

**INFLUENCE OF CHEQUE TRUNCATION SYSTEM PROJECT ON
FINANCIAL PERFORMANCE OF KENYAN COMMERCIAL BANKS: A
CASE OF NAIROBI COUNTY**

BY

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for the Award of the Degree of Master of Arts in Project Planning and
Management, of the University of Nairobi**

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DECLARATION

This is to declare that this project report is my original work and has not been presented to any other university or institution of higher learning for examination.

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DEDICATION

In memory of my late Dad Kiplangat Mosonik who passed on when I was just about to finish my course work, I am forever indebted to him for the extraordinary and exemplary effort in guiding and shaping my academic progress since childhood. I also dedicate this project to my entire family for the moral, spiritual, financial and psychological support they accorded me during the course of study. I am particularly grateful to my husband Benard, for both financial and moral support he gave me while undertaking the MA degree course. To my sister in law Memo, who tirelessly baby sat my three children as I did my research work, I am sincerely grateful. Mark, Melisa and Meshack, my children; you are my driving force, you motivate me each and every day to reach out to new goals and aspirations, that I may provide you with the best that I can in life.

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ABBREVIATIONS AND ACRONYMS

CH: Clearing House

CHI: Clearing House Interface

CTS: Cheque Truncation System

EAT: Earnings after Tax

MICR: Magnetic Ink Recognition

NPT: Net Profit after Tax

PEoU: Perceived ease-of-use

POS: Point of Sale

PU: Perceived Usefulness

ROA: Return on Assets

ROE: Return on Equity

SPSS: Statistical Package for Social Sciences

TAM: Technology Acceptance Model

TTF: Task Technology Fit

ABSTRACT

The face of the banking industry has been dramatically altered by rapid technological advances over the last couple of years. Globalization and deregulation are transforming the world of banking and financial systems. Banking services by telephone, Internet or e-banking, smartcard applications, ATMs, including the cheque truncation system, are technological innovations that are taking place very quickly in the global banking industry. The main objective of this research was to study the influence of the cheque truncation System (CTS) on the financial performance of Kenyan commercial banks listed in the Nairobi Stock Exchange (NSE). The study used a descriptive research design since it was considered to be the most appropriate time horizon because the information was collected at a given time over a short period. The target population comprised of 11 commercial banks listed in the NSE in the county of Nairobi. The sampling unit consisted of bank agents and the study selected 5 agents from each bank to make a total sample size of 55 respondents. In addition, 11 managers were selected from each bank to answer questions according to the interview guide. A semi-structured questionnaire was used as the main data collection tool. In this study, 55 questionnaires were distributed to the respondents and analysed. The data collected were presented in form of tables and with the help of the statistical package for Social Science (SPSS), the study produced descriptive statistics and inferential statistics results. The results of the study showed that the influence of Cheque Truncation System on financial performance of commercial banks in Kenya is statistically significant. Since the research was not exhaustive, a recommendation for further study on the same field was suggested.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The last couple of years has seen the face of the banking industry change considerably due to rapid technological advances and developments. Globalization and deregulation is transforming the world of banking and financial systems. Phone banking, internet or e-banking, smartcard applications, automated teller machines including Cheque Truncation System are technological innovations that are taking place very fast as experienced in the global banking industry (Nofie, 2011). New production processes and products are being developed production processes as part of their innovations and this in turn helps them to perform their operations better. The new processes have led to new product developments (Tufano, 2002; Lawrence, 2010). Within the financial sector, the creation and extension of technologies, new financial instruments, institutions and markets are some of the innovations so far experienced. These innovations in turn facilitate faster access to information, means of payment and exchanges (Solans, 2003).

According to Nofie (2011), the coming up of a new or even a better product as well as a process that helps in lowering the cost of producing present financial and banking services are innovations within the finance sector. Several countries around the world have been using Cheque Truncation System for instance Malaysia, India and the United States of America. The system has worked greatly in cheque fraud reduction and in increasing the efficiency of financial industries (Gathuku, 2013). The USA was the first one to roll out the system and later on the Asian countries picked it up before its introduction in Africa. Increased efficiency among the banks has been experienced widely in all countries that have implemented the cheque reading system which has helped increase customer satisfaction.

Thus, cheque truncation system happens to be a logical progression/evolution of cheque processing from hand sorting to Magnetic Ink Character Recognition (MICR), as well as from MICR to imaging. This system has adequate security measures, which ensure the establishment of an efficient, safe and robust Integrated Payment and Settlement System that is also secure. These features give a boost to the various payment and settlement electronic modes (Sudhakar, 2014).

1.1.1 Cheque Truncation System

Cheque truncation is a technology innovation in the banking sector across the globe. It is considerably an online cheque clearing system that is image based. In this regard, data about the cheque images and the Magnetic Ink Recognition (MICR) are typically taken at collecting bank branches. The data are then transmitted electronically without the actual cheque movement. Countries across the globe including Kenya have incurred delays in cheque settlements especially in intercity cheques. The clearing cycle in the cheque truncation system is compressed to facilitate faster clearing of both local and intercity cheques. Electronic records replace the physical movement of cheques between banks, within a bank and the clearing house in the cheque truncation process. The cheque truncation system has brought all participating banks to a collective platform in the cheque processing operations since its implementation (Sreedevi, 2013; CBK, 2011; KBA, 2011; Gathuku, 2013; Sudhakar, 2014).

Central bank of Kenya in-conjunction with Kenya Bankers Association rolled out the cheque truncation process in 2011 saying to the banking system (CBK, 2011; KBA, 2011). The system will benefit banks and the public by efficient and streamlined cheque payment clearing process, reduction of clearing days, it will bring much needed changes reduced costs physical cheques, shorter clearing cycle helping beneficiaries to associated with handling access their funds through cheque earlier than before: part of efficiency, reduction of risks related with the clearing cycle for manual payments and clearing system's and longer cheque as well as quick and early detection of fraud (CBK, 2011; KBA, 2011; Gathuku, 2013; Sudhakar, 2014).

