized in testing for multicollinearity. Standardization is done as a remedy to multicollinearity. When a regression's error variance is distributed throughout the independent variables, heteroskedasticity is used to confirm this. When data do not support the homogeneity of variances assumption, robust standard errors will be used. The Breuch-Pagan test was utilized to test for heteroscedasticity (Burns & Burns, 2008).

3.5.2 Analytical Model

The following equation was applied:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + c$$

Where: Y = financial performance measured as the ratio of net income to total assets

P_0 = y intercept of the regression equation.

P_1, P_2, P_3, P_4, P_5 = are the regression coefficients

X1 = product innovation measured using likert scale questions

X2 = process innovation measured using likert scale questions

X3 = market innovation measured using likert scale questions

X4 = firm liquidity measured using current assets to current liabilities

X5 = firm size measured using natural logarithm of total assets

f. = error term

3.5.3 Tests of Significance

Parametric tests were used to determine the significance of the variables and the overall model too. ANOVA was used to do the F-test, which will establish the model's relevance, and a t-test, determined the significance of every variable. Additionally, the significance values in the ANOVA and model coefficients were also utilized. The study utilized a confidence interval of 95%.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

The section discusses the data analysis, presentation, together with interpretation and discussion of the study findings. This chapter is divided into five parts entailing; the study response rate, the respondents' background characteristics, descriptive statistics, inferential statistics and interpretation and discussion of the research findings. Specifically, the chapter does a summary of the presentation, analysis, interpretation, and discussion of data.

4.2 Response Rate

In a survey research, response rate is the specific amount of responses acquired from the respondents expressed as a fraction of the total number of respondents that a researcher had targeted. It is usually expressed in percentage form. The statistics for the response rate of this research is displayed in Table 4.1.

Table 4.1: Study Response Rate

<u>Response</u>	<u>Frequency</u>	<u>Percentage</u>
Returned	34	89.47%
Unreturned	04	10.53%
Total	38	100%

Table 4.1 showcases that thirty-eight questionnaires were issued to pharmaceutical manufacturing institutions in Nairobi. Our current research findings exhibit that out of the thirty-eight issued questionnaires, thirty-four responses were well filled with sufficient data and facts translating to a response rate of 89.47%. The percentage corresponds to the threshold stated by Mugenda and Mugenda (2010), that any

research whose response rate falls above 70% can be used to conduct analysis and make conclusions.

4.3 Respondents Background and Firm Characteristics

This study tried to investigate the characteristics of the 38 respondents who were listed for this research and who basically included employees of these pharmaceutical manufacturing firms in Nairobi County, preferably finance managers. Consequently, 40 respondents actively took part in the research. Highlighted are the background and firm characteristics derived from the Part A of this study's questionnaire, which included; gender, age, education qualifications, and work experience.

4.3.1 Gender

The respondents were asked to state their gender. This was conducted in order to see whether gender has any bearing on the perception on innovation and financial performance. Displayed in Table 4.2 are the findings.

Table 4.2: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	17	50.0	50.0	50.0
	Female	17	50.0	50.0	100.0
	Total	34	100.0	100.0	

The study established in Table 4.2 that 50% of those surveyed were male, while 50% percent were female. The even spread of gender indicates the absence of biasness. Gender can have certain significance on how respondents perceive innovation and financial performance.

4.3.2 Education Qualifications

This survey requested respondents to specify their education levels. It was to investigate whether education qualifications were significant to how individuals perceive innovation and financial performance. Results are shown in the Table 4.3.

Table 4.3: Education Qualifications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tertiary college level	13	38.2	38.2	38.2
	Undergraduate level	18	52.9	52.9	91.2
	Postgraduate level	3	8.8	8.8	100.0
	Total	34	100.0	100.0	

Table 4.3 shows the study respondents' education levels. A high percentage of 52.9% consists of individuals who have undergraduate education qualifications. The proportion of respondents that had attained tertiary college level education qualifications was 38.2%, while the proportion of those who had attained postgraduate education qualifications constituted 8.8. This even spread indicates lack of bias. In addition, since most respondents are highly qualified in terms of education, they are inclined to information concerning innovation and financial performance of the pharmaceutical manufacturing firms.

4.3.3 Job Tenure

These respondents were asked to specifically state their tenure in the respective pharmaceutical manufacturing firms. The purpose was to investigate whether duration of working under one employer has significance on how an individual perceives innovation and financial performance. Results are displayed in Table 4.4.

Table 4.4: Job Tenure

		Freguenc;y	Percent	Valid Percent	Cumulative Percent
Valid	Less than 3 years	11	32.4	32.4	32.4
	3 to 5 years	11	32.4	32.4	64.7
	6 to 10 years	7	20.6	20.6	85.3
	Above 10 years	5	14.7	14.7	100.0
	Total	34	100.0	100.0	

Table 4.4 reveals the various years the study respondents had worked for respective pharmaceutical manufacturing firms that they are currently engaged in. The highest proportions of the respondents, which constitutes 32.4%, had worked for their respective pharmaceutical manufacturing firms for both less than 3 years and between 3 to 5 years. The proportion of respondents who had worked for their respective pharmaceutical manufacturing firms for 6 to 10 years was 20.6%, while those who worked for their respective pharmaceutical firms for above 10 years was 14.7%. The irregular spread of job tenure may be used to indicate biasness even though there was a random distribution for the respondents. Employees who have worked longer in their respective pharmaceutical manufacturing firms have the advantage of having more information and knowledge on innovation and financial performance of their specific pharmaceutical manufacturing firms as they are the most likely to have scaled up the corporate ladder and be engaged in decision-making roles.

4.4 Descriptive Statistics

This research chose a descriptive research design because it permits generalization of findings, conduction of analysis and relation of variables. The innovation aspects employed in this research were; product innovation, process innovation, and market innovation. These constituted the independent variable. Firm size and liquidity were used as the control variables.

4.4.1 Product Innovation Descriptive Statistics

The study made use of an ordinal measurement scale for measuring the variable using a five-point assorted scale in order to quantify the view of the respondent towards product innovation present in their respective pharmaceutical manufacturing firms. Consequently, product innovation figures were obtained, and results illustrated in the Table 4.5.

