

**THE EFFECTS OF FINANCIAL INNOVATION ON THE FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN SOUTH SUDAN**

BY:

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DECLARATION

I declare this project is my original work and has never been presented for a degree in any University or Higher Institution of learning for any academic accreditation

Signed.....

Date.....

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This research project is presented for approval as university supervisor

Signed.....

Date.....

MIRIE MWANGI

Supervisor

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And most importantly I dedicate this work to the Almighty God for granting me peace, good health and a sound mind.

DEDICATION

I dedicate this project to the almighty God for the blessings he has accorded to me and also to my lovely family.

TABLE OF CONTENTS

	Page
DECLARATION	ii
ACKNOWLEDGEMENTS	iii
DEDICATION	iv
TABLE OF CONTENTS	v
ABBREVIATION	ix
ABSTRACT	x
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Financial Innovation	3
1.1.2 Financial Performance	4
1.1.3 Financial Innovation and Financial Performance	6
1.1.4 Commercial Banks in South Sudan	7
1.2 Research Problem	9
1.3 Objective of the Study	11
1.4 Value of Study	11
CHAPTER TWO	12
2.1 Introduction	12
2.2 Theoretical Review	12

2. 1.1	Constraint–Induced Innovation Theory	13
2.1.2	Circumvention Innovation Theory	14
2.1.3.	Regulation Innovation Theory	15
2.1.4.	Transaction Cost Innovation Theory	15
2.3	Determinants of Financial Performance of Commercial Banks.....	16
2.3.1	Regulation.....	17
2.3.2	Costs of Production Reduction	17
2.3.3	Technological Advancement	18
2.3.4	Competitive Environment.....	18
2.4	Empirical Review	19
2.5	Summary of Literature Review	23
CHAPTER THREE		25
3.0	Introduction	25
3. 1	Research Design.....	25
3.2	Population.....	26
3.3	Sample Design.....	26
3.4	Data collection.....	26
3.5	Data Analysis	27
CHAPTER FOUR.....		30
DATA ANALYSIS, RESULTS AND DISCUSSION		30
4.1	Introduction	30

4.2 Response Rate	30
4.3 Descriptive Analysis	31
4.4 Inferential statistics	32
4.4.1 Correlation Analysis	32
4.4.2 Regression Analysis	33
4.5 Discussion of the research findings.....	35
CHAPTER FIVE	38
5.1 Introduction	38
5.2 Summary of Findings	38
5.3 Conclusions	39
5.4 Recommendations	40
5.5 Limitations of the Study	40
5.6 Suggestions for Further Research	41
APPENDIX I: THE LIST OF COMMERCIAL BANKS IN THE REPUBLIC OF SOUTH SUDAN	49
APPENDIX II: INTRODUCTION LETTER.....	50

LIST OF TABLES

Table 4.1: Response Rate.....	31
Table 4.2: Descriptive Statistics	31
Table 4.3: Correlation Analysis	33
Table 4.4 Model summary	34
Table 4.5 ANOVA.....	34
Table 4.6: Regression Coefficients	35

ABBREVIATION

ATM-	Automated Teller Machine
BOSS-	Bank of South Sudan
CAMEL-	Capital Adequacy, Asset Quality Management, Quality Earning
and	
	Liquidity
CBOS-	Central Bank of Sudan
CBSS-	Central Bank of South Sudan
CPA-	Comprehensive Peace Agreement
KCB-	Kenya Commercial Bank
KEPSS-	Kenya Electronic Payment and Settlement System
NOVA-	Analysis of Variance
ROA-	Return on Asset
ROE-	Return on Equity
RSS-	Republic of South Sudan
RTGS-	Real Time Gross Settlement

ABSTRACT

The purpose of the study was to assess the effect of financial innovation on commercial bank's financial performance as the key players in the banking sector over a period of 5 years. South Sudan's financial system has been going through transformations from foreign commercial banks which come with advanced technology. The study used a casual research methodology and studied 16 commercial Banks registered with the central bank of South Sudan for January 2009- December 2013. The findings indicate that return on asset (ROA) recorded a mean of 3.2534 with standard deviation of 1.2548. The average number of daily transactions using ATM for the commercial banks during the study period was 156,547 with standard deviation of 20,51. It was clear that adoption of financial innovation resulted in strong financial results of commercial banks in South Sudan.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the past decade, the globalization and liberalization of financial markets advances in both financial and non-financial technologies, and various political and economic events have increased competition among African banks(Hwang et al.,2004) and forcing the authorities to deregulate and restructure the domestic banking industry. Before financial reforms, there were several potential financial crises among banks: peaks in nonperforming loan ratio, loose credit, inferior capital adequacy ratio, over banking due to excessive competition, less profitability and lack of innovation in banks.

To overcome these crises financial liberalization, reforms or restructuring programs are intended to foster better resources allocation and improve productivity (Berg et al., 1992). While numerous prior studies have investigated the effects of financial innovation on banking performances the overall impact of financial reforms is ambiguous. To this end, developing and planning effective innovative strategies to prosper this context is critical requirement. Financial institutions are facing environmental dynamic as a result of globalization, deregulation, new technologies and e- commerce. They can enjoy superior performance through the development of organizational competencies such as innovation (Damanpour, 1991).Innovation may be defined as the adoption of an internally generated or purchased device, system,

policy, program, process, product or service that is new to the adoption organization.

Innovation may be seen as a means of changing an organization whether as a response to changes in its internal or external environment or as a pre-emptive action taken to influence an environment (Rogers, 2003). The researcher wants to make distinction between three various types of innovation which are particularly relevant for service firms. These include service innovation, technological process innovation, and administrative process innovation. Financial service innovation in banking industry provides new distribution channel systems such as internet and mobile banking. This provides more ways for consumers to access their accounts and therefore reduces costs leading to cost savings. Technological process innovation is relating to new element introduced into the organization's production system or service operation for producing products or rendering its service to the clients (Damanpour, et al 2001).

The primary purpose is to decrease unit costs of service delivery, increase equality, service improvement and others. And administrative process innovation involves the implementation of a new organization method in the firms' business practices, workplace organization with a tendency to increase firm performance by reducing administrative costs, improving workplace satisfaction (Damanpour, 2011).