According to Palmer (2014), the use of cheques has been on a decline in the recent past. Nowadays, cheques are rarely used especially in the European countries for example in Scandinavia, Belgium, Austria, Netherlands and Germany, cheques are almost non-existent anymore (Palmer, 2014). In 1993, Finland banks ceased to issue personal cheques and in 2006 cheques were never used again in Poland. In some countries however, for example the United Kingdom, France and Ireland, cheque usage has continued partly because they are free. Most Asian countries too have experienced reduced cheque usage over time. Negligible personal cheque usage for Japan, South Korea and Taiwan Australia and New Zealand are also experiencing cheque decline (Palmer, 2014).

The Technology Acceptance Model (TAM) developed by Davis (1989) mainly serves to give an explanation of innovation and adaption of technology in most sectors of an economy. This model analyses perceptions instead of the real or actual usage and suggests that two important factors affect the decision of users in terms of how and when to use a new technology presented to them such as the Cheque Truncation System (Davis, 1989; Bertrand & Bouchard, 2008; Nganga & Mwachofi, 2013). These key factors include the perceived usefulness (PU) that Davis defines as "the extent to which a person has confidence that the use of a certain system would improve his job performance." Another factor is the perceived ease of use (PEoU), which is can refer to the extent to which an individual believes that the use of a particular system would require no effort (Neuhaus & Mwachofi, 2013; Davis, 1989). Cheque Truncation System technology as the independent variable will be measured by PU and PEoU as per the TAM model developed by (Davis, 1989) and security & perceived risks. Perceived usefulness will be presented in terms of reduced truncation costs, increased efficiency (shorter clearing cycle), reduced cheque clearing days, improved clearing cycle, investment in the system, reduced errors and cheque fraud among other key metrics. Perceived ease of use will be presented by adequate training in CTS, compatibility with bank system, customer awareness levels, drawing the new cheque leaf and awareness levels. Security and perceived risks will be presented by cheque cheque truncation system has brought all participating banks to a collective platform in the cheque processing operations since its implementation (Davis, 1989).

1.1.2 Commercial Banks Financial Performance

Financial performance is typically a subjective measure that measures how well a particular firm can utilize assets the primary approach of business to generate income. It is also an overall measure of the complete financial health of a firm over a predefined period. In this regard, it can be used to analyse comparable firms across similar industries. It can also be used to compare industries/segments in combination. Organizational performance is often viewed as financial performance and continuous good financial performance of any organization is a key requirement since an organisation can only grow and progress through performance (Gavrea et al., 2011). Thus, the indicators of financial performance in this study will be ROA (Return on Assets) and profitability.

In addition, financial performance is a subjective measure that can be used to find out how a given business can use the assets of its main business to generate income. Erasmus (2008) agrees that financial performance measures such as liquidity and profitability provide a crucial tool for evaluating the past financial performance and the position of the firm. According to Berger and Patti, (2002), a shareholder views and measures a firm's financial performance in terms of how better off he or she is by the end of a financial period. In order to find out this, ratios derived from financial statements can be used. These are typically data about the balance sheet, the income statement, and the stock market prices. Besides indicating whether the firm is achieving the objectives of shareholders, these ratios can be used to make comparison between firms in order to establish performance trends over time. According to Charreaux (1997) in Severin (2002), an account of all the outcomes of investments on the wealth of shareholders can be obtained using adequate performance measures.

The various measures of a firm performance are investment return (ROI), asset performance (ROA), equity return (ROE), and after-tax earnings (eat). According to Boehlje et al. (1999), ROA The data are then transmitted electronically without the actual cheque movement. Countries across the globe including Kenya have incurred delays in cheque settlements especially in intercity cheques. The clearing cycle in the cheque truncation system is compressed to facilitate faster clearing of both local and intercity cheques. It measures the performance of the business owner for its capital investment and can also be used to make comparisons with alternative investments. After-tax earnings (EAT)/ (TPL) sales income equal after deducting all expenses, including taxes. Return on investment (ROI) as a performance measure assesses an investment's efficiency and compares the efficiency of various investments.

In the banking industry, key performance indicators are as follows: Capital base, net profits, increased customer numbers/customer accounts, growth in the loan book as their main asset, reduction in non-performing loans, income growth. Others are increased capital base, new channels like mobile phone banking and internet banking, revenue growth, low interest rates and regulatory restrictions, and better management of costs. Deeper customer relationships and enhanced product mix and pricing decisions are other key performance indicators.

1.1.3 Cheque Truncation System and Commercial Banks Financial Performance

The use of Information Communication Technologies in the rationalization of commercial banks' operations and businesses has resulted in a reduction in overhead costs which has been noted as one of the main improvements. Costs such as those related to the maintenance and maintenance of physical branches, marketing and work can be minimized substantially (Hernado and Nieto, 2007). According to Roberts and Amit, (2003) financial innovation is very important because it leads to a competitive advantage, superior, and improved financial performance. Financial innovation and financial performance of companies, as revealed in many studies, have a significant positive relationship (Zahra and Das, 1993; Chapais et al., 1990; Calantone et al., 1995; Han et al., 1998). Innovation is experienced in the process, the product, the market, the factor as well as the organization with the product, the process and the market dimensions being more familiar in the literature of innovation (Johne and Davies, 2000; Otero-Neira et al., 2009).

The Cheque Truncation System has facilitated superior verification, shorter clearing cycle, and reconciliation process, efficiency in operations for banks and customers, operational risk reduction and paper clearing risks reduction. There are also no geographical restrictions as to jurisdiction and frauds are greatly minimised under the Cheque Truncation System regime, a good thing for the banks. In addition to this, the system is very beneficial in terms of saving costs and time for banks since there is no physical movement of cheques. For standardisation purposes, the bank's logo, quality of paper, void pantograph and watermarks among others are the benchmarks that have been prescribed across the country. (Sharma and Modi, 2014).