Table 4.5: Product Innovation Descriptive Statistics

	N	Mean	Std. Deviation
The manufactured products fulfil the quality of life in my firm	34	2.9706	.79717
The health products are available in a variety of brands.	34	2.9412	.85071
New health-care products are developed to fulfill the needs of customers.	34	3.2941	.90552
Our organization aims to make existing healthcare items function better.	34	3.0882	.96508
Existing health-care goods manufactured by my firm are enhanced with new features.	34	3.0294	1.08670
Aggregate Mean		3.0647	0.921036
Valid N (listwise)	34		

The manufactured products of the pharmaceutical firms to a moderate extent fulfil the quality of life in the firms. This is exhibited by a mean of 2.9706 and standard deviation of 0.79717. The pharmaceutical manufacturing firms' health products are to a moderate extent, available in a variety of brands. This is exhibited by a mean of 2.9412 and a standard deviation of 0.85071. The pharmaceutical manufacturing firms' new health-care products, are to a great extent, developed to fulfill the needs of customers. This is exhibited by a mean of 3.2941 and a standard deviation of 0.90552.

The pharmaceutical manufacturing firms' to a great extent, aim to make existing healthcare items function better. This is exhibited by a mean of 3.0882 and a standard deviation of 0.96508. Finally, the existing health-care goods manufactured by the pharmaceutical firms are enhanced with new features. This is exhibited by a mean of 3.0294 and a standard deviation of 1.08670. Overall, the pharmaceutical manufacturing firms' to a great extent exhibit product innovation. This is exhibited by the aggregate mean of 3.0647 and a standard deviation of 0.921036.

4.4.2 Process Innovation Descriptive Statistics

The study made use of an ordinal measurement scale for measuring the variable using a five-point assorted scale in order to quantify the view towards process innovation present in their respective pharmaceutical manufacturing firms. Consequently, process innovation figures were obtained, and results illustrated in the Table 4.6. The pharmaceutical manufacturing firms, have to a very large extent, have invested in cutting-edge medication design. This is exhibited by a mean of 4.3235 and standard deviation of 0.68404. The pharmaceutical manufacturing firms, to a large extent, have advanced facilities are utilized in the medicine manufacturing process. This is exhibited by a mean of 3.4412 and a standard deviation of 0.74635. To create medications, the pharmaceutical manufacturing firms to a great extent, employ a variety of procedures. This is exhibited by a mean of 3.6471 and a standard deviation of 0.77391.

In the pharmaceutical manufacturing firms' manufacturing process, they have to a great extent, developed a Quality Management System. This is exhibited by a mean of

3.7941 and a standard deviation of 0.72944. Finally, the pharmaceutical manufacturing firms' quality management system, to a great extent, closely monitors all manufacturing operations. This is exhibited by a mean of 3.7353 and a standard deviation of 0.89811. Overall, the pharmaceutical manufacturing firms' to a great extent exhibit process innovation. This is exhibited by the aggregate mean of 3.78824 and a standard deviation of 0.76637.

Table 4.6: Process Innovation Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The corporation has invested in cutting-edge <u>medication</u> design	34	3.00	5.00	4.3235	.68404
In my firm, advanced facilities are utilized in the medicine manufacturing process.	34	2.00	5.00	3.4412	.74635
To create medications, our organization employs a variety of procedures.	34	2.00	5.00	3.6471	.77391
In the manufacturing process, our organization has developed a <u>Quality Management</u> System.	34	2.00	5.00	3.7941	.72944
My company's quality management system closely monitors all <u>manufacturing Operations</u> .	34	2.00	5.00	3.7353	.89811
<u>Aggregate</u> Mean				3.78824	.76637
Valid N (listwise)	34				

4.4.3 Market Innovation Descriptive Statistics

The study made use of an ordinal measurement scale for measuring the variable using a five-point assorted scale in order to quantify the view towards market innovation present in their respective pharmaceutical manufacturing firms. Consequently, market innovation figures were obtained, and results illustrated in the Table 4.7.

Table 4.7: Market Innovation Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
In my firm, there has been a substantial product <u>design</u> modification.	34	2.00	5.00	4.1176	.72883
My firm's marketing division is always looking for new areas to tap <u>into</u> .	34	2.00	5.00	4.2647	.75111
In my organization, new packaging methods for health care products have <u>been</u> used.	34	4.00	5.00	4.6765	.47486
The firm has devised innovative approaches of <u>product</u> promotion.	34	2.00	5.00	4.0882	.75348
My company has implemented new distribution methods for manufactured health care <u>products</u> .	34	2.00	5.00	3.7647	.78079
<u>Aggregate</u> Mean				4.18234	.697814
Valid N (listwise)	34				

To a very large extent, there has been a substantial product design modification in the pharmaceutical manufacturing firms. This is exhibited by a mean of 4.1176 and standard deviation of 0.72883. The pharmaceutical manufacturing firms' marketing division, to a very large extent, is always looking for new areas to tap into. This is exhibited by a mean of 4.2647 and a standard deviation of 0.75111. To a very large extent, the pharmaceutical manufacturing firms' new packaging methods for health care products have been used. This is exhibited by a mean of 4.6765 and a standard deviation of 0.47486.

The pharmaceutical manufacturing firms' have to a large extent devised innovative approaches of product promotion. This is exhibited by a mean of 4.0882 and a standard deviation of 0.75348. Finally, the pharmaceutical manufacturing firms' quality management system have to a great extent, implemented new distribution

methods for manufactured health care products. This is exhibited by a mean of 3.7647 and a standard deviation of 0.78079. Overall, the pharmaceutical manufacturing firms' to a very great extent exhibit market innovation. This is exhibited by the aggregate mean of 4.18234 and a standard deviation of 0.697814.

4.4.4 Liquidity Descriptive Statistics

A descriptive analysis of one of the study's control variable, liquidity, which was of the ratio measurement scale, was conducted. The descriptive analysis comprised of the measures of central tendency (mean, median, standard deviation). The minimum and maximum statistic and Kurtosis and Skewness were also generated.

Table 4.8: Liquidity Descriptive Statistics

N	V d	34
	ssing	0
ean		1.9373
edian		1.4087
Std. DeYiation		1.97553
Skewness		1.860
Std. Error of Skewness		.403
Kurtosis		3.202
Std. Error of Kurtosis		.788
Minimum		.08
Maximum		8.37

The results from Table 4.8 showcases that our highest liquidity value is 8.37 and the lowest value is 0.08. The mean was 1.94 and the standard deviation depicts variability in liquidity of 1.96. The median score was 1.41. The data shown cannot be normally distributed since kurtosis statistic lies outside the range of -3 to +3 and skewness statistic exhibited that is outside the range of -0.8 to +0.8. The average liquidity ratio

of the pharmaceutical manufacturing companies, which is greater than 1 implies that the pharmaceutical manufacturing companies have the ability to reach their financial obligations as and when they fall due.

4.4.SFirmSize

A descriptive analysis for one of the study's control variable, firm size, which was of the ratio measurement scale, was conducted. The descriptive analysis comprised of the measures of central tendency (mean, median, standard deviation). The minimum and maximum statistic and Kurtosis and Skewness were also generated.

Table 4.9: Firm Size Descriptive Statistics

N	Valid	34
	Missing	0
Mean		1.6043
Median		1.5977
Std. Deviation		.13547
Skewness		-.658
Std. Error of Skewness		.403
Kurtosis		.372
Std. Error of Kurtosis		.788
Minimum		1.24
Maximum		1.78

Findings in Table 4.9 show highest value for the firm size after getting the inverse of natural logarithm is 592.98 million and the lowest value is 345.56 million. The mean was 497.44 million and the standard deviation shows variability in firm size of 114.41 million. The median score was 495.16 million. The data in the series is normally distributed because it has a kurtosis statistic lying from -3 to +3 and skewness statistic

exhibited that is within the range of -0.8 to +0.8. The average total assets showcases that the pharmaceutical manufacturing companies are medium sized companies.

4.4.6 Financial Performance Descriptive Statistics

A descriptive analysis of the response variable, financial performance, which was of the ratio measurement scale, was conducted. The descriptive analysis comprised of the measures of central tendency (mean, median, standard deviation). The minimum and maximum statistic and Kurtosis and Skewness were also generated.

Table 4.10: Financial Performance Descriptive Statistics

N	Valid	34
	Missing	0
Mean		.0916
Median		.1015
Std. Deviation		.05487
Skewness		-.236
Std. Error of Skewness		.403
Kurtosis		-.817
Std. Error of Kurtosis		.788
Minimum		-.02
Maximum		.18

The information in Table 4.10 reveal that the highest and lowest values of ROA ratio are 18% and -2% respectively. The mean was 9.16% and the value of the standard deviation signifies variability in the ROA ratio of 5.49%. The median score was 10.15%. The data can be said to be normally distributed since it has a kurtosis statistic lying from -3 to +3, although the skewness statistic exhibited was out of range of -0.8 to +0.8. The average ROA indicates that the returns of the pharmaceutical manufacturing companies are generally good.

4.5 Diagnostic Tests

In order to guarantee Best Linear Unbiased Estimates, diagnostic tests were carried out before performing the linear regression. The diagnostic tests performed in the research were; normality tests, homoscedasticity tests, multicollinearity tests, and autocorrelation tests. The normality test was conducted by supplementing the Shapiro Wilk test with the Kolmogorov-Smirnov test. Breusch-Pagan test was used to perform the homoscedasticity test. Multicollinearity of data was tested by utilizing the VIF and Tolerance tests. Finally, our autocorrelation test utilized the Durbin-Watson statistic.

4.5.1 Normality Test

Table 4.11 shows the results of the normality tests. This survey embraced a 5% level of significance.

Table 4.11: Normality Test

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Financial Performance	.106	34	.200	.972	34	.507
Prod_Innov	.250	34	.000	.844	34	.000
Proc_Innov	.389	34	.000	.735	34	.000
Mkt_Innov	.389	34	.000	.688	34	.000
Firm Liquidity	.250	34	.000	.775	34	.000
Firm Size	.116	34	.200	.919	34	.015

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

To test for the normality, the null hypothesis states that this data displays a normal distribution. The significance values of both tests for the product innovation, process innovation, market innovation, firm liquidity, and firm size data series are less than the a (0.05), therefore rejecting the null hypothesis. Thus, these data series do not have a normal distribution. To counter non-normal distribution, standardization is

performed on the data series. The significance values of both tests for the financial performance data series are greater than the α (0.05), therefore we do not reject the null hypothesis. Thus, this data series has normal distribution.

4.5.2 Test for Homoscedasticity

Table 4.12 outlines the homoscedasticity tests for every predictor variable of the survey. The Breusch-Pagan test was applied. However, SPSS does not have a direct Breusch-Pagan test for homoscedasticity. Nevertheless, it can be conducted indirectly. The unstandardized residuals were saved and squared as a way of transforming them. Consequently, the result was regressed with the independent and control variables of this survey. The p-value output in the Analysis of Variance indicates the Breusch-Pagan test. This survey embraced a 5% significance level.

Table 4.12: Test for Homoscedasticity

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regre:					.729
	Residual	.000	28	.000		
	Total	.000	33			

a. Dependent Variable: RES_1_SQ

b. Predictors: (Constant), Firm Size, Proc_Innov, Firm Liquidity, Prod_Innov, Mkt_Innov

The null hypothesis is that the data series employed in the current study do not exhibit heteroscedasticity. Consequently, the alternate hypothesis for the Breusch-Pagan test for heteroscedasticity states that the data series used in the current survey do not exhibit homoscedasticity. 0.608 is the significance value acquired and it is above the α (0.05). Thus, the null hypothesis will not be rejected. Therefore, we can say that the data series for all predictor variables are homoscedastic.

4.5.3 Test for Multicollinearity

Table 4.13 displays the outcomes of the test for Multicollinearity performed using Tolerance and Variance Inflation Factors (VIF).

Table 4.13: Multicollinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	Prod_Innov	.746	1.340
	Proc_Innov	.858	1.166
	Mkt_Innov	.701	1.427
	Firm Liquidity	.632	1.582
	Firm Size	.949	1.054

a. Dependent Variable: Financial Performance

In statistics, tolerance values should fall above 0.1 while VIF values are supposed to be between the values 1 and 10, in order to indicate lack of multicollinearity. The results show that tolerance values for all predictor variables used in this survey surpass 0.1 and VIF value lie between 1 to 10. Therefore, these predictor variables do not exhibit any multicollinearity.

4.5.4 Tests for Autocorrelation

Autocorrelation test was conducted by utilizing the Durbin-Watson Statistic and results displayed in the Table 4.14.

Table 4.14: Autocorrelation Test

Model	Durbin-Watson
1	2.368a

a. Predictors: (Constant), Firm Size, Proc_Innov, Firm Liquidity, Prod_Innov, Mkt_Innov
 b. Dependent Variable: Financial Performance

Autocorrelation was tested using Durbin Watson statistic. The Durbin Watson statistic varies between 0 and 4. 2 will be the result if there is no autocorrelation between variables. A score of 0 to 2 in the Durbin Watson statistic indicates a positive

autocorrelation while 2 to 4 shows negative autocorrelation. According to Shenoy and Sharma (2015), any Durbin-Watson statistic ranging from 1.5 to 2.5 should be considered normal. However, Field (2009) established that a Durbin Watson d-statistic that is greater than 3 and lesser than 1 is a show for concern. The Durbin Watson d-statistic obtained for the current study is 2.368. Thus, the Durbin Watson statistic obtained for the current study meets the criteria set by Field (2009). Thus, there is no serial autocorrelation inherent in the current study.