Rogers (1994) argues that defining performance is prerequisite of measuring or managing it. To this end, financial performance is considered in terms of

gains in market share. Market share is valued a powerful performance metric as it is also a strong predictor of cash flow and profitability (Ambler and Putoni, 2003). The logic being that firms benefiting from innovation are able to lower costs and thereby earn higher profits than those competitors with lower market shares (Jacobson, 1988).

1.1.1 Financial Innovation

Competition along with the explosive changes in information technology fuels the need for commercial banks to innovate in products, services, and delivery channels. Pushed by growing consumer demand and the fear of losing market share commercial banks are investing heavily into banking technology. Collaborating with hardware, software, telecommunications and other companies, commercial banks are introducing new ways for consumers to access their account balances, transfer funds, pay bills and buy goods and services without using cash, mailing a check or leaving home(Frei et al., 1998). Humphrey et al (2006) cite ATMS, telephone banking, internet banking, and e- money as being among the significant innovation affecting distribution system that influence financial performance smoothly.

Similarly report that client relation management system, banks management technologies and various other technologies are among the major changes in internal banking systems that influence positively on banking performance and profitability. Roberts and Amit (2003) similarly assert that performance does not result from stand- alone innovation types assume that strong

interdependence among internal organizational attributes is fundamental to achieving effectiveness over time.

Kenyan financial sector has over time developed successfully with innovation products and services available in financial market. These products are debit cards, credit cards, ATM cards, M-pesa and others which facilitate the use of electronic means of payment and sometimes substitute for the use of physical cash. Similarly these products gain a wider recognition in financial market leading to reduction of holding amount of money.

As a great triumph for central Bank of Kenya which launches recently a Real Time Gross and Settlement (RTGS) system and Kenya Electronic Payment and Settlement System (KEPSS) in 2005, in an effect to modernize the country's financial sector system in collaboration with global trends (Oloo, 2007). On reflection, previous banking studies seem to over stress on innovation acts associated in Kenya. This is therefore, innovation in financial sector has not only led to the increase in efficiency in commercial banks but also to development system and asset alternative to holding money.

1.1.2 Financial Performance

In connection with financial performance, companies with capacity to innovate will be able to respond to innovation challenges faster to exploit new products and market opportunities better than non- innovative companies (Miles and Snow, 1978). Performance gap, the difference between what an organizations is actually accomplishing and what it can potentially

accomplish- it creates a need for change in the organization which in turn provide motivation to adopt innovations in order to reduce the perceived gap.

Richard et al (2003) take a resource- based view of the firm to explore the impact of workforce diversity on organizational performance and conclude that racial diversity enhances performance for firms that pursue an innovation strategy. The second argument is anchored on the first- mover advantage which suggests that organizations innovate to gain first or early mover advantage that would deliver superior performance. Berger et al (2006) state that first mover advantage has proven to be more probable in the banking industry than in other industries due to the importance of bank- client relationship.

Financial performance measures how well a firm is generating value for the owners. It can be measured through various financial measures such as profit after tax, return on net asset(ROA), return on equity(ROE), earning per share and any market value ration that is generally accepted. Generally the financial performance of banks and other financial institutions has been measured using a combination of financial ratios analysis, benchmarking, measuring performance against budget (Ahmed et al, 2011).

However, despite the undeniable importance of financial innovation in explaining banking performance, the impact of innovation on financial performance is still misunderstood for reasons. It seems that there is a lack of understanding about drivers of innovation and innovation's impact on

financial performance. On the other hand, most previous studies have neglected the possibility of reverse causality between innovation and financial performance.

1.1.3. Financial Innovation and Financial Performance

Financial innovation is used by commercial banks to be able to compete in financial markets and as a result it can improve their performance and maintain their effectiveness on market (Batiz- Lazo and Woldesenbet, 2006). This encourages the financial experts and academicians in studying the relationship between financial innovations and banking performance. Cohen and Levinthal (1990) argue that adopting specific innovation type will influence firm performance positively. They further argue that organizations add new knowledge by building upon their previous knowledge.

Prior experience with a specific innovation type will support further application of the same body of knowledge in areas where they had success. Therefore, organization tend to focus on adopting one innovation type because they possess knowledge in that type and can thus move easily to integrate new knowledge and create new opportunities to gain performance advantage from it (Roberts and Amit, 2003). Financial innovation in commercial banks over time has developed which significantly influences efficient financial performance.

These are mobile money, and internet banking, ATMS withdrawal and deposits. In this connection, financial innovation can provide consumer base,

capital base to enhance their profitability that result to improve financial performance. In several countries, the most financial performance measurement is CAMEL, an acronym for the five components of a bank condition that are assessed; these are capital adequacy, asset quality management, quality earning and liquidity. Ratings are allocated for each component in addition to the overall rating of a bank financial performance (Jose, 1999). All these development coupled with changes in the international financial environment and the increasing integration of domestic and international financial market have led to rapid financial innovation (Nyangosi, 2008).

1.1.4 Commercial Banks in South Sudan

For the last 4 years, the Central Bank of Sudan (CBOS) consistently with provisional of Comprehensive Peace Agreement (CPA) operates under dual banking system where Northern Sudan uses Islamic system and the South Sudan uses a conventional banking system. This dual banking system is a foundation for the institutional framework that currently supports the financial sector of South Sudan.

The Central Bank of Sudan (CBOS) with the responsibility to manage the conventional window of the dual system that is operational in South Sudan using conventional financial instruments in accordance with Central Bank of Sudan policies, rules and regulations and its national monetary policy. The Bank of South Sudan (BOSS) is responsible for chartering and supervising

financial institutions in South Sudan in accordance with recognized regulatory and prudential standards as set by CBOS. In 2008, BOSS produced and disseminated eleven conventional banking circulars under the authority of the Central Bank of Sudan (Melody, 2009).