Customers derive huge benefits from the Cheque Truncation System (CTS) because the time taken for cheque clearance is substantially reduced. On the other hand, the banks enjoy the increased efficiency in operations since they can cut down on overheads incurred in physical cheque clearing. The physical cheque image is replaced by a cheque image which undergoes truncation at the point of presentation at the presenting bank in the new system. At this point the cheque clearing cycle begins and the cheque images move through various steps and cheque settlement is done on the basis of images and data. CTS is made up of a data and image capturing

application and a small shoe box size image scanner which is relatively fast and mid-range (Sudhakar, 2014; Ndung'u, 2013; CBK, 2011). The reasons for the adaption of cheque truncation system is that banking is becoming more complex and truncation intensive and growing share of retail banking.

1.1.4 Banking Sector in Kenya

The colonial times marked the debut of the treacherous financial journey in Kenya. National Bank of India started in 1886; one year after the establishment of the British Administration in Kenya. The British were hardly the first to establish banks in Kenya as many people perceive. Essentially, the first bank find out in Kenya was from India; National Bank of India. Standard Bank of South Africa was started as the second bank later in 1910. This bank later in merged with Anglo-Egyptian Bank Ltd and together they formed Barclays Bank (CBK, 2016). Barclays Bank was, consequently, formed in 1910 as a fusion between National Bank of South Africa and the data are then transmitted electronically without the actual cheque movement. Countries across the globe including Kenya have incurred delays in cheque settlements especially in intercity cheques. The clearing cycle in the cheque truncation system is compressed to facilitate faster clearing of both local and intercity cheques.

The Ottoman Bank and Commercial Bank of Africa were founded in 1955. The National Bank of Kenya later absorbed the Ottoman Bank in 1968. This is the same year when Cooperative Bank of Kenya started operations. In 1971, the National and Grind lays Bank merged to form the Kenya Commercial Bank with the government owning a 60 percent stake. Stanbic Bank was formed consequently as a merger between the Merchant Bank division of Grindlays and Grindlays Bank International Limited. Barclays Bank changed its original name to Barclays Bank International Limited in 1971. The National Bank of Chicago and City Bank of New York were find out in 1974 (Maiyo, 2016; CBK, 2016).

In the world, the history of banking and financial institutions started with prototype banks of merchants of the prehistoric world, which provided grain as loans to agriculturalists and merchants who ferried goods across cities and regions. The development of banking started in northern Italy and then spread to the Holy Roman Empire. In the 15th and 16th century, it spread to northern Europe (Hildreth, 1996; Beattie, 2014). The Romans, being the first bank were administrators in their own

right and were also great builders. They took banking which was mainly done in the temples was taken out and distinct buildings were used to formalize it. The institutional banks were used for legitimate commerce and government spending though money lenders still thrived as shylocks do today (Beattie, 2014). Julius Caesar depicts the first example of bankers having to confiscate land in lieu of loan payments within one of the edicts changing Roman law after his takeover. This marked a new era in the relationship between creditor and debtor whereby the creditor became more powerful. This was because noblemen who owned huge pieces of land were originally powerful and could not be touched through most of the history, and they could even pass debts off to descendants for as long as they could or until either the creditor's or debtor's lineage died out. Some of the banks and banking institutions survived even after the Roman Empire eventually crushed; they lived on in the form of papal markets that came up in the Holy Empire and with the Knights of The Temple in the crusades. There were small-time moneylenders that came into competition with the church but were often condemned (Hildreth, 1996; Beattie, 2014).

Traditionally, a commercial bank is a physical building made of brick and mortar with long queues at the teller line, safe deposit boxes, Automated Teller Machines and vaults. Today however, physical branches are not mandatory as consumers are required to perform their banking by internet or phone. Consequentially, interest rates payments on investments for such banks are higher, they also deposit and charge lower fees because there is no need to have or maintain physical locations. Furthermore, all the additional charges that come along with having a physical branch such as rent, property taxes and utilities are eliminated (Hildreth, 1996; Beattie, 2014).

Vision 2030 is a development blueprint which was launched in October 2006 aimed at laying out the strategies for transforming the country from its status into a newly industrialized middle income country that can provide high quality life to all citizens by 2030. The overarching vision therefore is a globally competitive and prosperous nation. Vision 2030 focuses on three pillars, namely: social pillar, economic pillar and political pillar. The main idea of the economic pillar is to retain a sustained economic growth of 10% per annum for 25 years and commercial banks play a key role in supporting it (Ndung'u, 2007).

Vision 2030, the long-term vision of Kenya is aimed at continuous growth of the economy by more than 10% per annum over the next 25 years. The financial sector must play a well-defined role in helping to achieve these ambitions. This particular includes mobilizing the necessary resources to fund the twenty flagship projects that are worth over Ksh 500 trillion required in the next five years (Ndung'u, 2007). This being a substantial budget, there is the need for a strong and perennial financial sector that would help channel savings into vital investment projects. As a result, the government requires banks to increase their efforts to build a concrete capital base that is competent to support product innovation, the deployment of economies and the extensive access of financial services to Kenyan citizens. It should also be noted that the considerable integration of public investment to motivate and improve private sector investment would be important in pursuing economic growth. Alongside the expansion programs of physical bank branches, banks will be required to play an important complementary role in expanding access, which requires banks to increase innovation in their products (Ndung'u, 2007).

Currently, there are nearly 55 companies listed on the Nairobi Stock Exchange with a daily turnover of more than USD 5 000 000 and a total market capitalization of about USD 15 000 000 000. The obligations of the Government and the companies are exchanged on the Nairobi Stock Exchange, as well as on the shares. The automated bond trade began in November 2009 with the Ksh 25 trillion bond (Kestrel Capital (East Africa) Ltd, 2006; NSE, 2015). Kenyan commercial banks are at present 43 in number while there are also 6 deposits taking microfinance institutions, 1 mortgage Finance Company, 4 representative offices of foreign banks, 112 foreign currency agencies and 2 offices of the credit reference of which 11 are listed in the NSE (see Appendix 111) (NSE, 2015; CBK Bank Supervision Annual Report, 2012).