4.6 Inferential Statistics

Inferential statistics determine direction, connection, and strength of the correlation between predictor variables and the response value. This part outlines all inferential statistics utilized in this survey and which incorporated correlation and regression analysis.

4.6.1 Correlation Analysis

This analysis tries to establish if two variables have a connection. The connection might be a perfect positive connection or to the extreme, a strong negative one. This survey utilized a Pearson Correlation. A Confidence Interval of 95% was adopted and a two tailed test used.

Table 4.15: Correlation Analysis

		Financial Performan ce	Prod_Inno v	Proc_Inno v	Mkt_Inno v	Firm Liquidit y	Fir m Size
Financial Performan ce	Pearson Correlatio n		-.007	-.121	-.213	.154	.527*
	Sig. (2- tailed)		.967	.496	.227	.385	.001
Prod_Inno v	Pearson Correlatio n	-.007	1	.240	-.124	-.372*	.179
	Sig. (2- tailed)	.967		.171	.486	.030	.312
Proc_Inno v	Pearson Correlatio n	-.121	.240	1	.234	.109	.005
	Sig. (2- tailed)	.496	.171		.182	.541	.977
Mkt_Innov	Pearson Correlatio n	-.213	-.124	.234	1	.512**	.079
	Sig. (2- tailed)	.227	.486	.182		.002	.656
Firm Liquidity	Pearson Correlatio n					1	
	Sig. (2- tailed)	.385	.030	.541	.002		.888
Firm Size	Pearson Correlatio n						1
	Sig. (2- tailed)	.001	.312	.977	.656	.888	
	N	34	34	34	34	34	34

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

* . Correlation is significant at the 0.05 level (2-tailed).

As displayed in Table 4.12, at the 5% significance level, there exists a significant correlation only linking firm size to financial performance. Additionally, these findings reveal a significant positive relationship. Nevertheless, the current study findings additionally established that at the 5% significance level, product innovation, process innovation, market innovation, and liquidity individually did not possess a significant connection to financial performance.

4.6.2 Multiple Linear Regression

The multiple linear regression analysis was used to determine how innovation, liquidity, and firm size affect financial performance. This was done at the 5% level of significance. The current research did a comparison of the significance value found in the ANOVA model with the ones obtained from the research. Additionally, the F-Value obtained in the current study was contrasted to the critical F-Value. The model coefficients significance values were contrasted with the 0.05 significance value. Further, the t values acquired from the current survey were compared with the critical t-values. Table 4.16 exhibits the findings. Since all the predictor and control variables lacked a normal distribution, standardization was necessary because of the non-normal distribution of data.

Table 4.16: Multiple Linear Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.669a	.447	.348	.04429		
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.044	5	.009	4.530	.004 ^b
	Residual	.055	28	.002		
	Total	.099	33			
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.092	.008		12.060	.000
	Zscore(Prod_Innov)	-.001	.009	-.010	-.062	.951
	Zscore(Proc_Innov)	-.003	.008	-.060	-.395	.696
	Zscore(Mkt_Innov)	-.024	.009	-.430	-2.562	.016
	Zscore: Firm	.020	.010	.363	2.054	.049
	Liquidity					
	Zscore: Firm Size	.030	.008	.555	3.845	.001

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Zscore: Firm Size, Zscore(Proc_Innov), Zscore: Firm Liquidity, Zscore(Prod_Innov), Zscore(Mkt_Innov)

The Co-efficient of Determination (R^2) shows deviations of the response variable, which are an effect of variations of the predictor variables. Findings from Table 4.16 exhibit that the R^2 value is 0.669, a discovery that the model entailing innovation, liquidity, and firm size cause 66.9% of the deviations in financial performance. Several extra determinants not included in this model warrant for 33.1% of all variations in financial performance.

The null hypothesis states that the model entailing innovation, liquidity, and firm size does not significantly influence financial performance. The alternate hypothesis states that the model entailing innovation, liquidity, and firm size significantly influences financial performance. Our research gave a significance value of (0.004) which is below (a) of 0.05. Therefore, it is necessary to reject the null hypothesis. Additionally, the critical F-Value is 2.55812750, and the F-Value obtained in the current study (4.53), is higher. Hence, this null hypothesis should be rejected. Therefore, the model entailing innovation, liquidity, and firm size do significantly influence financial performance and thus, the model can significantly predict financial performance.

The null hypothesis formulated for the model co-efficient was that there was no significant individual relationship between product innovation, process innovation, market innovation, liquidity, and firm size, with financial performance. Market innovation is the only financial innovation aspect that has a significant value (0.16) that is below the study's critical value (a) of 0.05. Further, the control variables utilized in the study, that entailed liquidity and firm size, also had significant values that were below the study's critical value (a) of 0.05. In both instances, we reject the

null hypothesis. On the other hand, the other innovation aspects, entailing product innovation and process innovation, have significant values that are below the study's α of 0.05. Therefore, we do not reject the null hypothesis.

In addition, the T critical value obtained for the current study for a two-tailed test is ± 2.0327 . The T values of market innovation, liquidity, and firm size do not lie within the range of ± 2.0327 . Thus, the respective null hypotheses are rejected. However, the T values of both product innovation and process innovation fall within the range of ± 2.0327 . Therefore, the respective null hypotheses are not rejected. Thus, market innovation, liquidity, and firm size individually have a significant effect on financial performance. Market innovation had a negative statistically significant correlation with financial performance while both liquidity and size of the firm positively and significantly affected financial performance. However, product innovation as well as process innovation do not have a statistically significant effect on financial performance. A model was evolved as shown below;

$$Y = 0.092 - 0.024X_1 + 0.020 X_2 + 0.03 X_3$$

Where;

Y = Financial Performance

X₁ = Market Innovation

X₂ = Liquidity

X₃ = Firm Size

The meaning of this is that whenever there is no market innovation and both liquidity and firm size are set to zero, the financial performance is 0.092. Subsequently, when market innovation improves by 1% , there is a reduction in financial performance by 2.4%. Additionally, when liquidity increases by 1%, financial performance increases by 2%. Finally, one unit increase in firm size will result to financial performance increasing by 3%.

4.7 Interpretation and Discussion of Findings

The survey endeavored to establish the connection linking innovation and financial performance of pharmaceutical manufacturing companies in Nairobi County. This study ought to unveil how innovation aspects entailing product innovation, process innovation, and market innovation affect financial performance of pharmaceutical manufacturing firms. The study also tried to establish how liquidity and firm size affect financial performance of pharmaceutical manufacturing firms in Nairobi County, Kenya.

The findings established that product innovation and process innovation were exhibited to a great extent in the pharmaceutical manufacturing firms in Nairobi County, Kenya. However, market innovation was exhibited to a very great extent. Further findings were that that the pharmaceutical manufacturing companies have the ability finance their financial obligations as and whenever they fall due. Additional findings are that the pharmaceutical manufacturing companies are medium sized companies. The current study findings also exhibit that the returns of the pharmaceutical manufacturing companies are generally good.

Further findings were that firm size alone has a significant correlation to financial performance at the 5% level of significance. The two have a positive significant relationship. None of the innovation aspects have a significant relationship with financial performance at the 5% significance level. Liquidity too is not significantly correlated to financial performance. Additional findings stated that the innovation aspects, liquidity, and firm size do significantly influence financial performance. The final findings were that only the innovation aspect entailing market innovation had a statistically significant influence to financial performance. Market innovation had a negative significant impact on financial performance. Other innovation aspects utilized in the study also had negative effects on financial performance but the effects were not statistically significant. However, liquidity as well as firm size were significantly and positively related to financial performance.

The disruptive innovation theory by Christensen (1997) is based on the idea that innovations can transform a prevailing market by improving access, ease, cost efficiency, as well as market easiness where items as well as services are expensive. However, the current study findings show that innovations possess a negative impact to financial performance disapproves this theory.

The diffusion of innovation theory states that if an organization realizes the benefits arising from innovation, these innovations will be taken into account when additional technologies are available (Rodgers, 2003). However the current study findings that the pharmaceutical manufacturing firms utilize innovation to great and extremely great extents but yet these innovations negatively affect financial performance contradicts this theory.

The Technology Acceptance model espouses that people are more willing to use innovation when they believe it works (Potaloglu & Ekin, 2015). However the current study findings that the pharmaceutical manufacturing firms utilize innovation to great and extremely great extents but yet these innovations possess a negative impact on financial performance deviates from this theory.

Despite the perceived benefits of the innovations and the electronic commerce, there is still a debate on if as well as in what manner adoption of this technology improves the performance of firms (Matevu & Kerongo, 2015). The current research finding that innovation has a negative effect on financial performance is similar to Matevu and Kerongo's (2015) assertions.

The investment in innovation and technology and electronic commerce by organizations needs innovation costs which comes along with various risks that the firms should be willing to take in order for them to accurately examine the effect of the adoption on financial performance (Idun & Aboagye, 2014). However, the current study findings that the pharmaceutical manufacturing firms utilize innovation to great and extremely great extents but yet these innovations have a negative impact to the financial performance does not rhyme with Idun and Aboagye's (2014) assertion.

Importantly, the purpose of innovations in organizations is paramount throughout the world to the successful and profitable services delivery in those organizations and enhancement of financial performance. Additionally, innovations play a significant role in improving customer service while decreasing client's transactional cost leading

to increased customer retention which in effect enhances financial performance (Ahmed, Manwani & Ahmed, 2018). The current research discovery that innovation will have a negative effect on financial performance does not sync with Ahmed, Manwani, and Ahmed's (2018) assertions.

According to Rogers (1995), an invention temporarily creates a monopoly, which is then broken up through imitation. Therefore, institutions will undoubtedly have an impact on performance if they use technology innovations and secure hedging other institutions utilizing innovative products and services. The current research finding that innovation has a negative effect on financial performance is not in tandem with Roger's (1995) assertion.

According to Asongu (2015) the growth of technology and innovations has impacted almost each aspects of life. Innovation has changed and has redefined the way firms are running since the technology is now regarded as a major input for the organization's achievement, for firms as they transform inputs to outputs. According to Dasgupta (2011) in the recent years, firms have developed innovative products and services and offered a wide range of services in the effort to increase efficiency which is the most critical goal of any firm. The present research discovery that innovation has a negative effect on financial performance is not congruent to Asongu (2015) and Dasgupta's (2011) assertions.

Innovation entails making investments with cutting-edge technology in order to raise revenue and the effectiveness and efficiency of the system (Sheleg & Kohali, 2011). World Bank (2016) has identified that digital platforms and innovation have

positively affected financial performance as well as efficiency levels. The present research discovery that innovation has a negative effect on financial performance is not parallel to Sheleg and Kohali (2011) the World Bank's (2016) assertions.

Karlsson and Tavassoli (2015) performed research in Europe on strategic innovation practices impact on telecoms firm performance. The study discovered a beneficial contribution of strategic innovation to business performance. As per the research, there exists a link connecting strategic innovation to performance. Our current research finding that innovation has a negative effect on financial performance contradicts Karlsson and Tavassoli's (2015) research findings.

Prifti and Alirnhmeti (2016) focused their research on market innovation impact and organizational performance in Albania. The study findings revealed that marketing innovation enhances organization performance. The present research discovery that innovation has a negative effect on financial performance is not congruent to Prifti and Alirnhmeti's (2016) research findings.

Chatzoglou and Chatzoudes (2018) conducted a study to see how innovation can aid a company gain a competitive edge. The study results revealed that a firm's competitive positioning and innovation are directly linked. This demonstrates that as businesses improve their ability to innovate, their prospects of staying competitive improve as well. The current study finding that innovation has a negative effect on financial performance is not in tandem with Chatzoglou and Chatzoude;s (2018) research findings.

Le, Ho and Mai (2019) focused on how financial innovations affect income disparity in economies transformation. The research outcomes depicted presence of a negative link between the financial innovations index and the income inequality coefficient. One of the proposals made is that policy recommendations are necessary to reduce income disparity through the creation of financial innovations. The current study finding that innovation has a negative effect on financial performance is not in sync with Le, Ho and Mai's (2019) research findings.

Fatema and Islam (2021) investigated the effects of technological and non-technological innovations on the overall performance of Indian manufacturing enterprises. The study findings suggest that technological innovations (product and process innovation) have a substantial impact on a firm's overall performance, and that innovation strategy moderates these impacts significantly, whereas non-technological innovations (marketing and organizational innovation) are fully influenced by innovative performance. The current study finding that both product innovation and process innovation have a negative statistically insignificant effect on financial performance disapproves Fatema and Islam's (2021) research findings.

Dore (2018) explored the link between innovation strategies and competitive advantage across health-care product manufacturers. The research concluded that the innovation strategies in place at the manufacturing pharmaceutical companies investigated account for 88% of the shift in competitive advantage (process, product, technology and market innovation). As per the conclusions, innovation initiatives significantly affect competitive advantage. The current research discovery that innovation has a negative effect on financial performance is not in sync with Dore's (2018) research findings.

Wanalo's (2018) research focus was centered on determining if the adoption of financial technology possessed a substantial effect on financial performance. The study findings established that despite being more widely used, agency banking and ATMs possess minute effect on the overall financial stability of any bank. The current study finding that both product innovation and process innovation have a negative statistically insignificant effect on financial performance aids credence to Wanalo's (2018) research findings.

Ogweno (2019) concentrated on financial innovations impact on the Kenyan regulated MFI market's financial performance. The study's conclusions revealed that bank size possessed a significant influence on growth and balances of savings accounts. The number of ATMs, agency banking, and bank financial performance were not significantly correlated. The current study finding that both product innovation and process innovation have an insignificant impact on financial performance contradicts Ogweno's (2019) research findings. Additionally, the study findings that firm size has a significant positive effect on financial performance partly agrees with Ogweno (2019) study findings.

Abdulkadir (2019) did an in-depth research on how financial technology affected the ROA of Kenyan commercial banks. The findings from this research revealed that financial technologies aided in achieving financial performance. The current research finding that innovation has a negative effect on financial performance does not agree with Abdulkadir's (2019) research findings.

Keter (2021) sought to determine strategic innovations impact on KPLC's performance. According to this study findings, KPLC has improved its understanding of consumers by offering them specialized products or services likely to directly address their needs in important areas through close client connections. The research also revealed that system robotization, prepayment systems, automatic meter reading systems, advanced metering infrastructure and billing systems all influence the firms' performance. The research makes the conclusion that innovations used by KPLC especially Smart Meter Technology and billing technology have largely been adopted by the consumers because of the efficiency they offer and their value addition. The current survey finding that both product innovation and process innovation have an insignificant influence on financial performance does not agree with Keter's (2021) research findings.

According to Cheluget, Gekara, Orwa, and Keraro's (2014) argument, there is a correlation between a company's financial performance and its liquidity. They also discovered that liquidity management has a significant impact on performance. They also added that increases in cost efficiency were significantly influenced by indices of liquidity and solvency; when these indications are taken into consideration. The present research finding that liquidity positively and significantly affects financial performance lends credence to Cheluget, Gekara, Orwa, and Keraro's (2014) arguments.

However, Arif (2012) argued that enterprises with higher bought input costs similar to capital have a lower likelihood of becoming efficient. The present research finding

that liquidity positively and significantly affects financial performance disagrees with Arif's (2012) argument.

Firms with higher spending on purchased inputs compared to capital unlikely to boost efficiency whenever liquidity and solvency indicators are included (Levi, Russell, & Langemeier, 2013). The present research finding that liquidity has a statistically positive significant effect on financial performance disapproves Levi, Russell, and Langemeier's (2013) assertion.

A company's earnings from economies of scale are inversely correlated with its size. Due to significant economies of scale, firm operational activities have a higher efficiency the larger it is. However, large organizations risk losing control of both their operational and strategic activities, which would reduce their efficiency (Burca & Batrinca, 2015). The present research finding that firm size positively and significantly affects financial performance partially agrees with Burca and Batrinca, (2015) assertions.

Large companies can spread their portfolios more and have more market power. However, they are the most exposed to organizational waste especially whenever the business experiences quick expansion (Almajali et al., 2012). The present research finding that firm size positively and significantly affects financial performance partially agrees with Almajali et al.'s (2012) assertions.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The following chapter gives a summary of the findings obtained in the previous chapters and derives conclusions. Further, limitations encountered while conducting the current study are enumerated. It also gives recommendations to key stakeholders together with policy makers. At last, this research gives suggestions to segments that researchers can use to perform further studies.

5.2 Summary

The research tried to investigate how innovation affects financial performance of pharmaceutical manufacturing firms in Nairobi County, Kenya. Control variables introduced into the study were liquidity and firm size. It was a cross-sectional study, where collection of data was done for various units of analysis at a uniform time frame. The study was conducted for the total population of 38 pharmaceutical manufacturing firms. The current research utilized a mixture of primary and secondary data. Primary data collection was done using closed ended questionnaires to the staff of the various pharmaceutical manufacturing firms. Secondary data was captured from the pharmaceutical manufacturing firms' financial statements. The current study employed descriptive statistics to assess the presence or absence of innovation, liquidity, firm size, and financial performance of the various pharmaceutical manufacturing firms. This survey utilized linear regression analysis and correlation analysis to establish how innovation, liquidity, and firm size affected financial performance.

Research findings revealed that product innovation and process innovation were exhibited to a great extent in the pharmaceutical manufacturing firms in Nairobi County, Kenya. However, market innovation was exhibited to a very great extent. Further findings were that that the pharmaceutical manufacturing companies have the ability to meet their financial requirements as and whenever they fall due. Additional findings are that the pharmaceutical manufacturing companies are medium sized companies. The current study findings also exhibit that the returns of the pharmaceutical manufacturing companies are generally good.

Further findings stated that only firm size has a significant relationship to financial performance. Their correlation positive and significant. None of the innovation aspects are significantly correlated to financial performance. Liquidity too does not have a significant correlation with financial performance. Additional findings were that the innovation aspects, liquidity, and firm size do significantly influence financial performance. The final findings were that only the innovation aspect entailing market innovation significantly affects financial performance. Market innovation negatively and significantly affects financial performance. Other innovation aspects utilized in the study also had negative effects on financial performance but the effects were insignificant. However, liquidity and firm size each was positively and significantly related with financial performance.

5.3 Conclusion

This survey conclusions were made in line to the study objectives. The study concluded that innovation affects financial performance negatively. Additional conclusions are that the liquidity and firm size positively influences financial

innovation. The final study conclusion is that despite the perceived benefits of the innovations there is still a debate on if as well as in what manner adoption of this technology improves the performance of firms. The investment in innovation by organizations has innovation costs which comes along with various risks that the firms should be willing to take in order for them to accurately evaluate the impact of the adoption on financial performance.

5.4 Recommendations for Policy and Practice

The findings from this survey are going to help when conducting other researches on this topic of innovations and how they affect financial performance. The findings will also give a clear foundation that future research on innovations in commercial, not-for-profit, and public firms. These findings will also help in advancement of the researcher's knowledge of innovations, as well as the scholarly community's and also aid the industry to gain experience in the subject matter. They will be utilized as points of reference in future researches on innovations and their impact on financial performance.

Recommendations are made for the government officials and policy formulators in the pharmaceutical industry, mainly the regulator, Pharmacies and Poisons Board, and the Ministry of Trade and Industrialization. Recommendations are made in order to direct government regulators to make policies and practices that enhance and prop up the state corporations from poor performance and imminent going concern fears.

Policy recommendations are that since it has been established that both product innovations and process innovations do not have a significant effect on financial

performance and also it was established that market innovations have negative statistically significant effect on financial performance the, policy makers are not advised to concentrate on innovations whenever they want to augment financial performance of pharmaceutical firms, as well as other commercial, not-for-profit and public firms, but should endeavor to establish other factors that may enhance the financial performance. Other factors that affect the performance and service delivery, as determined by the study findings, is liquidity and firm size. Since liquidity and firm size were determined to be positively and significantly affecting financial performance, policy makers should ensure liquidity in order to minimize liquidity risk as well as aim at facilitating the firms to grow in size for them to capitalize on economies of scale. However, the firm sizes should be optimal because large organizations risk losing control of both their operational and strategic activities, which would reduce their efficiency. The scaling up should also be moderated because firms can suffer from organizational waste when they expand quickly.

The findings of the study will help the pharmaceutical manufacturing firms, as well as other commercial, not-for-profit, and public firms' management, and consultants to stop focusing on innovations whenever trying to augment financial performance of pharmaceutical firms, but should endeavor to establish other factors that may enhance the financial performance. Additional recommendations made to the pharmaceutical manufacturing firms, as well as other commercial, not-for-profit, and public firms' management, and consultants to conduct a cost benefit analysis before introducing innovations. Further, since liquidity and firm size were established to possess positive and significant effect on financial performance, the practitioners should ensure liquidity in order to minimize liquidity risk as well as aim at firm growth for them to

capitalize on economies of scale. However, the firm sizes should be optimal because large organizations risk losing control of both their operational and strategic activities, which would reduce their efficiency. The scaling up should also be moderated because firms can suffer from organizational waste when they expand quickly

5.5 Limitations of the Study

This research was only performed on the pharmaceutical manufacturing because of the limitations of time and cost. It is not if these same findings would prevail if a similar survey is conducted on other sectors. Additionally, there would be additional uncertainties if the same study is conducted in a different country.

This research utilized questionnaires. This exposed it to challenges like non-responsiveness and misunderstanding of the questions. It was not possible to use raw data and therefore, it had to be coded using SPSS in order to have synchronized data easy to compile and draw conclusions. This research did consume a lot of time during compilation and the recurrent delays when synchronizing.

The study also utilized some secondary data. Part of this data like the data on ROA, total assets, and liquidity was not readily available implying additional costs were incurred to obtain the data. Other data were not utilized in their raw form, for instance data on ROA, total assets, and liquidity, thus requiring additional calculations and manipulations. Delays were also experienced during the processing, editing and compilation of data.

5.6 Recommendations for Further Study

Additional research on this field should be conducted. First, other innovation aspects influence financial performance apart from product innovation, process innovation, and market innovation. Further surveys could be carried out to identify them and conduct their analysis. Additionally, other factors moderate, intervene, or mediate the relationship between innovation and financial performance apart from firm size and liquidity. Further surveys could be carried out to identify them and conduct their analysis

This research was carried out in the pharmaceutical manufacturing industry context and it could be applied to other sectors to determine whether the same results will be evident. This research was conducted in the Kenyan context, other surveys should be carried out in a different context, this could be in the African region or the global jurisdictions to try and see if the study findings would vary.

This current research just used a mixture of primary data and secondary data, another study should be conducted utilizing solely primary or secondary data. It could either complement or criticize these findings from this research. Additionally, other primary data sources including focus groups or structured interviews to be administered to practitioners and stakeholders and they could complement or criticize the present research findings. Descriptive statistics, multiple linear regression, and correlation analysis were utilized in our study, further research could utilize alternative analysis methods including factor analysis, cohort analysis, cluster analysis, neural networks analysis, granger causality, content analysis, discriminant analysis, among others.

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APPENDICES

Appendix I: Introduction Letter

Dear Sir/Madam,

My name is Brenda Wanjala Wekesa. I am a student at the University of Nairobi of admission number D61/19290/2019 and currently undertaking an academic research project on; *"EFFECT OF INNOVATIONS ON FINANCIAL PERFORMANCE OF PHARMACEUTICAL MANUFACTURING FIRMS IN NAIROBI COUNTY, KENYA"*. This research is a requirement for the award of Master of Business Administration of University of Nairobi, Faculty of Business and Management Sciences.

A questionnaire has been created to aid in the collection of pertinent data for this research. To facilitate this research completion, I will ask you a few questions. Your information will be kept entirely confidential and utilized solely for academic purposes. Whether or not you choose to participate in the research is solely up to you.

Many thanks for your acceptance with regards to participation in this study.

Yours Faithfully,

Brenda Wekesa

Appendix II: Questionnaire

Instructions:

This questionnaire will be utilized in collection of data for a research study on "*the effect of innovations on financial performance of pharmaceutical manufacturing firms in Nairobi County, Kenya*". We have invited you to participate in our research by filling out this closed-ended questionnaire to help advance knowledge on this topic. Mark a response with a tick () on your choice. It is recommended that you do not write your name, facility, or institution on the questionnaire, or any other information that could be used to identify you. We shall treat the information we acquire about you with strict secrecy, and we will only share it with third parties for the purpose of obtaining an academic degree.

Part I: Background Information

1. Kindly indicate your gender

Male []

Female []

2. Kindly indicate highest level of education that you have attained

Tertiary college level []

Undergraduate level []

Postgraduate level []

3. How long have you been in your current position?

Less than 3 years []

3 to 5 years []

6 to 10 years []

Above 10 years []

Part II: Product Innovation

Please indicate whether you concur or disagree with the illustrated assertions, and to what extent, using the Likert scale provided below.

5=Strongly Agree (SA)

4=Agree (A)

3= Not Sure (NS)

2=Disagree (D)

1=Strongly Disagree (SD)

	SA	A	NS	D	SD
1. The manufactured products fulfil the quality of life in my firm					
2. The health products are available in a variety of brands.					
3. New health-care products are developed to fulfill the needs of customers.					
4. Our organization aims to make existing healthcare items function better.					
5. Existing health-care goods manufactured by my firm are enhanced with new features.					

Part III: Process Innovation

Please indicate whether you concur or disagree with the illustrated assertions, and to what extent, using the Likert scale provided below.

5=Strongly Agree (SA)

4=Agree (A)

3= Not Sure (NS)

2=Disagree (D)

1=Strongly Disagree (SD)

	SA	A	NS	D	SD

6. The corporation has invested in cutting-edge medication design					
7. In my firm, advanced facilities are utilized in the medicine manufacturing process.					
8. To create medications, our organization employs a variety of procedures.					
9. In the manufacturing process, our organization has developed a Quality Management System.					
10. My company's quality management system closely monitors all manufacturing operations.					

Part IV: Market Innovation

Using the Likert scale that we have provided you below, kindly specify if you concur or disagree with the illustrated statements and to what level.

5) = Strongly Agree (SA)

4) = Agree (A)

3) = Not Sure (NS)

2) = Disagree (D)

1) = Strongly Disagree (SD)

	SA	A	NS	D	SD
In my firm, there has been a substantial product design modification.					
My firm's marketing division is always looking for new areas to tap into.					
In my organization, new packaging methods for health care products have been used.					
The firm has devised innovative approaches of product promotion.					
My company has implemented new distribution methods for manufactured health care products.					

Thank you for your time and cooperation.

Appendix III: Secondary Data Collection Form

Year	Net income	Total assets	Current assets	Current liabilities
2021				

Appendix IV: Pharmaceutical Manufacturing Firms in Nairobi County

1. AESTHETICS LTD
2. AGA KHAN UNIVERSITY HOSPITAL TRACER CENTER
3. AUTOSTERILE (EA) LIMITED
4. BENMED PHARMACEUTICALS LIMITED
5. BENMED PHARMACEUTICALS LTD
6. BETA HEALTHCARE INTERNATIONAL LIMITED
7. BIODEAL LABORATORIES LTD
8. BIOPHARMA LTD
9. BRAUN PHARMACEUTICALS EPZ LTD
10. BUYLINE INDUSTRIES LTD
11. CONCEPTS(AFRICA) LIMITED
12. COOPER K-BRANDS LTD
13. COSMOS LIMITED
14. DAWA LIMITED
15. DINLAS PHARMA EPZ LIMITED P
16. ELYS CHEMICAL INDUSTRIES LTD
17. GLAXOSMITHKLINE (KENYA) LTD
18. GLENMARK PHARMACEUTICALS LTD
19. HIGHTECH PHARMACEUTICALS & RESEACH LTD
20. INNOVA BIOLOGICALS LTD
21. IVEE AQUA EPZ
22. IVEE INFUSIONS EPZ LTD
23. LABORATORY & ALLIED LTD
24. MACS PHARMACEUTICALS LIMITED
25. MEDISEL (KENYA) LIMITED
26. MEDITEC EA FAIRLIFE LIMITED
27. MEDIVET PRODUCTS LTD
28. NJIMIA (K) LIMITED
29. OSS CHEMIE (K) LTD
30. QUESTA CARE LTD
31. REGAL PHARMACEUTICALS LIMITED
32. STEDAM PHARMA MANUFACTURING LIMITED
33. TASAPHARMALTD
34. TROPIKAL BRANDS (AFRIKA) LTD
35. ULTRAVETIS EAST AFRICA LTD
36. UNIVERSAL CORPORATION LIMITED
37. VIVA HEALTHCARE LTD
38. ZAIN PHARMA LIMITED

Source: Pharmacy and Poisson's Board (2022)

Appendix V: Research Data

	Firm Name	Liquidity	Firm Size	Return on Assets
1	AESTHETICS LTD	0.22	1.76	0.11
2	AGA KHAN UNIVERSITY HOSPITAL TRACER CENTER	1.38	1.77	0.18
3	AUTOSTERILE (EA) LIMITED	0.87	1.78	0
4	BENMED PHARMACEUTICALS LIMITED	5.69	1.77	0.17
5	BENMED PHARMACEUTICALS LTD	1.01	1.77	0.15
6	BETA HEALTHCARE INTERNATIONAL LIMITED	0.66	1.77	0.12
7	BIODEAL LABORATORIES LTD	0.25	1.75	0.1
8	BIOPHARMA LTD	1.5	1.76	0.11
9	BRAUN PHARMACEUTICALS EPZ LTD	1.1	1.63	0.13
10	BUYLINE INDUSTRIES LTD	1.5	1.61	0.15
11	CONCEPTS(AFRICA) LIMITED	1.44	1.6	0.13
12	COOPER K-BRANDS LTD	0.51	1.61	0.09
13	COSMOS LIMITED	0.38	1.6	0.11
14	DAWA LIMITED	1.08	1.51	0.06
15	DINLAS PHARMA EPZ LIMITED	0.87	1.5	0.06
16	ELYS CHEMICAL INDUSTRIES LTD	4.25	1.5	0.07
17	GLAXOSMITHKLINE (KENYA) LTD	0.6	1.49	0.08
18	GLENMARK PHARMACEUTICALS LTD	2.16	1.49	0.08
19	HIGHTECH PHARMACEUTICALS & RESEACHLTD	0.26	1.55	0.11
20	INNOVA BIOLOGICALS LTD	0.08	1.56	0.05
21	IVEE AQUA EPZ	1.96	1.54	0.05
22	IVEE INFUSIONS EPZ LTD	1.93	1.53	0.05
23	LABORATORY & ALLIED LTD	1.98	1.57	0.04
24	MACS PHARMACEUTICALS LIMITED	0.88	1.57	0.11
25	MEDISEL (KENYA) LIMITED	6.98	1.58	0.17
26	MEDITEC EA FAIRLIFE LIMITED	4.04	1.58	0.12
27	MEDIVETPRODUCTSLTD	4.51	1.59	-0.02
28	NnMIA (K) LIMITED	8.37	1.75	0.14
29	OSS CHEMIE (K) LTD	1.5	1.71	0.16
30	QUESTA CARE LTD	0.66	1.71	0.18
31	REGAL PHARMACEUTICALS LIMITED	2.02	1.7	0.02
32	STEDAM PHARMA MANUFACTURING LIMITED	2.99	1.24	0.04
33	TASA PHARMA LTD	1.6	1.33	0.02
34	TROPIKAL BRANDS (AFRIKA) LTD	0.63	1.36	0.01