In 2011, South Sudanese went for international supervised referendum to determine their fate whether to remain in a united Sudan or become independence. The outcome confirmed independence, and in this connection, the Central Bank of independent South Sudan enacted laws such Act 2011, and Act 2012. South Sudan currently has 28 commercial banks, 10 micro-finance, 11 insurance companies, 2 pension companies and 86 forex bureaus. The banking sector is drastically growing in South Sudan in recent years. This is attributable to effective financial innovation, regulation and swift reforms by the Central Bank of South Sudan.

The commercial banks are in the frontline of automating their functions to give customers good service. They are engaged in product innovation which internet banking is taken its roots. Despite the increase in the number of financial institutions, competition in financial sector is still limited and services and products are only found in urban centers. Commercial banks of South Sudan offer only four products deposit accounts & withdrawals, foreign exchange, and transfer and remittance services. A few of them offer provide loans, trade finance or saving products. Commercial banks are developing modern payment systems using RTGS, ATM, credit cards and electronic transfers.

1.2 Research Problem

The fast-changing competitive environment, globalization, economic changes, regulation, privatization and other related factors demands that commercial banks are run efficiently and effectively by continuously engaging in financial innovations. In the republic of South Sudan emergence of new technologies, products, processes, markets and international competitor banks places demand on any commercial bank to apply any skills necessary to remain competitive and achieve competitive advantage (Melody, 2009).

The banking industry has already been depicted (Parasuman et al., 2001) as exhibiting little market orientation and fulfilling services with little regard to customer needs as well as including branches dissimilar in efficiency which have contributed to low financial performance. For example in Kenya long lines, transaction errors, queuing, insecurity and network failures have been said to be the most frequent problems using banking services (Smith, 1999). This highly lower customer's perception on the quality of service offered and hence reduces the bank's credibility hence profitability (Joseph et al., 2003).

Wu, et al (2007), empirical examination was carried out in Chinese about the Impact of financial development and bank characteristics on the operational performance of commercial banks in the Chinese Transitional Economy. Pooled cross- sectional banks and time series date are employed in the empirical estimation with sample of 14 Chinese banks. The period under consideration was from 1996- 2004. Empirical results exhibit higher levels of monetarization that can translate into better ROA performance for banks.

Mwangi (2007) examined the study on factors influencing financial innovation of 48 companies listed at NSE. The objective of the study was to establish the macro- environmental and its factors influencing financial innovation in Kenya's Securities Market.

The study was conducted between 2005- 2006. The data in this study was summarized and presented in forms of tables, percentages, mean scores, and standard deviation. Mwangi stated that financial competition and integration had an influence on financial innovation amongst financial institutions.

Since the independence of South Sudan from Sudan in 2011, the financial sector is still small and under-developed despite very strong demand for financial services. Despite the increased number of financial institutions, competition is still limited and services are mainly concentrated in the urban hubs, the banks offer four main products namely basic deposit accounts, foreign exchange, transfer, and remittance services. A few commercial banks provide loans, trade finance, or saving products.

There is a big question whether mobile banking and Internet banking, credit cards, and agency banking represented positive change and are affecting the financial performance of the commercial banks in South Sudan. As the importance of financial innovation in developing countries increases, so does the need for research on the subject. Despite the recognized importance of financial innovations and an extensive descriptive literature, there have been

surprisingly few empirical studies done at the republic of South Sudan. 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.

1.3 Objective of the Study

The objective of this study is to establish the relationship between financial innovations and financial performance of commercial banks in South Sudan

1.4 Value of Study

The essence this topic of study is to find the effects of financial innovation on financial performance of commercial banks of South Sudan. The significance of this study will help to indicate on how financial innovations in commercial banks contribute to effective financial performance. In this case, bank managers will use this study to make financial decisions.

Furthermore, South Sudanese consumers will get education on how they will be able to know their benefit provided by financial innovations in form of internet banking, bank transfer, ATM cards, loans and many more.

More so, the study will also contribute a huge body of knowledge relatively to academicians, researchers, scholars and students. Further studies will preferably be drawn out of this significance finding. Finally investors, policy makers as well as economic developers will use this important finding to broaden their knowledge and further help to contribute to administer their economies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review in this chapter will cover theoretical framework and empirical studies that the researcher will carry out in the field of financial innovation in commercial banks in South Sudan banking industry. The study will focus on the relationship between financial innovation and commercial banks performance.

2.2 Theoretical Review

The term innovation has its roots from the Latin word ‘novus’ which means ‘new’ and derived in to the verb ‘in novus’ that covers the meaning ‘to make new’. Therefore, in the broadest context to innovate is to begin or introduce something new for the first time, (the American Heritage Dictionary, 2000). Leonard & Swap (1999), study innovation in connection with ‘creativity’ so, innovation is the end result of creative activity. From this perspective, as the end result of the creative process, innovation is a combination of knowledge in novel, relevant, valued new product, process or service.

According to Tidd et al (2001), innovation is more than simply coming up with good ideas; it is the process of growing them practical use. In other words, innovation is defined as the use of new knowledge to offer a new product or service that customers demand (Abernathy et al., 1998). Financial innovation is the core of the strategic transformation of commercial banks.

Commercial banks take the principle of demand- oriented and regard market as centre. In this case, the researcher will organize discussion along the lines of the four major categories that describe in the chapter one: These include service innovation, technological process innovation, and administrative process innovation.

Schumpeter (1934) classifies in two major categories: product and service innovations. Product innovations comprise of the creation of a new good which more adequately satisfies existing or previously satisfied needs (Schumpeter, 1934). Product innovations also include the creation of completely new products, which provides a monopoly position to the innovation.

2. 1.1Constraint–Induced Innovation Theory

Constraint-induced innovation theory is advanced by (Silber, 1983) stating that the purpose of profit maximization of financial institutions is the main reason of financial innovation. Though there are some external and internal environmental hurdles which distract realization of profit maximization. These hurdles tend to undermine the efficiency of financial institutions.

These constraints can be self- imposed, market- imposed or government imposed. Silber (1975) expressed his opinion on institutions' behavior as a sample linear programming model of optimization where firms maximize utility subject to a number of internal and external constraints. This particular researcher concluded that the model could explain a round 60% of all

innovations that have taken place during the last period. The final conclusion statement of this theory is that there are two main constraints which lead to increase of economic benefit through reduction of cost, a better allocation of risk and circumvention of out-dated regulation.

2.1.2 Circumvention Innovation Theory

According to Kane (1987), advances the theory of circumvention innovation theory. In his arguments, he outlines the government forms of controls and regulations in financial sector. The regulations or controls may be in form of property taxation imposed on financial institutions which can reduce potential profit in which this theory seems to rectify creating enabling gap between political and financial forces. This scholar however, argues against government regulations that positively directs financial market in a market economy way.

Kane has used his model to establish most of the evolution that had taken place in the United States during the last four decades. Kane's main force is the regulative function between the federal depositing regulation and the exogenous market forces such as technological dynamic change, changing depositing environment and uncertainty about financial prospective developments. Innovation takes the product dimension in order to circumvent regulation. A final focus is that the final synthesis is going to be a new thesis and the process could go on indefinitely.

2.1.3. Regulation Innovation Theory

Regulation innovation theory is advanced by Scylla et al (1982). He argues that financial innovation from his point of view related to historical development of economy. The theory is connected with social regulation which portrays mutual influence and mutual causality economic regulation. He further explains regulations innovation theory seems facing a lot of lack of allowance in planned economic system however, in free market economy, it changes can take their course in financial institutions allowing financial innovation.

The tax reform Act of 1986 is an example of federal income tax deduction for non- mortgage consumer debt. The theory goes further to support Modigliani-Miller preposition that states that taxes and regulations are only reasons for investor to care what security firms issue whether debt, equity and the rest of security instruments.

2.1.4. Transaction Cost Innovation Theory

According to Hicks and Niehans (1983) transaction cost innovation theory, refers to reduction of transaction cost in response to advance technology. The cost reductions stimulate financial innovation as well as improve efficient service delivery. Transaction costs play an important role with respect to innovation. In this case, theory explains it in relationship to other aspect that the primary reason of financial innovation in financial institutions is profit maximization.

Hicks and Niehans (1983) pioneered the theory of the transaction cost. Hick and Niehans argued that the dominant factor of financial innovation is the reduction of transaction costs. The reduction of transaction cost can stimulate financial innovation and subsequently improvement of financial services. The theory studied the financial innovation from the perspective of microscopic economic structure change. The theory's motive further explained another perspective relative to the radical motive of financial innovation of firms' purpose of earning shareholders' wealth or benefits.

2.3 Determinants of Financial Performance of Commercial

Banks

Several factors noted by (Kireyev, 2001) may explain the deficiency in financial performance in the financial sector. Primarily limited bank lending to the private sector may be attributed to better risk management and improved vigilance by commercial banks at times of acute macro- economic instability and policy uncertainty.

Besides collateral requirements and high interest rates, small borrowers may be discouraged from taking loans because of such factors as well as high cost of accessing banks, complexity of procedure and inflexibility of loan terms (Ahmed, 2003). These are high inflation rate, interest rates, and exchange rate which prompt financial innovation organizations to have no choice but try to minimize factors in order to embrace financial innovations. There may be those who might have the motive to avoid or evade regulations. In addition could have a monitoring of monitors. Problem: monitors of monitors lack

information. Where, government ministry lacks information sometimes the only way out is to have the monitors monitoring each other (Stigler, 1994). Government could make use of the private sector for instance private firms to monitor each other, such as the Private Auditing Firms.

2.3.1 Regulation

Deals with the accepted practices of firms in their chosen activities and are geared towards reducing the risk of systematic failure and thereby avoiding the disruption caused by financial collapse. Chew (1997) stated that the main incentive to innovate is a desire to evade official regulation. These require financial institutions to satisfy capital adequacy requirements, diversify their risk, adopt generally accepted accounting policies, engage professionally suitable managers, report their true financial position and be subject to effective supervision.

Managers, owners and financial institutions are mandated to minimize adverse selection and detailed conduct rules to guard against moral hazard. The key objective of prudential regulation is to achieve stability without comprising efficiency. The extent and success of designing prudential regulations based on market mechanisms which do not distort competition and financial behavior remains an enigma.

2.3.2 Costs of Production Reduction

The financial innovation can minimize costs such as marketing cost that provides a critical role to play in financial institutions. Therefore, innovation

makes possible either a reduction in cost or an increase in revenues. Ho (2006) agrees that financial innovation, like other economic behaviors, generally arises in anticipation of material gains following a cost- benefit analysis.

2.3.3 Technological Advancement

Technological advancement in financial markets is new elements introduced into an organization's production system or service operation for producing its products or rendering its services to the clients (Damanpour and Gopalakrishnan, 2001). The drivers of these innovation acts are primary decrease in unit costs of service delivery, increase in quality, service improvement, reduction in delivery time and increase in operational flexibility. Cohen et al (1989) contend that technology has worked in major ways to bring this about. Firstly, the greatly reduced costs and expanded scope of telecommunications have created a global financial market.

2.3.4 Competitive Environment

Ho (2006) contends that competition has also emerged between commercial banks and financial institutions such as investment banks, insurance companies, pension companies and many more. And thus the development of financial globalization is intensified the need for modifying the current structure and the condition of financial systems. The success of financial institutions depends on free market economy providing that significant existing structures of financial industry are available. These are the degree of concentration, ease of entry, competition in banking sector and financial development instruments.

2.4 Empirical Review

Zewdie (2013) carried out a study on effect of financial innovation on the financial performance of commercial banks in Kenya. In his study, he had the population of the study consisted of all 43 commercial banks in Kenya. The primary data for the study was collected from the majority banks i.e. 32 banks responded the questionnaire well and secondary data was collected using publication, annual financial statement reports of commercial banks on the website and the bank supervision annual report from 2006- 2012 which was organized by the Central Bank of Kenya.

Multiple regression models with SPSS-20 used and descriptive statistics such as means, standard deviation and regression analysis was applied to analyze the data. The actual effect of financial innovation on financial performance was measured by regressing ROA and ROE against 12 financial innovations. The main findings of the study were financial innovations such as number of ATM cards, number of credit cards issued to customers.

Number of debit cards issued to customers, number of minor/children account, number of special deposit account, number youth oriented account, and number of customers registered for e- banking and number customers registered for mobile banking and number of agency banking had imposed ROA of the bank studied. The study recommends that however, financial innovation is yet shows significant positive effect on the performance of banks, it needs for future investigations beyond financial measures used in the study as technology continues to penetrate market.

Corolyne (2012) assessing the effects of financial innovation on commercial bank's financial performance in Kenyans at 30th June 2012. Corolyne studied all 43 registered commercial banks at that time for a period of 4 years. She used secondary data from published central banks' annual reports whereby the independent variable was financial innovations unique to commercial banks while dependent variable was consolidated financial performance of all banks. She found out that financial innovation indeed contributes to and is positively correlated to profitability in the banking sector particularly that of commercial banks.

Ngari et al (2014), in assessing, the relationships between credit cards, mobile banking, influence of internet banking and agency banking on the performance of commercial banks in Kenya. They studied 40 commercial banks registered in Kenya by the central bank for the period 2008-2012. They used secondary data from published financial statements whereby the independent variables were credit cards, internet banking, mobile banking, and agency banking and the dependent variable was financial performance. They found out that some banks in Kenya had adopted some financial innovations such as credit cards, mobile, internet and agency banking and indeed financial innovations had great impact on the financial performance of the banks.

Patrick (2011) studied the relationship between the adoption of financial innovation and the profit levels of commercial banks in Kenya; he studied 44 registered commercial banks by the central bank of Kenya in the period 2005

to 2010. He used linear regression whereby Innovation was an independent variable and profitability as the dependent variable; he also used primary data in the form of questionnaire and review of secondary data. He found out that there is a significant relationship between the adoption of various financial innovations and the profit levels of the commercial banks in Kenya.

Prasad et al (1997) consider the overall impact on IT on productivity in the retail banking industry in the United States. Using a Douglas Cobb-production function, Prasad and Harker estimate the following equation using a combination of publicly available and proprietary data: the output of the firm is equal to IT capital investment, non- IT capital investment, IT labor expenses and non- IT labor expenses. $Q = e^{B_0} B_1^{B_1} B_2^{B_2} B_3^{B_3} B_4^{B_4}$, and $B_1, B_2, B_3,$ and B_4 are the associated output elasticity. The variable that determines the output of the firm are not correlated in that is like comparing different items that are not related to measure financial performance. IT labor presents a very different picture than does IT capital. IT labor contributes significantly to output. Its marginal product is higher than that of non- IT labor.

Rather than make the simplistic conclusion from this that a single IT person is equivalent to 10 non- IT persons, it is better perhaps to speculate that this may simply reflect the fact that there is significant difference between the types of personnel involved in IT and non- IT functions. It is more interesting to compare the marginal product of IT capital versus IT labor. It is striking that while IT labor contributes significantly to productivity increases, IT capital does not. In my view the finding is not true because both IT labor, IT capital

and non- IT labor contribute significantly to the increase of financial performance.

Dececco (1987) constructed a linear program model to estimate the opportunity costs of deposits, adventures, and capital for large banks from 1952- 1972. He formed that, the rising shadow prizes of these items as they approached regulatory constraints were associated with some of the major innovations of the 1960s. Dececco stated that the regulation in Italy was erected at protecting the emergence of finance market through reduction of risk by regulation specifying common standard to guarantee minimum levels of trust worthiness and regulation reduces undesirable excessive competitive.

Dauda et al (2011) in assessing the relationship between financial innovation and commercial banks performance in Nigeria used fifteen (15) major banks in the Country. Two null hypotheses based on two different sets of questionnaires were distributed to selected banks employees and customers were formulated to test whether there is no significant relationship between technology innovation and banks performance; and between technological innovation and Nigerian banks employee's performance. Pearson correlation co-efficient was used to analyze the hypotheses. Findings revealed that technological innovation influenced banks employee's performance, customer's satisfaction and improvement in banks profitability.

Joshua Abor (2005) in assessing the relationships between effect of technological innovations on banking services in Ghana. The dependent

variables were banking products and services such as Automated Teller Machines (ATMs), Telephone Banking, PC-Banking, and Electronic Funds Transfer at Point of Sale (EFTPoS) and the independent variable was the banks performance. The study focused on customers with banks that have at least one form of technological innovation. The results of the study generally indicated that, technological innovation or electronic delivery channels have contributed positively to the provision of banking services and the growth of the Ghanaian banking industry.

Muthoni (2013) undertook the study determining the causal effect of financial innovation on financial performance of insurance companies in Kenya. For this study 45 insurance companies and Re- insurance companies operating in Kenya as at 31st December 2012 were used. Data was drawn from a period of five years that is 2008- 2012. The primary data was collected through questionnaire and where appropriate the secondary data was obtained from published information. The data was analyzed using descriptive and inferential statistics to generate descriptive regression of co- efficient as well as to determine the fitness of the model. Results indicate the relationship between new product and financial performance is insignificant. Results reveal that operations possess and system innovation is statistically significant in explaining return on assets of insurance companies.

2.5 Summary of Literature Review

The summary of literature review stresses that various facts of financial firms have been undertaken in relations to financial innovation. Cost unit of

production that leads to increase in profits facilitated by innovation in financial firms. However, several of financial institutions are constrained by the existing government regulations that sometimes suffocate innovations. The body of literature is articulating types of innovations enabling financial institutions to raise their competitive strength improve their risk management skills and better satisfy needs of their customers and market requirements. Theories of innovation have been discussed in the body of literature review. In this case, the constraint- induced innovation theory, circumvention innovation theory, regulation innovation theory and transaction cost innovation theory. Several studies both global and local have been reviewed in the empirical studies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methods and procedures that will be followed in conducting research in pursuit of evaluating the effect of financial innovation on the financial performance of commercial banks in South Sudan. The chapter also considers in detail the methods that will be used to collect primary or secondary data that requires in this study. Therefore, the chapter discusses the research design, population size, sampling technique, the estimated models and the source of data for this study, and consequently, data collection and data analysis.

3.1 Research Design

This research is a descriptive design to meet the purpose of the study. According to Mugenda et al (2003) define a descriptive research as the process of collecting data and analyze in order to describe the specific phenomenon in its present of affair and linkages between different factors at that time. The objective of this study is to determine the relationship between financial innovation and the financial performance of listed commercial banks with Central Bank of South Sudan.

3.2 Population

In connection with the topic matter of the study, the target population of the study will consist of 28 commercial banks in South Sudan. The period will be five years, from January, 2009 to December 2013.

3.3 Sample Design

For this study, the design will involve determining the effect of financial innovation (the independent variable) to financial performance (the dependent variable) of commercial banks. Given that there are 28 commercial banks, the target sample of this study will be drawn from 18 commercial banks in Juba, South Sudan.

Since the main objective of the research is to find the effect of financial innovation on the financial performance of commercial banks in South Sudan, financial performance will be measured by the return on the net assets which is dependent variable. Independent variables will involve among them product innovation, include number of new deposit accounts, new credit arrangements, and process innovation such as introduction of electronic banking, internet and mobile banking. All these may lead to increase in banks' return on net assets.

3.4 Data collection

The study will use secondary data that can be obtained from annual report published by Central Bank of South Sudan from 2010 to 2013. Additional data will also be collected from the respective commercial banks in form of annual reports, quarterly financial statements, and monthly issue financial journal.

This secondary data sources will significantly come up with relevant result for this study; commercial banks' return on net assets, the number of product innovation, and the number of process innovation.

3.5 Data Analysis

In order to determine and test the relation between the dependent variable and each independent variable, the instrument of data analysis for this study will be regression analysis tool. The discriminate analysis that will come up with a regression function that will estimate relationship between financial performance of commercial banks in South Sudan and the financial innovation strategies. The tools for financial performance measurement are operational efficiency for instance benchmarking, comparing performance against budgeted and financial ratios. Financial innovation is measured and quantified using other independent variables like product innovation, process innovation, service innovation and technological innovation.

Analytical model that will be use in this study is multiple regressions to determine the effect of financial innovation on the financial performance. Multiple regression attempts to determine whether a group of independent variables together can predict a result given dependent variable. The general form of model to be used shall be regressed using financial performance against four independent variables such as process innovation, service innovation, product innovation and technological innovation.

The researcher seeks to extend the model as advanced by Okiro (2013). Below is the analytical model that will be used by the researcher to determine the effect of innovation on financial performance of commercial banks in Southern Sudan.

$$Y_F = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where:

Y_F = the financial performance will be measured using and Return on Equity (ROE).

X_1 = the number of Transactions done using ATM per day (Withdrawals, deposits)

X_2 = the number of transactions done using a phone per day (paying bills, accessing the account (update, checking the balance), borrowing and depositing.

X_3 = The Amount of Money borrowed using internet transactions.

$\beta_0, \beta_1, \beta_2, \beta_3$ = Gradient/Slope of the regression measuring the amount of the change in Y associated with a unit change in X

e = Error term within a confidence interval of 5%

3.5.1 Diagnostic Tests

A t-statistic test will be used to determine the significance of the independent variables in influencing financial performance of commercial banks in South

Sudan .t-test will be used to test the hypothesis that a particular coefficient is significantly different from zero or whether the estimated coefficient value occurred by chance in equation. The tests will be performed at 95% levels of confidence.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data findings and analysis in form of tables, and measures of central tendency such as frequencies, percentages, mean and standard deviation. Descriptive statistics was used to analyze the findings obtained from the data of the financial statements of the Commercial Banks in South Sudan.

4.2 Response Rate

The study targeted 18 commercial banks in South Sudan and data was obtained from a sample size of 16 of those commercial banks. Of the 18 sample of the commercial banks under study, data was extracted from 16 commercial banks this therefore created a response rate of 88.88% response rate. According to Mugenda and Mugenda (2003) a 50% response rate is adequate, 60% good and above 70% rated very good. This also collaborates with Bailey (2000) assertion that a response rate of 50% is adequate, while a response rate greater than 70% is very good.

This implies that based on this assertion; the response rate which in this case was 88.88% is very good. The study used descriptive and inferential analytical techniques to analyze the data obtained. The study used Ordinary Least Squares (OLS) regression models. However, before running the regressions, descriptive statistics and correlation analysis were calculated. Correlation analysis shows the relationships between the different variables considered in

the study. The correlation matrix presented simple bivariate correlations not taking into account other variables that may influence the results.

Table 4.1: Response Rate

Response Rate	Frequency	Percentage
Response	16	88.88%
Unresponsive	2	11.12%
Total	18	100.00%

4.3 Descriptive Analysis

Table 4.1 presents the descriptive statistics and the distribution of the variables considered in this research: financial performance (ROA), number of transactions per day using ATM, number of transactions per day using phones and the amount of money borrowed using internet transactions. The descriptive statistic considered was minimum, maximum, mean and standard deviation. Mean was used to establish the average value of the data; standard deviation gave the dispersion in the data.

Table 4.2: Descriptive Statistics

		ROA	Transactions-ATM	Transactions-Phones	Money borrowed
N	Valid	4	4	2	2
Mean		3.2534	156,547	207,580	24,025,584
Median		4.278	78,258	133,584	13,874,605
Std. Deviation		1.2548	20,511	45,228	2,580,158
Minimum		1.801	96,355	135,850	15,857,002
Maximum		7.251	275,593	367,855	36,581,020

Source ;(Research Findings)

From table 4.1 shows that return on asset (ROA) recorded a mean of 3.2534 with standard deviation of 1.2548. On average the commercial banks received a net income of Ksh6.9839 for every shillings invested in equity. The average number of daily transactions using ATM for the commercial banks was 156,547 with standard deviation of 20,511 during the study period.

4.4 Inferential statistics

The inferential statistics involved the use of correlation and multiple linear regression analysis. The regression analysis was done using Ordinary Least Squares (OLS) method. However, before running the regressions, descriptive statistics and correlation analysis were considered. Correlation analysis shows the relationships between the different variables considered in the study. The correlation matrix presented simple bivariate correlations not taking into account other variables that may influence the results.

4.4.1 Correlation Analysis

The study sought to establish the relationship between financial innovations and financial performance of commercial banks in South Sudan. Pearson Correlation analysis was used to achieve this end at 99% and 95% confidence levels. Table 4.3 shows positive and moderate ($R=0.5811$) linear relationships between the number of daily transactions using ATM and financial performance of commercial banks in South Sudan. This implies that an increase in the number of daily transactions using ATM increase profitability of the commercial banks. The number of daily transactions using phones has positive but very weak relationship with the financial performance of the

commercial banks (R= 0.0129). Money borrowed showed weak but negative relationship with the financial performance with the commercial banks (R= -0.2518) implying that an increase in the amount of money borrowed using internet transaction will reduce the financial performance of the commercial banks.

Table 4.3: Correlation Analysis

	ROA	Transactions-ATM	Transactions-Phones	Money borrowed
ROA	1.0000			
Transactions-ATM	0.5811	1.0000		
Transactions-Phones	0.0129	-0.8606	1.0000	
Money borrowed	-0.2518	-0.3178	-0.2773	1.0000

4.4.2 Regression Analysis

Regression analysis was used to measure the relationship between individual independent: the number of daily transactions using ATMS, number of daily transactions using mobile phones and the amount of money borrowed using internet transactions. The regression analysis was of the form:

$$Y_F = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Table 4.4 illustrates model summary for the regression. Model summary indicates the determinant of coefficients which gives the proportion of the change in dependent variable (financial performance) that is attributed to the changes in explanatory variables. A table 4.4 result indicates R square of 0.483 indicating that 48.3% of the total variation in the financial performance

of commercial banks is attributed to the changes in the explanatory variables. The study also used Durbin Watson (DW) test to check that the residuals of the models were not auto correlated since independence of the residuals is one of the basic hypotheses of regression analysis. Being that the DW statistic were close to the prescribed value of 2.0 (1.967) for residual independence, it can be concluded that there was no autocorrelation.

Table 4.4 Model summary

Model	R	R	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
		Square			
1	0.694	0.483	0.653	0.02127	1.893

Analysis of Variance (ANOVA) was used to make simultaneous comparisons between two or more means; thus, testing whether a significant relation exists between variables (dependent and independent variables). This helps in bringing out the significance of the regression model. The ANOVA results presented in Table 4.5 shows that the regression model has a p- value of 0.023 which is less than 0.05 therefore the model is significant for estimation.

Table 4.5 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.675	3	17.786	3.7326	0.023
	Residual	78.8003	4	4.765		
	Total	113.4753	7			

Table 4.6 shows the regression coefficients of independent variables. The following regression model was established:

$$ROA = 2.2507 + 2.78TATM + 0.047TPN + 0.093BORRED$$

Table 4.6: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.2507	.277		4.257	.0000
Tran-ATM	0.2502	.580	2.78	3.48	.004
Tran-Phones	0.511	.048	0.047	-2.02	.026
Borrowed	0.093	-.033	0.093	1.821	.047

4.5 Discussion of the research findings

From the regression coefficient above, holding the number of daily transactions using ATMs, the number of transactions using phones and the amount of money borrowed using internet transactions, commercial banks in South Sudan will realize profitability of 2.2507 units. All the explanatory variables are statistically significant at 5% level of significant in explaining the variation in the profitability of the commercial banks. The number of daily transactions using ATMs is statistically significant and positively relate to the financial performance of the commercial banks. A unit increase in the number of the daily transactions using ATMs will lead to 2.78 unit increase in the financial performance of the commercial banks.

The study also established a positive and significant relationship between the number of daily transactions using mobile phones and the financial

performance with the commercial banks. A unit increase in the number of daily transactions using mobile phones will lead to 0.047 unit increase in the financial performance with the commercial banks. The amount of money borrowed using internet transaction is positively related with the profitability with the commercial banks. A unit increase in the amount of money borrowed will lead to 0.093 unit increase in the financial performance with the commercial banks.

This is consistent with a study by Noyer (2007) which argued that financial innovation in the banking industry has been spurred by research in products and services and new distribution channel systems such as internet and mobile banking as well as innovation in payment systems. This, according to Noyer (2007) has translated into more improved financial performance of the banks that make a conscious effort to innovate. Although this study looked at banks grouped as a sector, and not individually, improved performance of banks individually would result into better sector performance.

Nyathira, (2009) further used causal research design for a population 43 commercial banks in Kenya as at 30th June 2012. The study used secondary data from published central banks' annual reports whereby the independent variable was financial innovations unique to commercial banks while dependent variable was consolidated financial performance of all banks. Study results indicated that financial innovation indeed contributes to and is positively correlated to profitability in the banking sector particularly that of

commercial banks. This is further supported by high uptake of more efficient financial systems in substitution for the less efficient traditional systems. This is evidenced by the negative correlation between Real Time Gross Settlement and Automated Clearing House (Cheques and EFTs) throughput over time; as well as that of profitability and Automated Clearing House throughput.

A study also by Tidd and Hull (2003) also determined that the banking sector in emerging economies is characterized by rapid innovations in new financial instruments, systems and explosive growth in information technology which have fuelled financial performance.

Gitau, (2011) in his study of determining the relationship between financial innovation and financial performance of commercial banks in Kenyan took a Quasi-experimental research design and concluded that commercial banks had adopted process, product and institutional innovation. Product innovation strategies adopted by the commercial banks were Credit cards, business club and unsecured loans. Institutional innovations adopted were Insurance services, credit reference bureau and Islamic banking. Process innovation adopted were RTGS, mobile and internet banking. It was clear that adoption of financial innovation resulted in strong financial results of commercial banks.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Introduction

This chapter is a synthesis of the entire study, and contains summary of research findings, exposition of the findings, commensurate with the objectives, conclusions and recommendations based thereon.

5.2 Summary of Findings

Result from chapter indicates that return on asset (ROA) recorded a mean of 3.2534 with standard deviation of 1.2548. The average number of daily transactions using ATM for the commercial banks during the study period was 156,547 with standard deviation of 20,51. Daily transactions using mobile phone had a mean of 204580 with standard deviation of 45,228. The result indicated that money borrowed through internet transaction had a mean of 24,025,584 with standard deviation of 2,580,158.

The study also established positive and moderate linear relationships between the number of daily transactions using ATM and financial performance of commercial banks in South Sudan. The number of daily transactions using phones showed positive but very weak relationship with the financial performance of the commercial banks. Money borrowed showed weak but negative relationship with the financial performance with the commercial banks.

The study also established a positive and significant relationship between the number of daily transactions using mobile phones and the financial performance with the commercial banks where a unit increase in the number of daily transactions using

mobile phones lead to 0.047 unit increase in the financial performance with the commercial banks. The amount of money borrowed using internet transaction was found to be positively related with the profitability with the commercial banks where a unit increase in the amount of money borrowed using internet lead to 0.093 unit increase in the financial performance with the commercial banks.

5.3 Conclusions

The objective of the study was to establish the relationship between financial innovations and financial performance of commercial banks in South Sudan. The findings indicated that financial innovation is significant and has a positive impact on the financial performance of the commercial banks in South Sudan. The study is consistent with Corolyne (2012) who found that financial innovation contributes to and is positively correlated to profitability in the banking sector particularly that of commercial banks.

Similarly Patrick (2011) found that there is a significant relationship between the adoption of various financial innovations and the profit levels of the commercial banks in Kenya. Therefore commercial banks in South Sudan should adopt more financial innovation to improve on their financial performance.

Financial innovation presents more convenience, efficiency and security to commercial banks customers resulting to more demand for the new innovations. Demand for traditional payment systems reduces as customers switch to the more effective payment systems; this as seen by the negative correlation between. Real Time Gross Settlement transactions turnover and Automated Clearing House Throughput and the negative correlation between profitability and ACH throughput.

5.4 Recommendations

Commercial banks should adopt the use of financial innovation to increase their financial performance. In this connection, financial innovation can provide consumer base, capital base to enhance their profitability that result to improve financial performance.

Government through the financial sector regulatory authorities should encourage banks to engage in financial innovation but at the same time closely regulating such developments to assure on the integrity of more so the payment systems. This will enhance effective and efficient delivery of services by the financial sector to all sectors of the economy.

Financial innovation is the engine of sustainable economic growth. Faster and more secure payment systems spurs development of businesses and economic growth in all other sectors in addition to facilitating financial deepening. This is key to the attainment of development goals of the financial sector of South Sudan and at the same time facilitating financial inclusion and deepening.

5.5 Limitations of the Study

This study sought to seek the relationship between financial innovations and financial performance of commercial banks in South Sudan. However the study faced a number of challenges, one is being lack of full information on the financial performance of the commercial banks since some commercial banks do not reveal financial positions and transaction volume of the banks. This puts to test the validity of the result found based on the data used.

Some of the respondents approached were reluctant in giving information fearing that it would be used for other purposes. This may have pushed others to be committed in giving truthful information. This made the research timeline to be extended to further negotiations on the confidentiality issue of the intended study findings. This limits the timeframe of the intended data collection.

Banking sectors' profit after tax and exceptional items figures were only available on an annual basis. Regression was therefore based on the annual figures even though ACH and RTGS values were available on monthly basis. Availability of the data on a quarterly or monthly basis would have provided more precision in the regression results.

5.6 Suggestions for Further Research

This study mainly focused on establishing the relationship between financial innovations and financial performance of commercial banks in South Sudan. The study suggests that similar studies should be done on other firms as the relationship adduced does not conform to the rule of thumb or one-size-fits-all mantra as different industries and sector have different operational environment.

There is also need to carry out similar tests for a longer time period of time and on quarterly basis to regress the RTGS. This will assist in getting more precise and diverse information on the changes in the independent variables along the years in the different commercial banks that were under research. This will increase the scope of the research and clear indication of financial innovation on the economy as a whole.

Further research is also need to be done on the effects of financial innovation on the financial performance of the Micro finance Institutions in South Sudan. The Micro Finance Institutions also plays an important role in the financial inclusion and development.

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**APPENDIX I: THE LIST OF COMMERCIAL BANKS IN THE
REPUBLIC OF SOUTH SUDAN**

1. AFRICAN NATIONAL BANK LIMITED
2. AFRILAND FIRST BANK SOUTH SUDAN
3. BUFFALO COMMERCIAL BANK PLC.
4. BANK OF SOUTH SUDAN
5. COMMERCIAL BANK OF ETHIOPIA
6. CHARTER ONE BANK
7. CO-OPERATIVE BANK OF SOUTH SUDAN
8. CFC STANBIC BANK LTD
9. ECOBANK SOUTH SUDAN LTD
10. EDEN COMMERCIAL BANK LTD
11. EQUITY BANK SOUTHERN SUDAN LTD
12. INTERNATIONAL COMMERCIAL BANK LTD
13. IVORY BANK PLC
14. KCB SUDAN LTD
15. LIBERTY COMMERCIAL BANK
16. MOUNTAINS TRADE AND DEVELOPMENT BANK
17. NATIONAL CREDIT BANK
18. NILE COMMERCIAL BANK LTD
19. OPPORTUNITY BANK PLC
20. ORBIT BANK PLC
21. PEOPLES BANK PLC
22. PHOENIX COMMERCIAL BANK
23. QATAR NATIONAL BANK (QNB)
24. REGENT AFRICAN BANK
25. SOUTH SUDAN COMMERCIAL BANK LTD
26. SUDAN MICRO-FINANCE INSTITUTION (SUMI)

APPENDIX II: INTRODUCTION LETTER

Dear Sir/Madam,

REF: REQUEST FOR DATA COLLECTIN AND USE FOR THE EFFECTS ON FINANCILA INNOVATION ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN SOUTH SUDAN.

I am a student at the University of Nairobi pursuing a Master's degree in Business Administration (MBA) Finance option. As a requirement in fulfillment of this degree, I wish to carry out a study on the effects of financial innovation on financial performance of commercial banks in South. I have considered you knowledgeable in providing the most relevant data on the topic.

The information obtained through this study shall be treated as confidential and will be purely for the purpose of academic research. A final copy of the project will be availed to you at your request. Thank you for your cooperation and consideration.

Yours Faithfully,

Pater Malak, Makur

D61/61103/2013