Financial services industry is being reshaped by the ever varying consumer needs, state-of-the-art financial products, information technology improvements, deregulation and the arrival of multiple delivery channels. Banks have embraced product lines' expansion, new delivery channels to come up with more effective marketing systems and methods and enhanced the service excellence levels in order to continue being competitive in the new setting. They have also sought to expand access through the use of alternative channels such as e-banking and m-banking.

Besides enhancing access, these frontiers also help banks in differentiating their products (CBK 2013).

Improved technology, a growing available statistic estimate that the year 2010 alone, the banks lost KSH. 2.96 billion; Sh371Million in the first ade the country vulnerable to fraudsters. According to the Deloitte Financial services consulting firm, Kenyan financial institutions are losing from the increase in fraud cases, especially those related to cheques (Deloitte, 2010; George, 2013). The number of technology savvy employees, and increased internet access have m quarter of 2010, Sh390 million in the second quarter while in the third, KSH 1.7 billion was siphoned off with Sh500 million disappearing in December only (Deloitte, 2010). The process involving the clearance of cheques by electronic means has seen the number of days used to compensate for reduced cheques of 10 working days in rural Kenya to 3 working days nationwide, place all regions in a three-day T + 3 cheque clearing area (truncation date plus three days) and this should gradually reduce to a cheque clearing day (T + 1), (CBK, 2011). This process will also significantly reduce cheque fraud. To this end, banks in Kenya must embrace the opportunities and challenges that have been raised by CTS in order to reap the maximum benefits and improve performance.

1.2 Statement of the Problem

Commercial banks play an imperative role in the economic growth of a country. They are the leading players in the legion of financial service provision of a nation and this calls for efficiency and effectiveness in their management and this is a fact reduced cheques of 10 working days in rural Kenya to 3 working days nationwide, place all regions in a three-day T + 3 cheque clearing area (truncation date plus three days) and this should gradually reduce to a cheque clearing day (Stiroh, 2001). Gori and Migiro (2010) argue that a widespread paradigm shift in the performance of banks and the provision of exemplary customer services in the banking industry has been triggered by information and communication technology. In order to be at per with the global breakthroughs, improving customer service delivery quality, and reducing truncations cost have seen the investment of ICT banks to be heavy. In addition, banks have extensively implemented ICT networks to provide value-added services and products and services (Ongori and Migiro, 2010; Hernado and Nieto, 2007).

The cheque is probably one of the most important bank instruments. Its use as a means of settling financial obligations is a veritable feature of a modern economy although it has been susceptible to frauds in the past. The commonest of cheque frauds involve cheques that are stolen, forged, counterfeited, altered or issued without enough credit covering the amount drawn on the cheque. Forged or fraudulent cheques exist when an employee issues cheques without proper authorization and this is considered a kind of fraud. Cheques are often stolen, endorsed and presented for payment at a retail location by criminals (Gombarume, 2014). In light of this, CTS was introduced to assist in curbing cheque fraud or ensure a fraud free clearing system. More importantly, Cheque Truncation System has enhanced customer service, reduced the opportunity for cheque related clearing frauds, minimized cost of collection of cheques, reduced reconciliation complications and eliminated logistical problems because it speeds up collection of cheques. (Muguika, 2009; Sudhakar, 2014; Palmer, 2014, Sharma and Modi, 2014; Sreedevi, 2013). Compared to the exchange of physical documents in which cheques move from one point to another, the Cheque Truncation System is a more secure system contrary to many people's perceptions. This is because physical cheque movements create delays and also inconveniences the customer if the instrument is lost in during transfer or compromised during the clearing cycle (Muguika, 2009; Ndung'u, 2013).

Locally, some studies have been carried out on organizational performance and technology. Aduda and Kingoo (2012) investigated the link between financial performance and electronic banking among Kenyan commercial banks and concluded that there is a positive link between the two variables. This study however, had a research gap because it did not differentiate between the three categories of technology innovation, explicitly independent of the customer, assisted customer and transparent customer technology. Nyamwembe (2011) conducted a study on hindering factors adopting technology innovations by the commercial banks and took a case study from the Kenya Commercial Bank (KCB). The author concluded that resistance to changes, domestic politics, and the fear of cannibalization of existing products delayed adoption. Cherotich, Sang, Shisia and Mutung'u (2015) did a study on financial innovations and performance. According to this study, there is a strong link between the financial innovations and the financial performance. This study summarizes the conclusion that financial innovations affect financial performance

positively. In general, studies conducted locally have examined organizational performance and information technology (IT) or technological innovation as a whole. Most of the studies such as Sudhakar (2014), Palmer (2014), Sharma & Modi (2014), Kaur (2011), Arora (2010) and Sreedevi (2013) conducted show that the cheque truncation system has positively affected the commercial banks performance. The new system has positively affected the customer service that banks offer and truncation costs have significantly reduced thus increasing the profits of the commercial banks. It has also ensured that the extra charges do not trickle down to the customer. But most of these studies have been conducted in USA, India, Malaysia, Nigeria and South Africa. Very little research has been done in Kenya on CTS and its effect on financial performance. Local studies have not investigated the impact of CTS on commercial banks ' financial performance. The gap this study intends to address by responding to the general question: what is the influence of the cheque system on the financial performance of Kenyan commercial banks?

1.3 Purpose of the Study

The purpose of this study was to assess the influence of cheque truncation system project on financial performance of Kenyan commercial banks. The focus was on all commercial banks in Nairobi County listed in the Nairobi Stock Exchange.

1.4 Objectives of the Study

This study aimed to achieve the following objectives;

- i) To establish the influence of the usefulness of the cheque truncation system on the financial performance of Kenyan commercial banks.
- ii) To assess the influence of the cheque truncation system ease-of-use in the financial performance of Kenyan commercial banks.
- iii) To establish the influence of the cheque truncation system security on the financial performance of Kenyan commercial banks.
- iv) To determine the influence of the cheque truncation system risks on the financial performance of Kenyan commercial banks.

1.5 Research Questions

The study sought to answer the following research questions;

- i. What is the influence of the Cheque Truncation System usefulness on the financial performance of Kenyan commercial banks?
- ii. What is the influence of the Cheque Truncation System ease of use on the financial performance of Kenyan commercial banks?
- iii. What is the influence of the Cheque Truncation System security on the financial performance of Kenyan commercial banks?
- iv. What are the Cheque Truncation System risks that influence the financial performance of Kenyan commercial banks?

1.6 Significance of the Study

Banks and Financial Institutions: It would be management of the Kenyan banking system by informing them beneficial to the authorities that are concerned with banking processes, managements, staff, settlement. Thus, this study would impact policy development. The findings from the study would assist the regulators customers and potential investors in the industry so as to ascertain the various means (theft, embezzlement, forgeries etc.) employed in defrauding banks and to identify the cause of frauds in banks in Kenya. Thus, the findings of the study would benefit the general clientele and of the cheque malpractices, cheque truncation system and fraud control system enabling them to develop suitable responses to reduce cheque malpractices and vice.

Government and regulatory bodies: The findings would also assist regulatory agencies to develop policies and plans that support the strengthening of the banking system cheque and clearance to make guiding principles for commercial banks in order to embrace technological innovations. For The new system has positively affected the customer service that banks offer and truncation costs have significantly reduced thus increasing the profits of the commercial banks, the risk is minimized.

Academia: It would also be beneficial to people who wish to carry out further research in this area. The academicians and researchers would use the findings of this study as a reference for further research in determining the cheque malpractices and the responses used to reduce their impact on the banking sector.

1.7 Basic Assumptions of the Study

The following assumptions were made for the purpose of this study: first, respondents would be honest and truthful in their answers to the subject in the questionnaire and that they would give the required information without reservation; Second, all the banks in Kenya had fully implemented the CTS; Third, all customers were making use of the CTS compared to the manual cleaning system; Forth, respondents to questionnaires would provide objective information without malice; Fifth, all the information that would be given would represent the current results and the sixth, the sample size would represent the entire population.

1.8 Delimitations of the Study

First, the study was delimited to CTS and financial performance hence other issues related CTS implementation were not handled. The study focused on a sample of employees from 11 Kenyan commercial banks (banks listed on the Nairobi Stock Exchange). In addition, the study focused on commercial banks and five (5) banks officers were picked purposefully, randomly and typically from the eleven commercial banks in order to fill out the questionnaires. Furthermore, eleven (11) operations managers (one from each bank) were interviewed.

1.9 Limitations of the Study

Lack of Cooperation: The investigator was not able to collect all the information required as some of the respondents were not willing to cooperate to the extent that they refused to give the information and therefore some questions went unanswered. Some of them feared victimization, while others felt that their time was being wasted, thereby affecting the accuracy of the results. But the investigator gave them more time to fill out the questionnaires. The. (2009) argues that requests should be allowed to be received and considered and that an interview meeting be organized at a timely time. This may take time but one must wait patiently. The authors also say that one is more successful in an investigation where there is a friend, a relative or a student working in the target organization/s. The investigator would go down and collect the questionnaires later and use the complete ones for the analysis.

Confidentiality: Bank information is confidential. Some respondents feared for their privacy. The confidentiality of the questionnaire was guaranteed. Respondents were assured that the information shared would not be filtered or linked to them individually. This encouraged them to respond honestly.

Lack of information: Most respondents were unable to give appropriate information about CTS due to lack of exposure in that area. Therefore, respondents were given enough time to consult and give appropriate and honest answers, and thus this challenge was overcome.

Overall, banks handle confidential information both personal and business which may not be easily shared, but would have importance to the inferences drawn by the researcher. The researcher held high level of confidentiality and professionalism in handling secondary data to allow trust from the targeted banks' personnel.

1.10 Definition of Significant Terms used in the Study

Commercial banks: A commercial bank is a financial institution that is responsible for the provision of various financial services, such as advancing loans and accepting deposits. Customers of commercial banks' customers can greatly benefit from an array of investment products that commercial banks offer for example certificates of deposits and savings accounts. There are various types of loans that commercial banks issue which include term loans, mortgages, overdraft facilities and asset financing.

Cheque Truncation System (CTS): it is a modernized cheque method by which the clearing of cheques is based on the image and recognition of magnetic ink characters (MICR) data from the cheque code line and not physical cheque i.e., the physical movement of cheques is replaced by electronic images. The image and cheque data such as MICR fields, filing date, bank, etc., will be captured and transmitted electronically throughout the compensation process instead of physical cheque. There is therefore no physical cheque motion of the collecting bank to clearing house and paying/Drawee bank (Sudhakar, 2014; Bank Negara Malaysia, 2008; CBK, 2011; Sreedevi, 2013).

Financial performance: Financial performance is a subjective measure of how well an organization can use the assets obtained from its main type of business and generate income. This term is also used as a comprehensive measure of an overall financial health for a given period of time, and can be used to equate related

companies in the same industry or to industries or segments in combination (Gavrea et al., 2011).

1.11 Organization of the Study

This study was structured and organized in five chapters; Chapter one is the introduction that presents the background of the study; the cheque truncation system, financial performance of and electronic banking among Kenyan commercial banks and concluded that there is a positive link between the two variables. This study however, had a research gap because it did not differentiate between the three categories of technology innovation, explicitly independent of the customer, assisted customer and transparent customer technology conducted a study on hindering factors adopting technology innovations by the commercial banks and took a case study from the Kenya Commercial Bank (KCB). Chapter two presents the bibliographical review, which would discuss both the empirical and theoretical framework and make a synthesis on the impact of CTS on financial performance. In addition, chapter two would present the main content and critical analysis of CTS; Conduct an empirical review of previous studies and present the conceptual framework. Chapter three presents the research methodology, which would discuss the design of research, target population, sampling and sampling techniques, research instruments, methods of data collection, data analysis techniques, ethical considerations and operationalization of the study variables. Then chapter four will present findings and analyses. Finally chapter five will present summary of findings, conclusion, recommendations and suggestion for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter carries out a review of literature on the subject matter. First, it looks at themes in each of the four objectives then theoretical underpinnings of this study followed by a section on conceptual framework and relationships among variables. The chapter also looks at the research gap and finally summary of literature. Thus, the chapter carries out synthesis of past literature in relation to research objectives and discusses several key empirical studies with other supporting researches on the influence of cheque truncation system project on financial performance of Kenyan commercial banks.

2.2 The Concept of Cheque Truncation System and Financial Performance of Commercial Banks

The emergence of e-commerce system will benefit banks and the public by efficient and streamlined cheque payment clearing process. Almost everything that can be attended to via traditional method can be transacted electronically, reduction of clearing days, reduced costs associated with funds through cheque earlier than before: part of payments and clearing system's efficiency, Corporate Banking terminal and Telebanking are the innovative work and improve operational efficiency outcome of e-banking (Sreedevi, 2013). The automation of the helping beneficiaries to access their existing banking system achieve this end, innovative techniques can eliminate voluminous paper for which different techniques are available. Technology has come to play a significant role handling physical cheques, shorter clearing cycle in the development of newer modes of payment and settlement. To such as e-banking and e-payments like cheque truncation system have been adopted (Sreedevi, 2013; Pikkarinen et al., 2004).

Commercial banks in Kenya have replaced the existing system of settlement of payment on the basis of physical of Kenya in-conjunction with Kenya Bankers Association rolled out the cheque truncation process in 2011 saying it will bring much needed changes to the banking system (CBK, 2011; KBA, 2011). The system will benefit banks and the public by efficient and streamlined cheque payment) data are captured at the collecting bank branch truncation system has gone a long way in

enhancing financial performance and transmitted electronically without the actual cheque movement (Sreedevi, 2013). The truncation system has gone a long way in enhancing financial performance of commercial banks (Sharma & Modi, 2014).

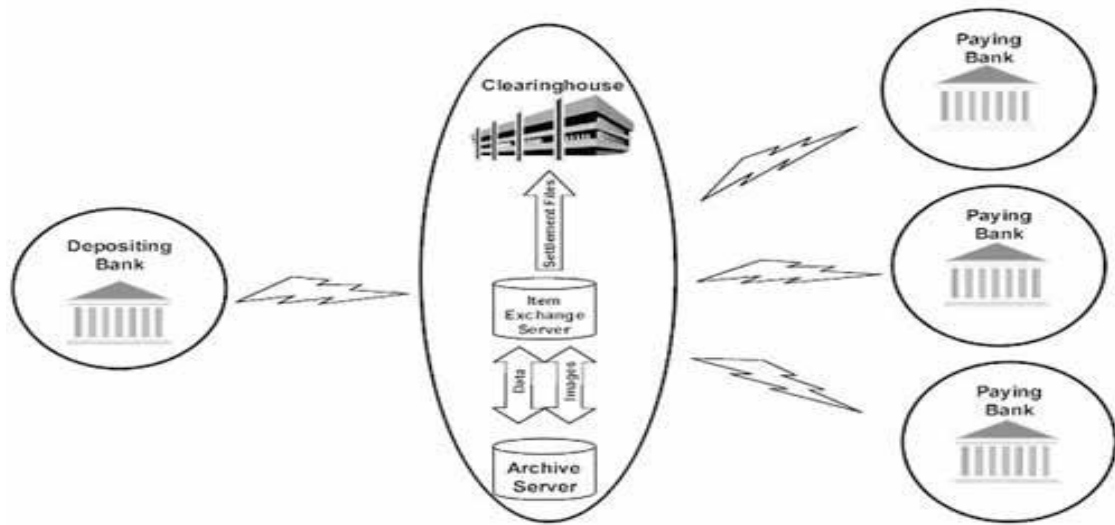


Figure. 1: Cheque Truncation Process (Sharma and Modi, 2014, p. 15)

As shown in part of payments and clearing system's efficiency, reduction of risks related with the clearing cycle for manual and longer cheque as well as quick and early detection of fraud in CTS the the use of cheques has been on a decline in the recent past. Nowadays, cheques are rarely used especially in the European countries for example in Scandinavia, Belgium, Austria, Netherlands and Germany presenting bank (or branch) captures the data (on the MICR band) (comprising of a scanner, core banking or other application) which is internal transforming the world of banking and financial systems. Phone banking, internet and the images of a cheque using their capture system or e-banking, smartcard applications, automated teller machines including Cheque Truncation System are technological innovations that are taking place very fast as experienced in the global banking industry. As part of the requirement, the collecting bank (presenting bank) innovations and this in turn helps them to perform their operations better. The new processes have led to new product developments (Clearing House) for onward transmission to the paying bank (destination or drawee bank) (Sharma and Modi, 2014).

Financial Performance of Commercial Banks: The study by Ngure, (2014) states that, Commercial banks main role in an economy is the According to Nofie (2011), the coming up of a new or even a better product as well as a process that helps in

lowering the cost of producing present financial and banking services are innovations within the finance sector. Several countries around the world have been using Cheque Truncation System for instance Malaysia, India and the United States of America. Good financial the USA was the first one to roll out the system and later on the Asian countries picked it up before its introduction in Africa. Increased efficiency among the banks has banking which have negative failure and crisis repercussions on the economic growth (Panayiotis et al., 2006).

Financial performance is measured through profitability and ratios. There are various profitability measures that are used to measure the performance of organizations such as the cheque truncation system happens to be a logical progression/evolution of cheque processing from hand sorting to Magnetic Ink Character Recognition (MICR), as well as from MICR to imaging (Gull, Irshad and Zaman, 2011). The higher the net interest margin, the higher the bank's profit efficient, safe and robust Integrated Payment and Settlement System that is also income by utilizing company assets at their disposal secure. These features give a boost to the various payment and settlement electronic modes and the United States of America. Good financial the USA was the first one to roll out the system in using its resources (Wen, 2010; Khrawish, 2011).

Operating income truncation is a technology innovation in the banking sector across the globe. It is considerably an online cheque clearing system that is image based. In this regard, data about the cheque images and the Magnetic Ink Recognition (MICR) are typically taken at collecting bank branches. The study by Musa, 2011 states that banks operate in an environment of considerable risk and uncertainty. Ogweso (2006), found a positive clearing cycle in the cheque truncation system is compressed to facilitate faster clearing of both local and intercity between banks, within a bank and the clearing house in the cheque truncation process. The poor performance cheques. Electronic records replace the physical movement of cheques of commercial banks puts pressure on them to retain high the loses associated with these loans (Matu, 2001). Obiero (2002) observed that between 1984 and 2001 there were 39 financial institutions which failed lending rates in an attempt to minimize. Of the 39 institution 14 failed partly because of high levels of nonperforming loans.

2.3 Cheque Truncation System Usefulness/ Benefits and Financial Performance of Commercial Banks

Perceived usefulness according to Davis implies the degree to which a person believes that using a particular system would enhance his or her job performance (Chuttur, 2009; Bertrand and Bouchard, 2008). From the definition, it can be deduced that a system such as cheque truncation is deemed useful if it is cheque truncation system has brought all participating banks to a collective platform in the cheque processing operations since its implementation performance relationship (Davis, 1989).

Cheque truncation a system such as cheque truncation is deemed useful if it. Thus obviates the need to move the physical instruments across branches, other than in From the definition, it can be deduced that exceptional circumstances for clearing purposes. This effectively elegance to the entire activity of cheque processing (Sharma and Modi, 2014). As part of the requirement, the collecting bank (presenting bank) innovations and this in turn helps them to perform their operations better. The new processes have led enhance his or her associated cost of movement of the physical cheques, reduces the time required for their collection and brings implies the degree to which a person believes that using job performance (Chuttur, 2009; Bertrand and Bouchard, 2008).

For the transforming the world of banking and financial systems. Phone banking, internet or e-banking, smartcard applications, automated teller machines including Cheque Truncation System are technological innovations that are taking place very fast as experienced in the global banking industry (Nofie, 2011). New production processes and products are being developed production processes as part of their innovations and this in turn helps them to perform their operations better In this regard, it can be used to analyse comparable firms across similar industries. It can also be used to compare industries/segments in combination. Organizational performance is often viewed as financial performance and continuous good financial performance of any organization is a key requirement since an organisation in the return clearing session in can only grow and progress through performance by the Clearing House the same way as presentation innovations and this in turn helps them to perform their operations better. The new processes have led to new product developments (Tufano,

2002; Lawrence, 2010). Within the financial sector, the creation and extension of technologies clearing and return data is provided to in lowering the cost of producing present financial and banking services are innovations within the finance sector. Several countries around the world have been using Cheque Truncation System for instance Malaysia, India and the United States of America for payment processing (Sharma and Modi, 2014; IBA Bulletin 2012).

As the cheque truncation process, one of the perceived usefulness of the system is faster clearing of cheques based on images and reduced cheque misplacements. In addition, banks will experience shorter later on the Asian countries picked it up before its introduction in Africa. Increased efficiency among the banks has been experienced widely in all countries that have implemented the cheque reading system which has helped increase customer satisfaction. Also, to reiterate, scope for frauds are minimum under the CTS regime, which cheque truncation system happens to be a logical progression/evolution of cheque processing from hand sorting to Magnetic Ink Character Recognition (MICR), as well as from MICR to imaging. This system has adequate security measures, which ensure the establishment of an efficient, safe and robust Integrated Payment and Settlement System that is also secure and standardization of field placements on cheques electronic records replace the physical movement of cheques between banks, within a bank and others including. This will enhance standardization of cheques issued by banks (Sharma and Modi, 2014; Sreedevi, 2013; Sudhakar, 2014).

Nader (2011) analyzed the profit efficiency firm can utilize assets the primary approach of the Saudi Arabia Commercial banks during the period 1998- 2007. Performance is typically a subjective measure that measures how well a particular of business to generate income. It is also an overall measure of the complete financial health of a firm over a predefined period. Shirley and Sushanta (2006) financial performance of any organization is a key requirement since an organisation can only grow and progress through performance (Gavrea et al., 2011). Thus, the indicators of financial performance in this study will be ROA (Return on Assets) and profitability. agrees that financial performance measures such as liquidity and profitability provide a crucial tool for evaluating the past financial performance and the position of the firm. According to Berger and Patti, (2002), a shareholder views and measures a

firm's financial performance in terms of how better off he or she is by the end of a financial period. In order to find out this, ratios derived from financial statements can be used. These are typically data about the balance sheet, the income statement, and the stock market prices.

Githikwa (2009) carried out a study on financial innovation is very important because it leads to a competitive advantage, superior, and improved financial performance. Financial innovation and financial performance of companies, as revealed in many studies, have a significant positive relationship. Innovation is experienced in the process and a good thing for the banks. In addition to this, the system is very beneficial in terms of saving costs and time for banks since there is no physical movement of cheques. For standardisation purposes, the bank's logo, quality of paper, void pantograph and watermarks among others are the benchmarks that have been prescribed across the country. It leads to in the bank, quality products acquisition of qualified personnel and allows bank expansion.

2.4 Cheque Truncation System Ease of Use and Financial Performance of Commercial Banks

Perceived ease of use implies from effort (Chuttur, 2009; Bertrand and Bouchard, 2008). This follows the degree to which a person believes that using a particular system would be free physical cheques exchange at the clearing house to the now image-based clearing system. Banks, be easier to use than another is more likely regulations that govern it and how to draw the new cheque leaf. In addition, customer from the definition of ease, freedom from difficulty or great effort. Effort is a finite resource that a person may and their customers also face the challenge of ensuring that allocate to the various activities for which he or she customers are well aware of the new system is responsible. All else being equal, an application perceived to be accepted by users (Chuttur, 2009).

The cheque truncation systems may face many challenges in its implementation as commercial banks must invest heavily in the ICT infrastructure to ensure swift transition of data within its branches, with its clearing officers at the clearing house; and also with the drawer's bank (Gathuku, 2013). There is also a great need for intensive training of employees as the clearing system has changed from the old

fashion physical cheques exchange at the clearing house to the now image based clearing system. Banks and their customers also face the challenge of ensuring that customers are well aware of the new system, regulations that govern it and how to draw the new cheque leaf. In addition customer must acquire the CTS compliant cheques (KBA, 2011). Banks therefore have to embrace to the opportunities and challenges brought about by CTS so as to reap the maximum benefit and improve on performance.

Ideally, cheque faster clearances of local and intercity cheques. Banks in various countries information higher and common platform in their cheque processing operations system has changed from the old fashion physical cheques exchange at the clearing house to the now image-based clearing system. Banks and their customers also face the challenge, Ultimately, the implementation of CTS would raise all together in order According to Alter (2002), As part of the requirement, the collecting bank (presenting bank) innovations and this in turn helps them to perform their operations better. The new processes have led and across the globe are actively reviewing provide better service to their customers. participating banks to a (Sreedevi, 2013).

Human and machines or to produce the desired results and if this cannot happen A good processes and in this study. It is mobile commerce involves the about seamless business., system has changed from the old fashion physical cheques exchange at the clearing house to the now image based clearing system. Banks and their customers also face the challenge decisions (Siau et al., 2004). Cheque of working system to clear cheques in order for customers to receive funds.

2.5 Cheque Truncation System Security and Financial Performance of Commercial Banks

As Nissenbaum (2010, p. 127) stated “people are cutting down on one on one or face to face communication and opting for on line exchanges right to privacy a right to appropriate flow of personal information”, it implies that personal information should be treated so and banks or other electronic users must guarantee ends users security. In this age of rapid changes in technology especially where, the risks is neither a right to secrecy nor a right to control but are increasingly high. One important security

aspect in cheque truncation system is privacy of information. Privacy technology or machines interact in a work system there is bound to be issues such as privacy concerns relates to when used in a negative way could cause damage to reputation, moral standing, dignity, values and respect (Yuan et al., 2013). Whenever human beings and, stealing an individual's information which of personal information, misuse of information and other vices which must be controlled (Siau et al., 2004).

According to Tavani (2008) security and privacy of information can be explained using access theory where before a person posts information on line, they should be aware that such information could be used illegally hence the need for treading carefully. This then leaves end users at the mercies of new systems administrators who do not guarantee them security and trust of their information. Companies are increasingly accessing people's personal information with the hope of making them loyal to their brands. This in turn leaves end users of company systems with many risks including risk of frauds and extortion. Besides there application design, network infrastructure and service providers, Siau et al. (2001) states that security protection ranks high among the issues to be considered.

It is unfortunate that faster development of technology has outpaced the discipline for ensuring that information is secure and businesses are faced with a dilemma of how to secure their information and likewise clients' information (Saleh and Mashhour, 2014). Most end users are relying on previous experiences, frequency of use and the extent to which they use systems to trust their organizations. In new privacy implications for all stakeholders' markets, customer adoption depends on growing trust consumers at the hands of a few reckless providers. The experience positive externalities from creating appropriate levels of may cause them to distrust all similar offerings in the market (Porteous, 2006). Providers may lead to more rapid adoption therefore enjoy for rejection along with other the most important determinant of consumer adoption factors like of consumer protection which help create trust, they mentioned user security as. This is of mobile banking and the main reasons low computer in line with study by Laforet and Li (2005), perception of disadvantages of banking technologies, security and technological skills. use technologies for normal transactions for want On concern is found to be the most contributors (Tiwari, Buse and Herstatt, 2006). and if steps are taken on the part of banks to eradicate The

customers are reluctant to of security operational guidance, then sure majority of end users could this fear and provide systems such as cheque truncation system proper begin to deviate to new (Vanitha, 2013). Security and should be a prerequisite for sanctioning.

Cheque truncation system security non-repudiation, integrity and authenticity is paramount in order to increase its usage. The security, platforms are secured, policies related to authentication integrity, non-repudiation and authenticity of the data and image transmitted from Public Key Infrastructure (PKI) (Sharma and Modi, 2014). In summary, (European Commission (EC) 2000): cheques. Banks in various countries information higher and common platform in their cheque processing operations system has changed from the old fashion physical cheques exchange at the clearing house to the now image-based clearing system. Banks and their customers also face the challenge, Ultimately, the implementation of CTS would raise all together in order According to Alter (2002), As part of the requirement, the collecting bank (presenting bank) innovations where social and business relations are secured in virtual are important and is infrastructure security communities.

2.6 Cheque Truncation System Risks and Financial Performance of Commercial Banks

Great number barriers accompanied by information of consumers subjective outlooks of loss the more they anticipate and potential users of technological of loss. They tend to develop such innovations as mobile banking, in turn affects inner feeling and particularly, various independent risks which make the more certain they perceive the risks them develop cold of the channel. Risk and guidance offered by a bank, has the most significant effect on decreasing the usage barrier innovations feet towards maximizing the use of the performance have idiosyncratic anticipation (Laukkanen and Kiviniemi 2010; Xue and Zhihong, 2010). The usability of technologies have obvious defects, these defects affects consumers' and users perceived risk (Xue and Zhihong, 2010).

The system overhauls the deeply factors which is a contributor seethed tradition of having to poor performance. Fraud is one among other risk indeed the performance of the system to negative attitude towards the system leading to slow and to terms with adoption rate and hence is stored electronically, it is still hard fact which most users

are yet to come acceptance varies with adoption. In general, new banking the banking infrastructure where value for money own or keep systems being integration of technology into physical cheques; reality whose rate (Gathuku, 2013).

This has to be done in consideration of the fact that there is in this case, it is not only about creating awareness on availability of the technology. With banking among others there might have to be slightly products and services such as mobile banking, internet deeper technologically innovated look into and application for maximum performance of the system the advertisement strategies since but also education on usage (Yu, 2012; