MAKERERE UNIVERSITY

MAKERERE UNIVERSITY BUSINESS SCHOOL

FINANCIAL INNOVATIONS AND PROFITABILITY OF COMMERCIAL BANKS IN UGANDA

BY

AMPAIRE JOYCE
2019/HD10/25473U
Email; ampairejoy1@gmail.com
Tel 0701419373/0785285557

A DISSERTATION SUBMITTED TO MAKERERE UNIVERSITY BUSINESS SCHOOL (FACULTY OF GRADUATE STUDIES AND RESEARCH) IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION OF MAKERERE UNIVERSITY

"PLAN A"

DECEMBER, 2023

DECLARATION

I, Ampaire Joyce declare that this is my original work and has neither been presented nor submitted for any award in any other Institution of higher learning for academic purposes.

Signature ..... Date....10/12/2023.

AMPAIRE JOYCE
2019/HD10/25473U

APPROVAL

This dissertation has been submitted for examination with our approval as University Supervisors

Signed ..... Date: 16/12/2023

Dr. Byarugaba Pontius (Ph.D)

Supervisor

Signed ..... Date: 10th/12/2023

Dr. Musiita Benjamin (PhD)

Supervisor

DEDICATION

This is dedicated to my dear husband Asiimwe Wilbert Atwooki and to my lovely daughter Asiimwe Thea Celine Abwooli whose time I sacrificed while doing my research.

ACKNOWLEDGEMENT

First and foremost, I give all thanks to the almighty God for his unconditional love and faithfulness.

I would like to express my deep and sincere gratitude to my supervisors Dr. Byarugaba Pontius and Dr. Musiita Benjamin for their enthusiasm, patience and understanding. This research wouldn't have been a success without their knowledge and dedication, support, and guidance.

With joy I also wish to give special thanks to my loving siblings and my girlfriends for precious love, prayers, understanding encouragement and support they have given throughout this exercise.

TABLE OF CONTENTS

DECLARATION i
APPROVAL ii
DEDICATION iii
ACKNOWLEDGEMENT iv
LIST OF TABLES viii
LIST OF ABBREVIATIONS ix
CHAPTER ONE 1
INTRODUCTION 1
1.1 Background of the Study 1
1.2 Statement of the Problem 3
1.3 Purpose of the Study: 4
1.4 Research Objectives: 4
1.5 Research Questions: 4
1.6 Scope of the Study: 5
1.6.1 Conceptual Scope: 5
1.6.2 Geographical Scope: 5
1.6.3 Time Scope: 5
1.7 Significance of the Study: 5
1.8 The Conceptual Framework 6
CHAPTER TWO 8
LITERATURE REVIEW 8
2.0 Introduction: 8
2.1 Key concepts: 8
2.1.1 Overview of Commercial Banks: 8
2.1.2 Profitability: 8
2.1.3 Financial Innovations 9
2.2 Relationship between the Variables 13
2.2.1 Financial Innovations and Profitability 13
2.2.3 Process Innovations and profitability of commercial banks 20
2.2.4 Process innovation and product innovations on profitability of commercial banks 25

CHAPTER THREE....27
METHODOLOGY....27
3.0 Introduction:....27
3.1 Research Design:....27
3.2 Study Population....27
3.3 Sample size determination....28
3.4 Sampling Techniques....28
3.5 Data source and Collection Instruments:....29
3.6 Operationalization and measurement of variables....29
3.7 Validity and Reliability....31
3.7.1 Validity....31
3.7.2 Reliability....31
3.8 Data analysis and presentation....32
3.9 Ethical Considerations....32
CHAPTER FOUR....33
PRESENTATION AND INTERPRETATION OF FINDINGS....33
4.0 Introduction....33
4.1 Response rate....33
4.2 Demographic Characteristics of the respondents:....33
4.3 Bank characteristics....35
4.4 Pearson Correlation:....36
4.5 Regression analysis....37
CHAPTER FIVE....39
DISCUSSION, CONCLUSION AND RECOMMENDATIONS....39
5.0 Introduction....39
5.1 Discussion of findings....39
5.1.1 Product Innovations and Profitability of Commercial Banks....39
5.1.2 Product Innovations and Profitability of Commercial Banks....40
5.1.3 Explanatory power of Product and process innovations and Profitability of Commercial Banks....42
5.2 Conclusions....43

5.3 Recommendations 44
5.4 Limitations of the study 45
5.5 Areas for further study 45
REFERENCES 46
APPENDICES: 50
APPENDIX1: QUESTIONNAIRE 50
APPENDIX2: SECONDARY DATA COLLECTION SHEET 53
APPENDIX3: TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION: 54

LIST OF TABLES

Table 3.1: Operationalization and Measurement of variables 30
Table 3.2: Validity and reliability results 32
Table 4.1 34
Table 4.2: Bank characteristics 35
Table 4.3: The Correlation Table 36
Table 4.4: Ordinary least square analysis 38

LIST OF ABBREVIATIONS

AIIM	Association for Information and Image Management
ATM	Automated Teller Machine
BCBS	Basel Committee on Banking Supervision
BPA	Business Process Automation
CRB	Credit Reference Bureau
CTS	Cheque Truncation System
EFTPOS	Electronic Funds Transfer Point of Sale
FDIC	Federal Deposit Insurance Corporation
FIA	Financial Institutions Act
GARP	Global Association of Risk Professionals
GCC	Gulf Cooperation Council
ICT	Information Communications and Technology
IIM	Information and Image Management
MENA	Middle East and North Africa
MIS	Management Information System
NIM	Net Interest Income
NPL	Non-Performing loans
NPLR	Non-Performing Loan Ratio
PIN	Personal Identification Number
PwC	PricewaterhouseCoopers
ROA	Return on Assets
ROE	Return on Equity
RTGS	Real Time Gross Settlement
SMEs	Small and Medium Enterprises
U.K.	United Kingdom

ABSTRACT

The purpose of this study was to examine the relationships between financial innovation and profitability of commercial Banks in Uganda. The study was prompted by the low profitability evidenced by some banks being closed down because of low profitability.

The study adopted a cross section and descriptive research design using Roscoe 1975 to get a sample size of 24 commercial banks. Self-administered questionnaires were used to collect the responses. The data was tested for reliability and validity, analyzed using SPSS and results presented based on the study objectives.

Findings indicated that, there is a positive and significant relationship between product innovation and process innovation and profitability of commercial Banks in Uganda which indicated that an improvement in one variable would lead to improvement of the other. However, product innovation was found to be a stronger predictor of profitability in commercial Banks in Uganda.

With these findings the study makes a contribution of providing empirical evidence that financial innovation in commercial banks is highly influenced by commercial banks introducing and improving its products/services since it results into profitability

There is also a need to put much emphasis on Financial Innovations by continuously introducing and improving on the existing products/services.

The Commercial Banks in Uganda should promote and appreciate Financial Innovations as they are vital not only in enhancing on cost minimization, thus improving profitability.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The commercial sector, particularly commercial banks, plays a decisive role in the development of an economy. They act as custodians of the wealth and resources of a country, which are necessary for a nation's economic development (Harper & Chan, 2003). They act as financial shock absorbers by providing emergency liquidity in the form of credit and overdrafts to many businesses and household (Chiu, Kokkinis & Miglionico, 2021). They provide financing to businesses, governments and even households, thereby contributing to economic growth and development (Alkhazaleh & Almsafir, 2014; Ji et al, 2021). Despite their contribution to the overall economic growth of all economies, commercial banks have gone through turmoil since the 2008 financial crunch, the sector has continuously faced financial performance setbacks inform of low profitability, liquidity challenges and non-performing loans which have seen several commercial banks close Singh, Basuki, & Setiawan, 2021). The Federal Deposit Insurance Corporation (FDIC) closed 465 failed banks from 2008 to 2012 in USA alone, in contrast to the five years prior to 2008, where only 10 banks failed (FDIC.gov, 2020) arousing a global debate. The survival of commercial banks is highly leveraged on their profitability (Obadire, Moyo & Munzhelele, 2022).

Profitability is a subjective measure of how well a business entity can use assets from its primary mode of business to generate revenues, perform efficiently as a going concern so as to achieve growth and be able to react to environmental opportunities and threats (Jihadi, et al, 2021). Overall success of Commercial Banks is seen in their profitability which is a necessary condition for their

survival (Tangngisalu et al, 2020). Several authors have investigated the factors influencing profitability among commercial banks and one of them is financial innovation (Al-Dmour, Al-Dmour & Rababeh, 2020).

Profitability of commercial banks has also been associated with Financial Innovations (Aduda & Kingoo, 2012). Financial Innovation is the act of creating and then popularizing new financial instruments, as well as new financial technologies, institutions and markets. It comprises of product innovation, process innovation, institutional innovation and market innovation (Irungu, 2014). Financial Innovations have been an integral component of economic activity for several millennia and they are a centre of the debate on how to shape the future global financial system (Saksonova & Kuzmina-Merlino, 2017). Commercial banks use financial innovations as formidable strategic variables and essential means to improve their performance and maintain effectiveness on the market (Ibekwe, 2021), as well as lower costs of offering other financial services (Nofie, 2011). Most commercial banks are investing large sums of money in Financial Innovations and ICT (Guo & Liang, 2016). to decompose and repackage different types of financial risks (Hamilton, Jenkinson, & Penalver, 2007). An important question about business investment in innovation today is whether the expected financial benefits can be realized.

Financial Innovations, particularly Process and Institutional innovations, also improve Credit Risk Management through real-time data processing, reporting, and monitoring to enhance overall risk-management capabilities (Ganguly et al, 2017; Juan, Antonio & Bahillo, 2016). They also enable efficient data management and integration of new data sources, offer greater transparency to risk profiles of current and prospective borrowers and offer better insights for credit decisions which ultimately lead to sound commercial banks' profitability (Brookes, 2016).

In Uganda, Commercial Banks continue to grapple with performance setbacks (Kessey, 2015). Recent statistics indicate a rise in the Non-Performing Loan portfolio rate (NPLR); and a fall in Return on Equity (ROE) as well as Return on Assets (ROA) (Bank of Uganda report, 2021). This is evidenced by the rise in the ratio of non-performing loans from 4.0% in June 2020 to 7.4% in June 202021 For example, four banks were closed between September 1998 and May 1999 for poor financial performance (Habyarimana, 2003). National Bank of Commerce was closed by BoU in 2012 to protect depositors' interests and maintain financial stability (Kasekende, 2014). Global Trust Bank was closed in July 2014 because of accumulated losses of up to Ushs 60 billion (BOU report, 2019) and in October, 2019, BoU took-over Crane Bank because NPLs had eroded capital; the NPLs had grown from Ushs 145 billion in December 2021 to almost Ushs 200 billion by October 2016 (BOU report, 2020/2021).

These challenges could be attributed to inappropriate Financial Innovations.

1.2 Statement of the Problem

Credible financial performance in commercial banks ensures systemic stability and an efficient allocation of capital in the economy (Taiwo et al, 2017) . Strategic Management in financial institutions demands that they should have effective systems in place to counter unpredictable events that can sustain their operations while minimizing the risks involved through Financial Innovations (Li et al, 2021) .

Yet despite their contribution to the overall economic growth of all economies, profitability indicators of commercial banks in Uganda reveal a declining trend. Commercial banks' net after-tax-profit (NPAT) increased from UGX.775.1 billion earned during the year ended June 2019 to UGX.862.2 billion for the year ended June 2020. Consequently, the aggregate average return on

assets (ROA) reduced to 2.6 percent, 0.6 percent and -1.4 percent for commercial banks, credit institutions and MDIs respectively, between June 2019 and June 2020

If the current trend is left unchecked, it may cripple economic growth and development thereby constraining the achievement of the Uganda Vision 2040. The review of literature (Bátiz-Lazo & Woldesenbet, 2006; Gakure & Ngumi, 2013; Lerner, 2006; Lerner & Tufano, 2011; Mugane & Ondigo, 2016; Nyathira, 2012; Waweru, 2012) associates this challenge to poor process and product innovation but little is known about the same among commercial banks in Uganda hence a need to carry out this study.

1.3 Purpose of the Study:

The purpose of the study is to establish the relationship between Financial Innovations and Profitability of Commercial Banks in Uganda.

1.4 Research Objectives:

i. To establish the relationship between process innovation and Profitability of Commercial Banks in Uganda
ii. To establish the relationship between product innovation and Profitability of Commercial Banks in Uganda
iii. To establish the explanatory power of process innovation and product innovation on Profitability of Commercial Banks in Uganda

1.5 Research Questions:

i. What is the relationship between process innovation and Profitability of Commercial Banks in Uganda?
ii. What is the relationship between product innovation and Profitability of Commercial Banks in Uganda?

iii. What is the explanatory power of process innovation and product innovation on Profitability of Commercial Banks in Uganda?

1.6 Scope of the Study:

The study covered the conceptual scope, the geographical scope and time scope.

1.6.1 Conceptual Scope:

The survey covered Financial Innovations which are in form of process and product innovations as independent variables and Profitability as the dependent variable.

1.6.2 Geographical Scope:

The study covered commercial Banks in Kampala, Uganda. This is because all commercial banks in Uganda have their Head Offices in Kampala. There are 25 commercial banks in Uganda (BoU report, 2022).

1.6.3 Time Scope:

The research was based on a Cross Sectional Research design where data is collected at one point in time. Secondary data was be collected from Audited Financial Statements that covered a period of four years from 2018 to 2021.

1.7 Significance of the Study:

The current study will have implications in policy development as well as lead to the realization of government policies that foster economic growth and development.

In practice, the study may benefit banking managers as they may use the findings of the study to decide on the innovations (Institutional or process) to adopt. Such innovations may bring sustainability and competitive advantage to banking firms as results of superior financial returns.

Additionally, the study may have implications for theory building as it may contribute to the Financial Innovations academic discussion. The study results may reduce the inconclusiveness and the wide controversy surrounding the discussion of the Financial Innovations and ICT in mitigating Credit Risk.

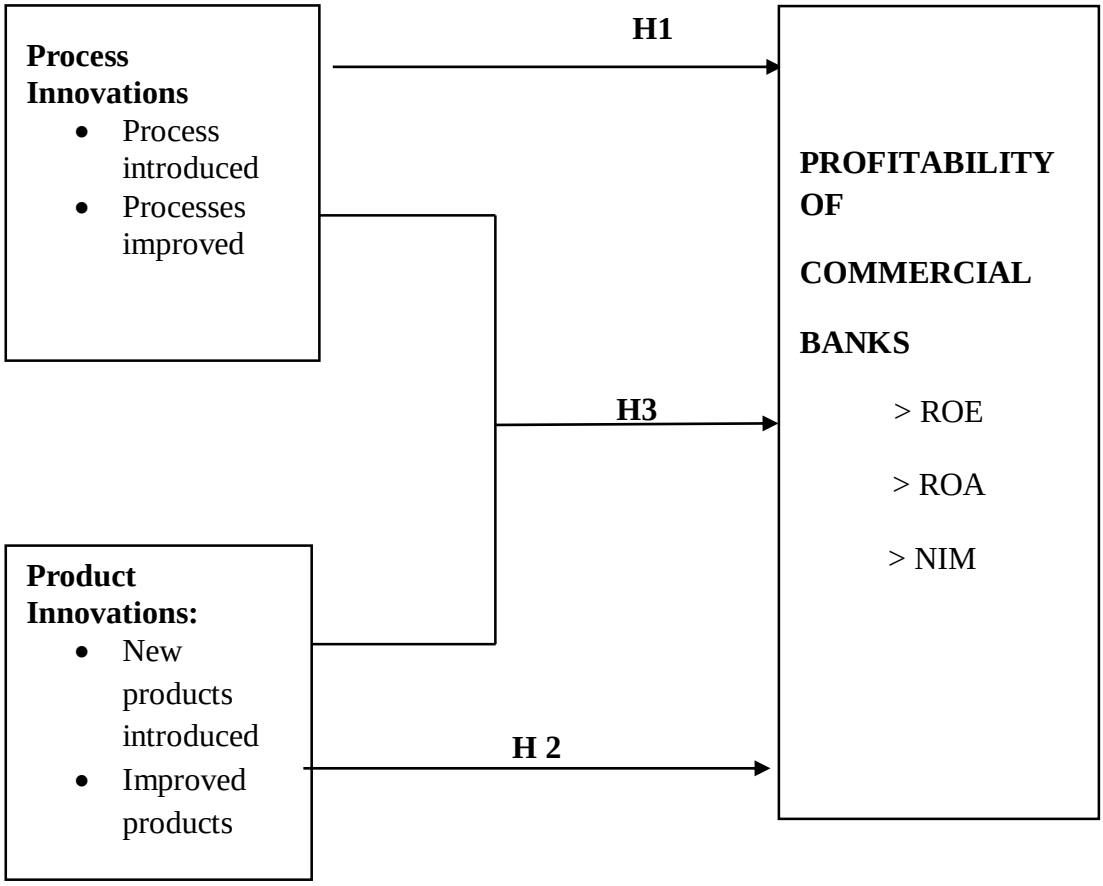
1.8 The Conceptual Framework

The conceptual framework explains the relationship between Financial Innovations which is conceptualized in form product innovation and process innovation and these affect Profitability of commercial banks. Financial Innovation is the independent variable while Commercial Banks' Profitability is the dependent variable.

Appropriate Financial Innovations will reduce transaction costs, time, maintain clients and enhance Credit Portfolio Management to increase the overall bank's profitability (Akhavein, Frame, & White, 2005).

These Financial Innovations enhance profitability of the banks through efficient data management and integration of new data sources, offer greater transparency to risk profiles, offer better insights for credit decisions, while real-time data processing, reporting, and monitoring further enhance overall risk-management capabilities - ultimately leading to sound Commercial Banks' Profitability (Christiansen, Fatnani, Kolhatkar, & Srinivasan, 2001; Kiplagat, 2013).

Figure: Conceptual Framework



Source: *Developed by the researcher from literature review from (Poudel, 2013; Kenny & Faderera; Baklouti & Abdelfettah; Kithingi, 2010; Bayyod & Sayyad, 2015*

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction:

This chapter will review key concepts and empirical studies on Financial Innovations and Profitability. It is arranged according to the study objectives and relationships are established between variables so as to reach conclusions.

2.1 Key concepts:

2.1.1 Overview of Commercial Banks:

A "commercial bank" means a company licensed to carry on financial institution business in Uganda (Financial Institutions Act, 2004, amended 2016). A commercial bank is a profit-seeking business firm, dealing in money and credit. It is a financial institution dealing in money in the sense that it accepts deposits of money from the public to keep it in its custody for safety. It also deals in credit; it creates credit by making advances out of the funds received as deposits. The role of commercial banks remains central in financing economic activity and its effectiveness could exert positive impact on the overall economy (Allen, Qian, & Qian, 2005).

2.1.2 Profitability:

Profitability is the ability of a company to use its resources to generate revenues in excess of its expenses. In other words, this is a company's capability of generating profits from its operations. It is one of the four building blocks for analyzing financial statements and company performance as a whole. The others are efficiency, solvency and market prospects. However, profitability is the most used measure of organizational performance. It measures the extent to which a business generates profits from the factors of production: labor, management and capital. Profitability analysis focuses on the relationship between revenues and expenses and on the level of profits

relative to the size of investment in the business (Daniel, 2018). Profitability offers clues about the ability of the bank to undertake risks and to expand its activity.

The main indicators used in the appreciation of bank profitability are: the rate of return on firm assets (ROA=Net income /Total assets), the rate of return on firm equity (ROE= Net income / Average Equity) and net interest margin (NIM= Deposits – loan + other interest earning Assets). The ROA measures the return to all firm assets and is often used as an overall index of profitability, and the higher the value, the more profitable the firm business. The ROE measures the rate of return on the owner's equity employed in the firm business. The NIM is (the difference between deposits and loan (+ other interest earnings assets) (Alhassan & Ohene-Asare, 2016).

Profitability is a necessary condition for business's survival (Patel et al, 2020). A business that does not make profits will fail, potentially affecting employees, suppliers and the local community because their overall operations depend on profits. Profitability is the measure of the overall success of a company. Investors could prefer a single measure of profitability to commit their investment to a business. A sound and profitable commercial banking sector guarantees the commercial bank's survival and is better able to withstand negative shocks and contribute to the stability of the financial system (Psillaki et al., 2010).

2.1.3 Financial Innovations

Financial Innovation is the act of creating and then popularizing new financial instruments, as well as new financial technologies, institutions and markets. It represents something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies participants' demands. Financial Innovation comprises of Product Innovation, Process Innovation, Institutional Innovation and Market Innovation (Irungu, 2014). The creation of new technological

advances in the financial products market, the implementation of an on line banking system that allows a user to instantly transfer money from multiple accounts is considered an instance of financial innovation.

Product innovation is the introduction of a good or service that is new or significantly improved in its characteristics or intended uses (Kam-Sing Wong, 2014). This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics (Oecd, 2005). According to Kotler (2011), a product may be a physical good, service or ideas that can be offered to a market for attention, acquisition, use, or consumption that might satisfy a need or a want. Thus product innovation is divided into two categories of innovations: radical innovation which aims at developing a new product/service/idea, and incremental innovation which improves existing products/service/idea (Hoang, 2010).

Product innovations have a market focus and are primarily customer driven; for, a product is what attracts a customer. The product is what makes a market. Product innovation requires that banks assimilate customer needs, changes in demographic aspects and supply new ways to enter bank markets. A successful product innovation provides a variety of products, which in turn improve profitability because the variety enables capturing consumers from across the market and avoids a consumer switching to a competitor bank (Vrontis, Thrassou, & Amirkhanpour, 2017).

With regard to this study, products refer to various products, services and / or distribution channels that banks offer to their customers. Product innovations specific to financial institutions include:

Credit Cards, Debit Cards, Money Transfer Services, accounts for short-term and long-term saving / investments (Holt, 2013), among others. They also include products tailored to favour certain groups like flexible savings facilities, Accounts for small scale businesses, loans for small scale business, Personal Unsecured Loans, loans to farmers, students, business people, asset financing among others (Irungu, 2014). They all aim at providing a wider range of financial products to satisfy customers and intermediation options for growth, expansion and avoiding brand switching so as to gain a competitive advantage (Chen & Sivakumar, 2021).

Process Innovation is the application or introduction of a new technology or method for doing something that helps an organization remain competitive and meet customer demands. It happens when an organization solves an existing problem or performs an existing business process in a radically different way that generates something highly beneficial to those who perform the process, those who rely on the process or both. It creates radical shifts and generally requires a longer planning time, support from top management and a higher level of cultural and structural change. (Demitry, Koepke & Mewes, 2022).

It can generate value to either internal customers, including employees or the actual organization itself, or it can create value to external customers, including business partners, end-users or actual consumers. Among the main process innovations are office automation, use of computers in accounting systems and client data management software, Electronic Banking (taking the form of ATMs, Internet Banking and telephone transaction), Real Time Gross Settlement (RTGS), Cheque Truncation System (CTS), digitization of credit risk management processes (Sujud & Hashem, 2017)

Values stemming from bank process innovations include increased market expansion and efficiency that manifests in the form of reduction in waiting time; increased number of transactions within a time frame, reduction in transaction costs, maintaining clients, better portfolio management and significant gains in product quality and service levels to propel overall firm's success. Process Innovations are very important to financial institutions' growth for the reason that without excellent Process Innovations, other innovations may be impossible to implement (Abaenewe, Ogbulu, & Ndugbu, 2013; Gakure & Ngumi, 2013).

Institutional innovation is defined as a novel, useful, and legitimate change that disrupts the cognitive, normative or regulative mainstays of an organizational field (Raffaelli & Glynn, 2015). It includes new institutions or organizational structures within institutions. This kind of institutional innovation can influence the financial system as a whole, breeding new types of intermediaries. It involves changes in business structure, establishment of new types of financial intermediaries, or changes in the legal and supervisory framework (Merton & Bodie, 2006). Examples include commercial banks getting into investment banking services, banks offering insurance services on behalf of insurance companies, Islamic Banking and Agency Banking, electronic exchange for trading securities, Internet-only banks among others (G20 Summit, 2010).

Financial innovations arise due to several reasons (Bátiz-Lazo & Woldesenbet, 2006) including reduction in bankruptcy costs, tax advantages, reduction in moral hazard, reduced regulatory costs, transparency and customization (Bátiz-Lazo & Woldesenbet, 2006; Yoo & Yi, 2022). According to Nofie (2011), innovations in the finance sector is the arrival of a new or better product and/or a process that lowers the cost of producing existing financial services. A highly turbulent

environment leads to successful innovation creating a unique competitive position and competitive advantage that leads to a superior performance (Roberts & Amit, 2003). This can only be maintained by ceaseless improvement in institutional, product, process and market innovations (Pfeiffer, 2021).

Commercial banks should therefore use financial innovations as formidable strategic variables and as essential means to obtain sound profitability and remain competitive on the market (Bátiz-Lazo & Woldesenbet, 2006; Nofie, 2011).

2.2 Relationship between the Variables

2.2.1 Financial Innovations and Profitability

Financial Innovations are used by banks as formidable strategic variables to outstrip competition and have become an essential means for banks to minimize costs and improve their profitability and maintain their effectiveness on the market (Bátiz-Lazo & Woldesenbet, 2006). In a highly turbulent environment, a successful innovation creates a unique competitive position which can give a bank competitive advantage and lead to improved profitability (Knudsen et al, 2021). This can only be maintained by ceaseless innovation and improvement of the product and the process (Trkman, 2010). Among Financial Innovations are Product Innovations (Knudsen et al, 2021).

2.2.2 Product Innovations and profitability of commercial banks

Product innovation is divided into two categories of innovations: radical innovation which aims at developing a new product/service/idea, and incremental innovation which improves existing products/service/idea (Hoang, 2010).

Antonnet (2014) lends that banks should first understand all bank related customer needs and then evolve a comprehensive product package which covers the entire range of these needs. That a bank's product policy should have a local touch by considering local peculiarities; that a product should be local-oriented. She discourses that once the bank gives a tailor-made product, it will invoke a psychological ownership on the customer's mind resulting into customer retention and maintenance of profitability. Anand & Mantrala (2019) categorize the various aspects of product innovation in banks as the introduction of new credit, deposit, insurance, leasing, hire purchase, derivatives and other financial products such as e-banking, investment and retail banking. They opine that these products are introduced to respond better to changes in market demand or to improve efficiency. That product innovation, as one of the competitive strategies of commercial banks, greatly enhances their profitability.

According to Barbu et al (2021), product innovation is the result of bringing to life the new way of solving customer's problem; this eventually benefits both customers and banks. Both external and internal factors stimulate innovation of products / services tailored to specific needs and special niches. Important external factors include market research, exchange of new product ideas between banks or technological developments. Internal factors could relate to in-house development of new products, monitoring and evaluation of existing products and feedback from employees and customer (Sok & O'Cass, 2015).

Qi, Boyer, and Zhao (2009), argue that like any living being, products go through various stages in their productive lives from invention, maturity to decline stage forming a unique cycle in the product life. If not nurtured through continuous improvements the products decline and die

naturally like any living being. Product innovation is the result of bringing to life a new way to solve customer's problem. He discourses that product innovations should be a continuous and deliberate strategic approach if organizations expect to sustain profitability and growth (Maclean et al, 2021). These strategies may include differentiation strategies, modifications and product positioning techniques including new innovations all together (Kamakia, 2014). Product innovation is inevitable if commercial banks are to remain relevant and profitable (Chen, You, & Chang, 2021). Credit Reference Bureaus (CRBs) are private companies that compile databases that potential lenders can access to help them analyze, assess and evaluate a consumer's credit application. They provide information to potential lenders about an applicant's credit record, producing a "credit report" that contains details of the payment and credit history of an individual, financial accounts and the way they have been managed, as well as other information of interest to the credit industry (Bussmann et al, 2021)

The Credit reference bureaus have a positive impact on the reduction of non-performing loans and therefore, their use should be adopted by all banks and other lending institutions like agricultural firms and industrial sectors in order to curtail the serial defaulters. This in turn reduces bad debt provisioning and write-offs and this boosts profitability of banks (Kepha et al., 2015)

Wairimu (2013) in his study on "The Effect of Credit Reference Bureaus, Non Performing Loans on profitability of Commercial banks in Kenya", found that credit by the banking sector in Kenya has to a large extent been underwritten by physical collateral such as land and buildings and costs of evaluating that collateral. Good borrowers and payers especially from the informal, and SMEs without access to such collateral have been constrained from accessing credit – thus banks locking

out interest income and commissions that would accrue from these good borrowers to boost banks' profitability.

In his investigation on Credit Monitoring and Recovery Strategies Adopted by Commercial Banks in Kenya, Migwi (2013) orates that the use of the CRBs creates information collateral which can be relied upon by commercial banks to lend to those good payers who otherwise would be constrained from borrowing because of lack of physical collateral. The over-all effect is bringing on board the interest income and commissions that will accrue from these good borrowers, who otherwise would be locked out, to boost banks' profitability.

Dankwah (2012) in the study on 'The Relevance of Credit Reference Bureau and its Effect on the Financial Industry in Ghana' recommends that commercial banks and their regulators should embrace CRBs to enable credit information sharing. This will enable building a track record (reputational capital or collateral) for borrowers that they can use to access credit. This is especially pertinent to those borrowers in the informal and small and medium enterprises (SMEs) who have a track record and good performance to use their reputational capital to access credit. This will expand banks' profitability.

Agency Banking is another Financial Institutional Innovation. It means providing limited scale banking and financial services to the underserved population through engaged agents under a valid agency agreement, rather than a teller / cashier. It is the owner of an outlet who conducts banking transactions on behalf of a bank. Globally these retailers (agents) are being increasingly utilized as important distribution channels for financial inclusion (Simboley, 2017)

The benefits of agency banking are such that banks can extend their reach without 'breaking the bank'. Given that more than 80% of the adult population in sub-Saharan Africa's developing regions are unbanked, there is a definite opportunity, and need, for banks to use agents to scale their businesses, reach the financially excluded and win back important market share from telcos (Gitau, 2014).

Ndung'u (2014) dialogues that notwithstanding the challenges in adopting Agency Banking, it has impacted the lives of many in developing economies. That agency banking has become a way of offering convenience to bank customers and also a channel for lenders to mobilize cheap deposits with little operating costs.

Nyaboga et al (2012) on the impact of Agency banking on entrepreneurs in Kisii county, Kenya, discourses that agency-banking services attract the interest of criminals. This evokes security consciousness from customers and takes aback their confidence in dealing with these bank agents. They therefore become selective in carrying out transactions with these agents, thereby affecting the profitability of commercial banks.

Mwangi (2011) on the role of Agency Banking on profitability of commercial banks in Kenya orates that the infrastructure cost and security influence the profitability of commercial banks attributable to agency banking to a very great extent. She recommended that in adopting Agency Banking, more attention be given to security measures including risk-based approach. That commercial banks should effectively screen their agents to ensure that large cash transactions are effectively carried out on their behalf; there are secure operating systems capable of carrying out

real time transactions, there is the ability to generate an audit trail and there is protection of data confidentiality and integrity (Aduda, Kiragu, & Ndwiga, 2013).

Aduda and Kingoo (2012) discourse that the main objective of all commercial banks is to increase their profitability through expansion of their branch network in order to reach many of their potential and existing customers who are in remote places where access to banking services is limited. That through Agency Banking, commercial banks have penetrated into rural areas where offering banking services is, otherwise, expensive for commercial banks' direct participation, especially in rural areas where it is often prohibitively expensive for commercial banks since transaction numbers and volumes do not cover the cost of a branch. In addition, low income clients often feel more comfortable banking at their local store than walking into a marble branch thereby bringing on board income that accrue from these clients to that bank at a lower cost (Dawley, 2021) Mobile Banking is also a Financial Institutional Innovation. Mobile Banking refers to a system that allows customers of a financial institution to conduct a number of financial transactions through a mobile device such as a mobile phone or personal digital assistant (Koenig-Lewis, Palmer, & Moll, 2010).

The terms Mobile Phone Banking and Mobile Banking (M-banking) are used interchangeably. The services through Mobile Banking involve facilities to conduct bank and stock market transactions, administer accounts and access customized information including: inquiries on Account Balance, Account Statement, Cheque Status, Cheque Books, Funds Transfer between accounts among others (Karjaluoto et al, 2021). Hence, mobile banking differs from mobile payments, which involve the use of a mobile device to pay for goods or services at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment.

Mobile banking is now viewed as the 'fifth channel' of banking; a channel of its own and not an appendage of online banking – hence a greater integration with back end core banking systems. Consequently, banks have come up with strategies to attract more customers and retain existing ones all of which may enhance profitability. (Ivatury & Pickens, 2006).

Mwange (2013) on Mobile Banking and profitability of commercial banks in Kenya, discourses that adoption of mobile banking by financial institutions is very important in improvement of financial adequacy of commercial banks as well as improving operations and reducing costs in the long-run, all of which enhance profitability

Simplice (2012) orates that Mobile Banking enhances the number of existing channels of distribution that a bank employs to offer its services; this increases the operations efficiency and side steps the losses / costs caused by delays in satisfying customer orders. More still, a favorable reputation of the firm's logistical capacity may help generate additional orders. Mobile Banking enhances this through providing anytime anywhere access to banking services including availability of Push and Pull services to transact on an urgent basis.

Wishart (2006); Mwange (2013) lend that the use of M-Banking can contribute to improved bank performance, in terms of increased market share, increased banking penetration, customer satisfaction, customer loyalty expanded product range, customized products, better response to client demand, reduces operational costs and meet government service obligations. M-banking continues to be used as a strategic tool which influences the banks' income structure since a successful strategy in terms of expansion and customer retention ultimately enhances profitability.

Gakure and Ngumi (2013) did a study on whether financial innovations influence profitability of commercial banks in Kenya and concluded that bank innovations had a statistically significant influence on bank profitability.

Nyathira (2012) carried out a research on financial innovation and its effects on profitability among commercial banks in Kenya. Study results indicated that financial innovation indeed contributes to and is positively correlated to profitability in the banking sector particularly that of commercial banks.

Despite the recognized importance of financial innovations and an extensive descriptive literature, there have been surprisingly few empirical studies. This situation has denied the banks the much needed information regarding this important area of financial innovations sometimes leading to reverse causality in the innovation-performance relationship. Financial innovations' impact on banks' profitability remains lowly tested in Uganda, hence the need for this study to close the gap.

2.2.3 Process Innovations and profitability of commercial banks

Process Financial Innovations like Business Process Automation (BPA) or digitization is the technology-enabled automation of activities or services that accomplish a specific function or workflow. It is a process of managing information, data and processes to reduce costs, resources and investment. BPA increases productivity by automating key business processes through computing technology (Alexopoulou et al., 2010;.

A survey on consumers in the U.K. by PwC and Strategy& opines that there is a significant gap between clients' desires and expectations, on the one hand, and banks' offerings, on the other. They found that customers, especially SMEs preferred to do most of their banking through online

and mobile platforms. The gap between actual and preferred online banking services was biggest in the area of credit and financing. More than 30 percent of SMEs reported they would like to be able to apply for and get loans online, rather than making a trip to a bank branch (Johannes Bussmann, 2015)

In its 2014 white paper, "Automating Credit Processes," the Association for Information and Image Management (AIIM) stated that, Small and medium-sized enterprises are turning to nonbanks to make payments, access loans, and manage transactions. And as these alternative services gain traction and become more robust in the next couple of years, SMEs will have even greater incentives to start using them. They recommended that if banks are to fend off the competition — not only from new financial technology companies but also from other banks that have moved into the digital era more decisively — they need to start making a concerted effort to meet customers' needs. A step towards digitization should help banks handle more transactions in an automated fashion and in real time, allowing them to lower their operating costs (AIIMWhitePaper, 2014).

In their investigation of the strategies and tactics (both internal and external) that winning businesses are deploying to achieve successful digital transformation, Capgemini Consulting Group UK together with MIT in Boston, opine that banks should build the digital end-to-end execution of transactions that is at the heart of digital banking, so that their payoffs come, partly, in the form of reduced operating costs (CapgeminiConsultingGroup, 2017). They recommend that banks should automate their business processes, especially credit, to be able to get by with fewer

employees and fewer in-person services — freeing up resources that will either lower their cost basis or allow banks to add higher-value advisory services.

Automation of credit processes and the digitization of the key steps in the credit value chain yields cost savings of up to 50 percent while digitizing credit risk protects bank revenue, potentially reducing leakage by 5 to 10 percent (Alan , Alastair & Gerhard, 2013).

Busby (2017), concludes that digitization of banking business processes should provide much broader benefits than those related to cost — including higher customer satisfaction, higher rates of customer retention, and higher revenues per customer. Failure to make the transformation may leave banks unable to hold on to lucrative clients, especially SME borrowers; the 20% of the clientele that contribute 80% to the banks' profitability and survival, who increasingly have other options may soon have a leg, an arm, or their whole body out of the door.

Internet Banking is another process financial innovation which refers to a bank making its services accessible to clients using the internet as its delivery channel for a wide range of value added products and services to bank customers (Mols, Nikolaj D. Bukh, & Flohr Nielsen, 1999). It is also referred to as online banking (Gerrard & Barton Cunningham, 2003). It allows individuals to perform banking activities at home or from their offices or over the internet.

Through traditional banks, internet banking enables customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, stop - payment requests, loan repayments and some offer online loan applications (Kannabiran & Narayan, 2005). Some internet

banks are traditional banks which also offer online banking i.e. brick & mortar, while others are online only and have no physical presence (Bradley & Stewart, 2003).

Internet Banking is beneficial to banks as well as consumers, in that there is an improvement of efficiency in services rendered to customers. It is convenient and cost-efficient. Moreover, the development of Internet banking has transformed the distribution channel structure in the banking sector (Giannakoudi, 1999).

According to Arnaboldi and Claeys (2008), Internet Banking has a significant positive contribution to igniting competition in the banking sector and on banks' profitability. Internet Banking applications plunge banks into technological innovations which culminate into efficiency and improved profitability (Ciciretti, Hasan, & Zazzara, 2009).

According to DeYoung, Lang, and Nolle (2007) because of its effectiveness, internet banking has a positive impact on banks' profitability because the cost of transacting through internet banking can be reduced by 40 to 80%, than when done at the traditional branch. The internet banking services' costs reduce average operational costs and overhead physical expenses suffered by the banks.

Internet Banking reduces the operational risk of the banks (Ciciretti et al., 2009) and increases their asset quality thereby increasing the operational profitability and ROE directly (Kagan, Acharya, Rao, & Kodepaka, 2005). According to Sullivan (2000), with developed electronic

infrastructure, the cost per transaction while using internet banking is lower compared to ordinary banking.

Banks using internet banking services intensively are classified as "innovative" and their distribution channels more than and their costs are below the sector average (Pigni, Ravarini, Tagliavini, & Vitari, 2002). Customers with high level of education demand internet banking (Sullivan, 2000) more than ordinary customers, and though they are fewer compared to the ordinary customers, internet banking has impacted positively on the profitability of banks that have adopted it.

In his study on the impact of internet banking on profitability of financial institutions in Kenya, it was concluded that the adoption of internet banking has enhanced the profitability of the banking industry. This is attributable to improved efficiency, effectiveness and profitability (K. D. Mwangi, 2014).

Automated Teller Machine (ATM) is also a bank process innovation. ATMs were the first well-known machines to provide electronic access to customers and they are designed to perform the most important function of the bank. ATM is operated by a plastic card with its special features (Milne, 2006). The plastic card is replacing the cheque, personal attendance of the customer, banking hours' restrictions and paper based verification (Olatokun & Igbinedion, 2009), that slow down the process of service to customers.

ATMs have enabled availability of hard cash just seconds away, all throughout the day at every corner of the globe and they allow the Banks' customers to do a number of banking functions – such as withdrawing cash from one's account, making balance inquiries and transferring money from one account to another, purchase prepaid mobile phone credits using a plastic, chip or magnetic-stripe card and a Personal Identification Number (PIN) issued by the financial institution (McAndrews, 2003).

2.2.4 Process innovation and product innovations on profitability of commercial banks

Ou, Hung, Yen, and Liu (2006) confirmed that ATM intensity has positive effect on bank cost efficiency. As for sustainability of income gained, earlier adopters could have cost improvements by replacing tellers with ATM. The conclusion was consistent with Laderman (1990) that ATM could reduce human resource costs of tellers and branch establishment costs and thereby enhance commercial banks' profitability.

According to Haynes and Thompson (2000) ATM can process routine transactions and therefore reduce tellers' work indirectly. He further stated that this will also decrease the labour demand of banks. In the same vein they observed that banks with heavier personnel expense pressure tended to install more ATMs to replace teller labour costs, because of the substitution effect and operating cost consideration aiming to achieve the goals of operational efficiency and boost profitability (Jegede, 2014).

McAndrews (2003) discourses that by automating services that were previously completed manually, ATMs reduce the costs of servicing some depositors on demand. These potential

benefits are multiplied when banks share their ATMs, allowing customers of other banks to access their accounts through another bank's ATM.

The combined services of both the Automated and human tellers imply more productivity for the bank during banking hours. ATMs are a cost-efficient way of yielding higher productivity as they achieve higher productivity per period of time than human tellers (an average of about 6,400 transactions per month for ATMs compared to 4,300 for human tellers (Jegede, 2014). Furthermore, as the ATMs continue when human tellers stop, there is continual productivity for the banks even after banking hours.

CHAPTER THREE

METHODOLOGY

3.0 Introduction:

This chapter presents a description of the methods that will be applied in carrying out the study. They include the Research Design, Study Population, Sample Size and Sampling Technique, Data Collection and Tools, Measurement of Variables, Validity and Reliability, Data Analysis, Ethical Considerations and Limitations of the Study.

3.1 Research Design:

A research design is the structure, or the blueprint, of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings (Cooper, Schindler, & Sun, 2006; Lavrakas, 2008; Williams, 2011). This study employed a quantitative and cross sectional survey design so as to provide a clear understanding of the relationship between the variables as outlined in the research objectives. A Cross-sectional survey design was employed because it is relatively inexpensive and allows for collection of a great deal of information quite quickly (Saunders et al, 2009). Data is often obtained using self-report survey which allows the researcher to amass a large amount of information from a large pool of participants. Yet it also enables the researcher to collect data on some different variables to see how differences in sex, age, educational status and income might correlate with the critical variable of interest (Sekaran, 2006).

3.2 Study Population

A population is a collection of people, things, or events that have certain observable traits. The researcher's primary focus and the area in which he or she seeks to draw generalizations is the set of cases. It is any collection of discrete elements, whether finite or infinite. A researcher's full

collection of "things" is what they are interested in. It is also referred to as the "universe" and refers to all objects in all areas of study. A population is sometimes referred to as the whole or aggregate of people who meet a certain set of criteria (Kothari, 2004; Lavrakas, 2008; Mugenda, 2003; Polit & Beck, 2010; Sim & Wright, 2000).

The study population comprises of 25 commercial banks in Uganda (Bank of Uganda, 2022). Major focus was on the head offices of these banks; by default, these are all located in Kampala. Based on the given population,

3.3 Sample size determination

A sample size of 24 commercial banks determined using the Krejcie and Morgan (1970) table for sample size determination was utilized in this study. Four (4) respondents were selected per bank to fill the questionnaire. These included the head of operations, manager, head of Business Development and head of Business Technology departments.

3.4 Sampling Techniques

Sampling technique is a method of drawing samples from a population usually in such a manner that the sample will facilitate determination of some hypothesis concerning the population (Kombo & Tromp, 2009; Kothari, 2004; Polit & Beck, 2010). Simple random sampling technique was employed to arrive at the desired sample size. Pieces of paper with names of the licensed commercial banks in Uganda were put in a box from where they were picked one by one without replacement until 24 banks are selected. In addition, purposive sampling was used to select the unit of inquiry (the head of operations, manager, head of Business Development and head of Business Technology departments).

.

3.5 Data source and Collection Instruments:

The main data source was primary source, and as such data was collected using a survey questionnaire. This was anchored on a 2 point likert scale of 0 - No (**No**), 1- Yes (**Yes**). The questionnaire was divided into major sections to address specifically every variable in the model. These will include; background information, product innovation, process innovation and Profitability. A questionnaire is a well thought-out tool designed to elicit information that can be obtained through written responses from the study subjects (Burns & Grove, 2005). It will be used because it is simple to administer and can easily be filled at the respondent's convenience.

3.6 Operationalization and measurement of variables

The study variables operationalized and measured using questionnaire items developed and tested by previous scholars. These are detailed in table:

Table 3.1: Operationalization and Measurement of variables

Global variable	Definition	Dimensions	Measurement	Sample items
Profitability	Profitability a subjective measure of how well a business entity can use assets from its primary mode of business to generate revenues, perform efficiently as a going concern so as to achieve growth and be able to react to environmental opportunities and threats (Gilbert & Wheelock, 2007)	⇒ROA ⇒ROE ⇒NIM	Respondents rank 3 items included in the questionnaire on a five point likert scale.	*Level of ROA *Level of NIM *Level of ROE
Financial innovations	Financial Innovation involves introduction of new financial products/services for existing market, for the new market and new process of delivering the financial services	Product Innovations Process Innovations	Respondents rank 24 items included in the questionnaire on a five point likert scale.	* In the last three years, the bank has introduced the following products / services: • Mobile Banking • Agency Banking • Small scale Business Accounts * In the last three years, the bank has introduced new delivery or distribution methods for the following products/services: • E-Banking • Electronic funds transfer • Small scale Business loans

3.7 Validity and Reliability

3.7.1 Validity

Validity refers to how well a test measures what it is purported to measure (Guthrie, 2010). For validity the researcher used the expert judgment of her supervisors and experience of bank managers to express their opinions as to whether the constructs being used to measure the concepts are valid. To assess this, the two supervisors and bank managers were contacted to evaluate the relevance of each item in the instruments to the objectives. The experts rated each item as either relevant or irrelevant. Validity was determined using Content Validity Index (C.V.I). For the instrument to be valid, the C.V.I should be at least 0.7 (Field, 2009) and the CVIs were all above 0.7 indicating that the instrument was valid.

C.V.I=Items rated relevant by the judges divided by the total number of items in the questionnaire as shown hereinafter.

$$CVI = \frac{\text{No. of items rated relevant}}{\text{Total no. of items}}$$

3.7.2 Reliability

Reliability is the ability of an instrument to produce consistent results (consistency). An instrument is reliable if it produces the same results whenever it is repeated. Reliability test indicates the extent to which it is without bias or free from error, and hence ensures consistent measurement across time and across the various items in the instrument. The consistency of the scale used to measure the items on the study was based on Cronbach alpha's coefficient (Taherdoost, 2016). Cronbach states that the coefficient of reliability ranges from 0 to 1 in providing the overall assessment of a measure's reliability. The recommended cut off point for reliability is 0.7 (Taherdoost, 2016) and based on the findings, the instrument was reliable.

Table 3.2: Validity and reliability results

Variables	CVI'S	Cronbach's Alpha	No. of items
Product innovation	0.787	.880	8
Process innovation	0.775	.865	8
Profitability of Commercial Banks	0.824	.878	8

3.8 Data analysis and presentation

Data from the field was processed and analyzed using Statistical Package for Social Scientists (SPSS version 21). The data was cleaned by checking for missing values and outliers. Given the nature of the research objectives and questions, this study employed Pearson correlation to test the associations, while ordinary least square regression was performed to test the contribution effect of each variable in explaining profitability.

3.9 Ethical Considerations

The matters under investigation in this study are considered sensitive. The researcher will therefore ensure that before going to the field, an introduction letter from GRC is obtained and fully signed. This will be presented to each licensed commercial bank from which data is to be collected. As a mechanism for increasing confidentiality, the data collection instruments will not require participants to fill in their names. To ensure privacy, the respondents will be informed upfront that indeed their names will not be required Mugenda (2003). To ensure confidentiality, as recommended by Field (2009) the respondents will be informed upfront that the information they give will be solely used for academic purposes and data obtained on private matters will be treated with utmost confidentiality

CHAPTER FOUR

PRESENTATION AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter presents the results of the various analyses performed and their interpretations therein. Specifically, descriptive and results on inferential analyses are presented. The results were meant to test the following objectives:

i. To establish the relationship between process innovation and Profitability of Commercial Banks in Uganda
ii. To establish the relationship between product innovation and Profitability of Commercial Banks in Uganda
iii. To establish the explanatory power of process innovation and product innovation on Profitability of Commercial Banks in Uganda

4.1 Response rate

Out of 24 banks that were targeted, the researcher managed to collect data from 23 banks and this makes the response rate 96% and this is considered enough to represent the sample size based on Dillman et al (2009)

4.2 Demographic Characteristics of the respondents:

Respondents were asked to provide information regarding their demographic profile which included gender, age, education, level of education and number of years in present position.

Table 4. 1

Categories	Items	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	44	50.6	50.6	50.6
	Female	43	49.4	49.4	100.0
Age	25-29	6	6.9	6.9	6.9
	30 -34	20	23.0	23.0	29.9
	35-39	29	33.3	33.3	63.2
	40-44	22	25.3	25.3	88.5
	45-50	10	11.5	11.5	100.0
Level of Education	Degree	68	78.2	78.2	78.2
	Masters	19	21.8	21.8	100.0
Number of years in present position	Less than 2 years	3	3.4	3.4	3.4
	2-5 years	35	40.2	40.2	43.7
	5-10 years	41	47.1	47.1	90.8
	11 years and above	8	9.2	9.2	100.0
	Total	87	100.0	100.0	

Source: Primary data, 2022

The results in table 4.1 indicate that majority of the respondents were male (50.6%) and women were (49.4%). This implies that commercial banks are gender sensitive since the number of women are almost equal to the number of men in those higher positions and this improves on effectiveness of the bank and thus increasing on performance of the bank

Concerning the age bracket of the respondents, the results indicate that majority of the respondents were between the age bracket of 35-39 years (33.3%), these were followed by those between 30-34 years (23.0%) and the least group had between 45-50 (11.5%). This implies that banks employee young energetic workers who are in position to execute their duties well and this improved the overall performance of the bank.

The results also indicated that majority of the respondents were degree holders (78.2%) and these were followed by master's degree holder (21.8%). This implies that the bank employees well

knowledgeable workers who come and execute their duties well while applying different knowledge acquired while at school and this helps them in making informed decisions which improves the performance of the bank.

Finally, concerning the number of years employees had spent in their current positions, the findings indicate that majority of the respondents had spent 5-10 years (47.1%), these were followed by those who had spent 2 to 5 years (40.2%) and the least group had spent less than 2 years (3.4%). This implies that employees had spent enough time in their current position and this increases their ability to judge well and make well informed decisions based on their experience and this improves their performance.

4.3 Bank characteristics

The bank characteristics were distributed as indicated in Table 4.2

Table 4.2: Bank characteristics

Categories	Item	Frequency	Percent
Age of the bank	5-10years	4	34.8
	11-15years	4	34.8
	15yrs and above	15	59.4
Number of Branches in a country	Less than 20	10	45
	20-30	5	21.4
	31-50	3	13.7
	More than 51	5	19.9
	Total	23	100

The results in table 4.2 indicate that majority of the banks had spent 15 years and above in operation (59.4%), these were followed by those which had spent 11-15 years and 5-10 years (34.8%). This is an indicator of improved profitability and sustainability in the business.

The results indicate that majority of the banks had less than 20 branches (45%), these were followed by those which had between 20-30 branches (21.4%) and the least ones had 31-50

branches (12.7%). This implies that most banks have been growing steadily and their revenues increases, they increase on the branches to serve more customers.

4.4 Pearson Correlation:

Pearson's Correlation analysis was conducted to measure the strength of linear associations between the study variables and is denoted by r. The Pearson correlation coefficient, *r*, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association; that is, as the value of one variable increases, so does the value of the other variable. A value less than 0 indicates a negative association; that is, as the value of one variable increases, the value of the other variable decreases. The study variables were measured on a continuous scale, and thus Pearson correlation was found to be the most appropriate to test the relationships between the variables.

Table 4.3: The Correlation Table

Variables	1	2	3	4	5	6	7	8	9	10
Products introduced-1	1									
Products improved-2	.495**	1								
Product Innovations-3	.592**	.535**	1							
Process introduced-4	.491**	.571**	.608**	1						
Process improved-5	.506**	.673**	.671**	.617**	1					
Process innovation-6	.555**	.695**	.714**	.683**	.514**	1				
Total income to total assets-7	.601**	.686**	.738**	.504**	.664**	.656**	1			
Net Income after Taxes to Total Equity Capital-8	.620**	.777**	.798**	.582**	.720**	.729**	.527**	1		
Net interest income to total earnings assets-9	.077	.047	.074	-.009	.056	.029	.192*	.025	1	
Profitability of Commercial Banks-10	.606**	.422**	**.560****	.522**	.681**	**.675****	.596**	.700**	.431**	1

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

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

Relationship between product innovation and Profitability of Commercial Banks in Uganda

The results in table 4.3, show that there is a positive significant relationship between product innovation and Profitability of commercial banks in Uganda (r=.560, p>.05). This means that any positive change in product innovation will result into a positive change in profitability of commercial banks. This further implies that when there is a positive change in new products introduced and when the current products are improved, this will result in to a positive change in profitability of commercial banks.

Relationship between process innovations and Profitability of Commercial Banks in Uganda

The results in table 4.3, show that there is a positive significant relationship between process innovation and Profitability of commercial banks in Uganda (r=.775, p>.05). This means that any positive change in process innovation will result into a positive change in profitability of commercial banks. This further implies that when there is a positive change in new processes introduced and when the current processes are improved, this will result in to a positive change in profitability of commercial banks.

4.5 Regression analysis

The explanatory power of product and process Innovations on Profitability of Commercial Banks in Uganda

This objective was achieved by running an ordinary least square analysis and the results are presented in Table 4.4

Table 4.4: **Ordinary least square analysis**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.260	.544		-7.827	.000
	Product Innovations	1.195	.165	.567	7.230	.000
	Process innovation	.655	.190	.270	3.445	.001

R	R Square	Adjusted R Square	F	Sig.
.783[a]	.614	.608	101.622	.000[b]

a. Dependent Variable: Profitability of Commercial Banks

The results in Table 4.4 indicate that process innovation and product innovations are significant predictors of profitability of commercial banks. This is because a unit increase in product innovation will result in to 0.567 units (Beta =.567, $p<.01$) increase in profitability of commercial banks in Uganda.

In addition, a unit increase in process innovation, it will result in to 0.270 units increase in profitability of commercial banks (Beta-.270, $p<.01$)

Finally the results indicate that process innovation and product innovation explain 60.8% (Adjusted R Square= .608) of the variations in profitability of commercial banks in Uganda. This also implies that the remaining 39.2% is explained by other factors not considered in this study.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter discusses and concludes the findings of the study, recommendations and areas for further research. The study investigated Financial Innovations and Profitability of Commercial Banks among 23 commercial banks in Uganda.

5.1 Discussion of findings

This research was carried out centering on four key objectives. Findings in relation to these objectives were attained. In this section, these findings are further discussed to check their relevance to the overall knowledge generation and testing. This discussion is organized in line with the objectives of the study and paying special courtesy to the key findings attained from the process of data analysis.

5.1.1 Product Innovations and Profitability of Commercial Banks

From the findings, it was indicated that, there is a positive significant relationship between product innovation and profitability of commercial banks in Uganda. This implies that positive changes in product innovation will result in to a positive change in profitability if commercial banks in Uganda. This further implies that when commercial banks introduce or improve the current products which include mobile banking, E-Banking, Agency Banking, Direct Marketing and Electronic Funds Transfer among others. This will enable banks to reduce costs of doing business since online banking reduces costs, this will help customers to save their time by avoiding long queues, it help the bank themselves to reduce even on the number of workers who serve customers and more agents will be creates helps in employing more Ugandans and this will make the bank more productive and thus improving its profitability.

These findings are in line Antonnet (2014) lends that banks should first understand all bank related customer needs and then evolve a comprehensive product package which covers the entire range of these needs. That a bank's product policy should have a local touch by considering local peculiarities; that a product should be local-oriented. She discourses that once the bank gives a tailor-made product, it will invoke a psychological ownership on the customer's mind resulting into customer retention and maintenance of profitability. Casu and Girardone (2006) Categorize the various aspects of product innovation in banks as the introduction of new credit, deposit, insurance, leasing, hire purchase, derivatives and other financial products such as e-banking, investment and retail banking. They opine that these products are introduced to respond better to changes in market demand or to improve efficiency. That product innovation, as one of the competitive strategies of commercial banks, greatly enhances their profitability.

According to Ale Ebrahim, Ahmed, and Taha (2010), product innovation is the result of bringing to life the new way of solving customer's problem; this eventually benefits both customers and banks. Both external and internal factors stimulate innovation of products / services tailored to specific needs and special niches. Important external factors include market research, exchange of new product ideas between banks or technological developments. Internal factors could relate to in-house development of new products, monitoring and evaluation of existing products and feedback from employees and customer (Sok & O'Cass, 2015).

5.1.2 Product Innovations and Profitability of Commercial Banks

It was also noted that, there is a positive significant relationship between process innovation and profitability of commercial banks in Uganda. This implies that positive changes in process innovation will result in to a positive change in profitability if commercial banks in Uganda. This

further implies that when commercial banks introduce or improve the current processes which include mobile banking, E-Banking, Agency Banking, Direct Marketing and Electronic Funds Transfer among others, this will help customers save time by avoiding long lines, it will help banks cut costs of doing business because online banking lowers costs, it will help banks themselves employ more Ugandans by reducing the number of workers who serve customers, and it will increase the productivity of the bank, increasing its profitability..

These findings are in line Busby (2017), concludes that digitization of banking business processes should provide much broader benefits than those related to cost — including higher customer satisfaction, higher rates of customer retention, and higher revenues per customer. Failure to make the transformation may leave banks unable to hold on to lucrative clients, especially SME borrowers; the 20% of the clientele that contribute 80% to the banks' profitability and survival, who increasingly have other options may soon have a leg, an arm, or their whole body out of the door. Internet Banking is another process financial innovation which refers to a bank making its services accessible to clients using the internet as its delivery channel for a wide range of value added products and services to bank customers (Mols, Nikolaj D. Bukh, & Flohr Nielsen, 1999). It is also referred to as online banking (Gerrard & Barton Cunningham, 2003). It allows individuals to perform banking activities at home or from their offices or over the internet.

Through traditional banks, internet banking enables customers to perform all routine transactions, such as account transfers, balance inquiries, bill payments, stop - payment requests, loan repayments and some offer online loan applications (Kannabiran & Narayan, 2005). Some internet banks are traditional banks which also offer online banking i.e. brick & mortar, while others are online only and have no physical presence (Bradley & Stewart, 2003).

Internet Banking is beneficial to banks as well as consumers, in that there is an improvement of efficiency in services rendered to customers. It is convenient and cost-efficient. Moreover, the development of Internet banking has transformed the distribution channel structure in the banking sector (Giannakoudi, 1999).

5.1.3 Explanatory power of Product and process innovations and Profitability of Commercial Banks

The findings also indicated that process innovation and product innovations are significant predictors of profitability of commercial banks. This implies that improvements in both the products and process of the banks will increase in profitability of commercial banks in Uganda. The findings also indicated that process innovation and product innovation explain 60.8% of the variations in profitability of commercial banks in Uganda. This also implies that the remaining 39.2% is explained by other factors not considered in this study. This findings indicate that banks that embrace financial innovations are likely to reap more profits compared to those which have not digitalized their service and this will improves profitability of the banks.

The same findings coincide with Haynes and Thompson (2000) ATM can process routine transactions and therefore reduce tellers' work indirectly. He further stated that this will also decrease the labour demand of banks. In the same vein they observed that banks with heavier personnel expense pressure tended to install more ATMs to replace teller labour costs, because of the substitution effect and operating cost consideration aiming to achieve the goals of operational efficiency and boost profitability (Jegede, 2014).

McAndrews (2003) discourses that by automating services that were previously completed manually, ATMs reduce the costs of servicing some depositors on demand. These potential benefits are multiplied when banks share their ATMs, allowing customers of other banks to access their accounts through another bank's ATM. The combined services of both the Automated and human tellers imply more productivity for the bank during banking hours. ATMs are a cost-efficient way of yielding higher productivity as they achieve higher productivity per period of time than human tellers (an average of about 6,400 transactions per month for ATMs compared to 4,300 for human tellers (Jegede, 2014). Furthermore, as the ATMs continue when human tellers stop, there is continual productivity for the banks even after banking hours.

5.2 Conclusions

Based on the findings and relationships between the study variables the following conclusions were made;

It is clear from the research and debate that process improvements have a favorable impact on th e profitability of commercial banks in Uganda. This implies that Commercial Banks' profitability will continue to rise as they roll out new products and services and make improvements to those already available.

It is clear from the results and discussion that process innovations and the profitability of commercial banks are significantly positively correlated. This suggests that in order for commercial banks to increase their profitability, they must place a high priority on both implementing new processes and distribution channels and streamlining their current ones.

It be finally be concluded that both process and product innovations are significant predictors of profitability of commercial banks. This is because they explain 60.8% of the variations in profitability of commercial banks. This further implies that financial innovations are very important for the banks to reduce on costs and also increase their profitability.

5.3 Recommendations

In relation with the analysis, findings, and the conclusion, the following recommendations have been suggested:

Based on the findings, it is evident that both process innovation and product innovation play a crucial role in predicting the profitability of commercial banks in Uganda. Therefore, it is recommended that commercial banks in Uganda prioritize and invest in product innovation initiatives as a strategic approach to significantly enhance their profitability. Additionally, concurrently focusing on process innovation can further amplify the positive impact on profitability, ultimately fostering sustainable financial growth and competitiveness in the banking sector. The Commercial Banks in Uganda should promote and appreciate Financial Innovations as they are vital not only in enhancing on cost minimization, thus improving profitability.

Based on the findings provided, it's clear that investing in process innovation significantly influences the profitability of commercial banks in a positive manner. Therefore, it is highly recommended that commercial banks prioritize and allocate resources towards process innovation initiatives. This strategic focus will not only enhance operational efficiency and effectiveness but also directly contribute to bolstering the bank's overall profitability. It's imperative for banks to continually explore and implement innovative processes to stay competitive and adapt to the evolving landscape of the banking industry.

5.4 Limitations of the study

Due to the Ebola, the researcher discovered that it was necessary to organize all of the responders out of fear of the Ebola spreading, and it took additional time to gather the data (the entire one month) to maintain social distance and other SOPs.

Because it took too much time, respondents were only somewhat willing to complete questionnaires. The researcher made an effort to deconstruct each question in the interview guide in order to make it easier to understand.

5.5 Areas for further study

Further studies on profitability of commercial banks in Uganda can be carried out by employing more variables for example market innovations, institutional, financial instruments among others. This will enrich the study more

The variables under the study (financial innovations and profitability of commercial banks) can be looked at in a longitudinal way and this will enrich the study since it will capture the trend of financial innovations for a long period of time.

In this study, the variables process and product innovations contributed 60.8% towards profitability of commercial banks, further research should explore other determinants of profitability and if possible, variables that need to be combined with these variables in order to stimulate profitability among commercial banks.

REFERENCES

Abaenewe, Z. C., Ogbulu, O. M., & Ndugbu, M. O. (2013). Electronic banking and bank performance in Nigeria. *West African Journal of Industrial and Academic Research, 6*(1), 171-187.

Aduda, J., Kiragu, P., & Ndwiga, J. M. (2013). The relationship between agency banking and financial performance of commercial banks in Kenya. *Journal of Finance and Investment analysis, 2*(4), 97-117.

Aduda, J., & Kingoo, N. (2012). The relationship between electronic banking and financial performance among commercial banks in Kenya. *Journal of Finance and Investment analysis, 1*(3), 99-118.

Allen, F., & Carletti, E. (2008). The Roles of Banks in Financial Systems.

Allen, F., Qian, J., & Qian, M. (2005). Law, finance, and economic growth in China. *Journal of Financial Economics, 77*(1), 57-116.

Al-Dmour, A., Al-Dmour, R., & Rababeh, N. (2020). The impact of knowledge management practice on digital financial innovation: the role of bank managers. *VINE Journal of Information and Knowledge Management Systems, 51*(3), 492-514.

Alhassan, A. L., & Ohene-Asare, K. (2016). Competition and bank efficiency in emerging markets: empirical evidence from Ghana. *African Journal of Economic and Management Studies, 7*(2), 268-288.

Alkhazaleh, A., & Almsafir, M. (2014). Bank specific determinants of profitability in Jordan. *Journal of Advanced Social Research, 4*(10), 1-20

Antonnet, A. J. (2014). *The Effects of Product Innovation on Financial Performance of Commwercial Banks in Kenya* School of Business University of Nairobi.

Anand, D., & Mantrala, M. (2019). Responding to disruptive business model innovations: the case of traditional banks facing fintech entrants. *Journal of Banking and Financial Technology, 3*(1), 19-31.

Barbu, C. M., Florea, D. L., Dabija, D. C., & Barbu, M. C. R. (2021). Customer experience in fintech. *Journal of Theoretical and Applied Electronic Commerce Research, 16*(5), 1415-1433.

Bátiz-Lazo, B., & Woldesenbet, K. (2006). The dynamics of product and process innovations in UK banking. *International Journal of Financial Services Management, 1*(4), 400-421.

BOUAnnualReport. (2020/2021). https://www.bou.or.ug/bou/bou-downloads/publications/Annual_Reports/Rprts/All/Annual-Report-2020-2021.pdf.

BoUReport. (2022). https://www.bou.or.ug/bou/bou-downloads/asr/2021/Dec/Annual-Supervision-Report-june-2022.pdf

Brookes, J. (2016). https://which-50.com/digital-credit-risk-management-will-norm-five-years-says-mckinsey/.

Bussmann, N., Giudici, P., Marinelli, D., & Papenbrock, J. (2021). Explainable machine learning in credit risk management. *Computational Economics, 57*(1), 203-216.

Chen, Y., & Sivakumar, V. (2021). Investigation of finance industry on risk awareness model and digital economic growth. *Annals of Operations Research*, 1-22.

Chen, X., You, X., & Chang, V. (2021). FinTech and commercial banks' performance in China: A leap forward or survival of the fittest?. *Technological Forecasting and Social Change, 166*, 120645.

Chiu, I. H., Kokkinis, A., & Miglionico, A. (2021). Debt expansion as "Relief and rescue" at the time of the Covid-19 pandemic: Insights from the legal theory of finance. *Indiana Journal of Global Legal Studies*, *28*(1), 29-99.

Claessens, S., & Kose, M. M. A. (2013). *Financial crises explanations, types, and implications*: International Monetary Fund.

Daniel, C. O. (2018). Effects of marketing strategies on organizational performance. *International journal of business marketing and management*, *3*(9), 1-9.

Dangelico, R. M. (2016). Green product innovation: Where we are and where we are going. *Business Strategy and the Environment*, *25*(8), 560-576.

Dankwah, E. (2012). The relevance of credit reference bureau and its effects on the financial industry in Ghana. *Kwame Nkrumah University of Science and Technology*.

Dawley, A. (2021). Class and Community. In *Class and Community*. Harvard University Press.

Demitry, N., Koepke, G., & Mewes, S. (2022). Just Transition in the European Automotive Industry–Insights from Affected Stakeholders.

FDIC.gov. (2020). https://www.fdic.gov/bank/individual/failed/banklist.html.

Ganguly, S., Harreis, H., Margolis, B., & Rowshankish, K. (2017). Digital risk: Transforming risk management for the 2020 s. *McKinsey Insights*.

Gakure, R., & Ngumi, P. (2013). Do bank innovations influence profitability of commercial banks in Kenya. *Prime Journal of Social Science*, *2*(3), 237-248.

G20 Summit, T. (2010). https://www.gpfi.org/publications/principles-and-report-innovative-financial-inclusion.

Guo, Y., & Liang, C. (2016). Blockchain application and outlook in the banking industry. *Financial innovation*, *2*(1), 1-12.

Habyarimana, J. (2003). The benefits of banking relationships: evidence from Uganda's banking crisis. *Cambridge, MA: Harvard University, Job Market Paper*.

Hamilton, R., Jenkinson, N., & Penalver, A. (2007). *Innovation and integration in financial markets and the implications for financial stability.* Paper presented at the The Structure and Resilience of the Financial System, Proceedings of a Conference, Reserve Bank of Australia, Sydney.

Harper, I., & Chan, T. (2003). *The future of banking: a global perspective*: Westport, CT: Quórum.

Hoang, P. (2010). *Business & management. [Melton, Vic.]: IBID Press. p. 686. ISBN 978-1876659639*: IBID Press. p. 686. ISBN 978-187665963.

Holt, K. (2013). *Market oriented product innovation: a key to survival in the third millennium*: Springer Science & Business Media.

Ibekwe, A. O. (2021). Financial innovation and performance of deposit money banks in Nigeria. *International Business and Economics Research Journal*, *8*, 77-88.

Irungu, M. J. (2014). *The Effects of Financial Innovations on Credit Risk Management of Commercial Banks in Kenya.* School of Business, University of Nairobi.

Jihadi, M., Vilantika, E., Hashemi, S. M., Arifin, Z., Bachtiar, Y., & Sholichah, F. (2021). The effect of liquidity, leverage, and profitability on firm value: Empirical evidence from Indonesia. *The Journal of Asian Finance, Economics and Business*, *8*(3), 423-431.

Ji, X., Wang, K., Xu, H., & Li, M. (2021). Has digital financial inclusion narrowed the urban-rural income gap: the role of entrepreneurship in China. *Sustainability*, *13*(15), 8292.

Juan Antonio Bahillo, S. G., Andreas Kremer and Ida Kristensen. (2016). https://www.mckinsey.com/business-functions/risk/our-insights/the-value-in-digitally-transforming-credit-risk-management.

Kamakia, S. (2014). Effect of product innovation on performance of commercial banks in Kenya. *unpublished MBA thesis, Kenyatta university*.

Kam-Sing Wong, S. (2014). Impacts of environmental turbulence on entrepreneurial orientation and new product success. *European Journal of Innovation Management, 17*(2), 229-249.

Karjaluoto, H., Glavee-Geo, R., Ramdhony, D., Shaikh, A. A., & Hurpaul, A. (2021). Consumption values and mobile banking services: Understanding the urban–rural dichotomy in a developing economy. *International Journal of Bank Marketing*.

Kessey, K. D. (2015). Assessing Credit Risk Management Practices in the Banking Industry of Ghana: Processes and Challenges. *Global Journal of Management And Business Research*.

Knudsen, E. S., Lien, L. B., Timmermans, B., Belik, I., & Pandey, S. (2021). Stability in turbulent times? The effect of digitalization on the sustainability of competitive advantage. *Journal of Business Research, 128*, 360-369.

Koenig-Lewis, N., Palmer, A., & Moll, A. (2010). Predicting young consumers' take up of mobile banking services. *International journal of bank marketing*.

Kotler, P. (2011). Reinventing marketing to manage the environmental imperative. *Journal of Marketing, 75*(4), 132-135.

Maclean, M., Harvey, C., Golant, B. D., & Sillince, J. A. (2021). The role of innovation narratives in accomplishing organizational ambidexterity. *Strategic Organization*, *19*(4), 693-721.

Marszk, A., & Lechman, E. (2021). Reshaping financial systems: The role of ICT in the diffusion of financial innovations–Recent evidence from European countries. *Technological Forecasting and Social Change, 167*, 120683.

Merton, R. C., & Bodie, Z. (2006). Design of financial systems: towards a synthesis of function and structure. In *The world of risk management* (pp. 1-27).

Mwangi, K. D. (2014). The effect of electronic banking on the financial performance of commercial banks in Kenya. *Unpublished MBA Project*.

Mwangi, R. W. (2011). An evaluation of the role of agency banking in the performance of commercial banks in Kenya. *MBA Thesis, Kenyatta University*, 45-48.

Nofie, I. (2011). The diffusion of electronic banking in Indonesia. *Manchester Business School*.

Nyaboga, D., Basweti, M., Miyienda, M., & Onsongo, M. (2012). An Analysis of the Impact of Agent Banking Enterpreneurs in Kisii Township, Nyanza province, Kenya. *International Journal of Business and Management Tomorrow, 2*(9), 1-11.

Nyathira, N. C. (2012). Financial innovation and its effect on financial performance of commercial banks in Kenya. *UON MBA unpublished*.

Obadire, A. M., Moyo, V., & Munzhelele, N. F. (2022). Basel III capital regulations and bank efficiency: Evidence from selected African Countries. *International Journal of Financial Studies, 10*(3), 57.

Oecd, E. (2005). Oslo Manual. *Guidelines for collecting and interpreting innovation data*.

Patel, P. C., Guedes, M. J., Pagano, M. S., & Olson, G. T. (2020). Industry profitability matters: The value of sustainable growth rate and distance from bankruptcy as enablers of venture survival. *Journal of Business Research, 114*, 80-92.

Pfeiffer, S. (2021). The Greater Transformation: Digitalization and the Transformative Power of Distributive Forces in Digital Capitalism. *International Critical Thought, 11*(4), 535-552.

Psillaki, M., Tsolas, I. E., & Margaritis, D. (2010). Evaluation of credit risk based on firm performance. *European Journal of Operational Research, 201*(3), 873-881.

Qi, Y., Boyer, K. K., & Zhao, X. (2009). Supply chain strategy, product characteristics, and performance impact: evidence from Chinese manufacturers. *Decision Sciences, 40*(4), 667-695.

Raffaelli, R., & Glynn, M. A. (2015). Institutional Innovation: Novel, Useful. *The Oxford Handbook of Creativity, Innovation, and Entrepreneurship*, 407.

Saksonova, S., & Kuzmina-Merlino, I. (2017). Fintech as financial innovation–The possibilities and problems of implementation.

Simboley, B. C. (2017). *Effects of Agency Banking On the Financial Performance of Commercial Banks in Kenya.* United States International University-Africa.

Simplice, A. (2012). How has mobile banking stimulated financial development in Africa?

Singh, S. K., Basuki, B., & Setiawan, R. (2021). The effect of non-performing loan on profitability: Empirical evidence from Nepalese commercial banks. *The Journal of Asian Finance, Economics and Business*, *8*(4), 709-716.

Sok, P., & O'Cass, A. (2015). Examining the new product innovation–performance relationship: Optimizing the role of individual-level creativity and attention-to-detail. *Industrial Marketing Management*, *47*, 156-165.

Sujud, H., & Hashem, B. (2017). Effect of Bank Innovations on Profitability and Return on Assets (ROA) of Commercial Banks in Lebanon. *International Journal of Economics and Finance*, *9*(4), 35.

Taiwo, J. N., Ucheaga, E. G., Achugamonu, B. U., Adetiloye, K., & Okoye, O. (2017). Credit risk management: Implications on bank performance and lending growth. *Saudi Journal of Business and Management Studies*, *2*, 584-590.

Tangngisalu, J., Hasanuddin, R., Hala, Y., Nurlina, N., & Syahrul, S. (2020). Effect of CAR and NPL on ROA: Empirical study in Indonesia Banks. *The Journal of Asian Finance, Economics and Business*, *7*(6), 9-18.

Trkman, P. (2010). The critical success factors of business process management. *International journal of information management*, *30*(2), 125-134.

Vrontis, D., Thrassou, A., & Amirkhanpour, M. (2017). B2C smart retailing: A consumer-focused value-based analysis of interactions and synergies. *Technological Forecasting and Social Change*, *124*, 271-282.

Wairimu, G. R. (2013). The Effect of Credit Reference Bureaus on the Level of non-performing Loans in the Commercial Banks in Kenya: unpublished MBA paper the University of Nairobi.

Wishart, N. (2006). *Micro-payment Systems and Their Application to Mobile Networks: Examples of Mobile-enabled Financial Services in the Philippines*: Infodev.

Yoo, I., & Yi, C. G. (2022). Economic Innovation Caused by Digital Transformation and Impact on Social Systems. *Sustainability*, *14*(5), 2600.

APPENDICES:

APPENDIX1: QUESTIONNAIRE

MAKERERE UNIVERSITY
MAKERERE UNIVERSITY BUSINESS SCHOOL

Dear respondent,
My name is ……pursuing studies leading to the award of a Degree of Master of Business Administration of Makerere University. Kindly fill my questionnaire which is intended for academic purposes only. The information provided will be confidential since your name will not be indicated anywhere on the questionnaire. This study captures issues on **Financial Innovations and Profitability of Commercial Banks in Uganda.**

I thank you in advance for your time and responses.
Data Entry ID ……. Name of the Bank ……..

SECTION A: BACKGROUND INFORMATION
For each of the following questions, please tick what best describes your answer.
BIO DATA
A1. Gender
(1) Male ☐ (2) Female ☐

A2. Age
(1) 25-29 ☐ (2) 30 -34 ☐ (3) 35-39 ☐ (4) 40-44 ☐
(5) 45-50 ☐ (6) 50 and above ☐

A3. Highest level of Education you have attained
(1) Diploma ☐ (2) Degree ☐ (3) Masters ☐ (4) PhD ☐

A4. Number of years in present position
(1) Less than 2 years ☐ (2) 2-5 years ☐ (3) 5-10 years ☐ (4) 11 years and above ☐

BANK CHARACTERISTICS

B1. Number of years in Operation
(1) Less than 5 years ☐ (2) 5-10years ☐ (3) 11-15years ☐ (4) 15yrs and above ☐

B2. Number of branches within the country
(1) Less than 20 ☐ (2) 20-30 ☐ (3) 31-50 ☐ (4) More than 51

SECTION B:

CREDIT RISK MANAGEMENT

The statements below relate to Credit Risk Management. Please indicate the box that you feel is most appropriate to each statement based on the key provided. 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Not Sure (NS), 4 = Agree (A) and 5 = Strongly Agree (SA)

Here below are statements relating to Financial Innovations. Please fill the box that you feel is most appropriate to each statement based on the keys provided. 1 represents Strongly Disagree (SD), 2- Disagree (D), 3- Not Sure (NS), 4- Agree (A) and 5 represents Strongly Agree (SA).

Product Innovations						
	In the last three years, the bank has *introduced* the following products/services: **Products introduced**					
		SD	**D**	**NS**	**A**	**SA**
PI1	Mobile banking	1	2	3	4	5
PI2	E- banking	1	2	3	4	5
PI3	Agency banking	1	2	3	4	5
PI4	Direct marketing	1	2	3	4	5
PI5	Electronic funds transfer	1	2	3	4	5
PI6	Debit/credit cards	1	2	3	4	5
PI7	Small scale business loans	1	2	3	4	5
PI8	Small scale business accounts	1	2	3	4	5
	In the last three years, the bank has *improved* the following products/services:					
		SD	**D**	**NS**	**A**	**SA**
PI9	Mobile banking	1	2	3	4	5
PI10	E- banking	1	2	3	4	5
PI11	Agency banking	1	2	3	4	5
PI12	Direct marketing	1	2	3	4	5
PI13	Electronic funds transfer	1	2	3	4	5
PI14	Debit/credit cards	1	2	3	4	5
PI15	Small scale business loans	1	2	3	4	5
PI16	Small scale business accounts	1	2	3	4	5
	Process innovation **In the last three years, the bank has *introduced* new delivery or distribution methods for the following products/services:**					
	Process introduced	**SD**	**D**	**NS**	**A**	**SA**

PI17	Mobile banking	1	2	3	4	5
PI18	E- banking	1	2	3	4	5
PI19	Agency banking	1	2	3	4	5
PI20	Direct marketing	1	2	3	4	5
PI21	Electronic funds transfer	1	2	3	4	5
PI22	Debit/credit cards	1	2	3	4	5
PI23	Small scale business loans	1	2	3	4	5
PI24	Small scale business accounts	1	2	3	4	5
	In the last three years, the bank has *improved* delivery or distribution methods for the following products/services					
		SD	**D**	**NS**	**A**	**SA**
PI25	Mobile banking	1	2	3	4	5
PI26	E- banking	1	2	3	4	5
PI27	Agency banking	1	2	3	4	5
PI28	Direct marketing	1	2	3	4	5
PI29	Electronic funds transfer	1	2	3	4	5
PI30	Debit/credit cards	1	2	3	4	5
PI31	Small scale business loans	1	2	3	4	5
PI32	Small scale business accounts	1	2	3	4	5

Thank you for taking your time to respond to this research questionnaire.

APPENDIX2: SECONDARY DATA COLLECTION SHEET

Commercial Banks Profitability levels 2012 - 2015

Indicator	< 2%	2 - 5%	> 5 - 10%	> 10 - 15%	> 15 %
ROA	1	2	3	4	5
ROE	1	2	3	4	5
NPLR	1	2	3	4	5
NPL / TOTAL DEP	1	3	3	4	5
NIM	1	2	3	4	5

APPENDIX3: TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION:

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	256	300	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	100000	384

Note: "N" is population size

"S" is sample size.

Krejcie, Robert V., Morgan, Daryle W., "Determining Sample Size for Research Activities", Educational and Psychological Measurement, 1970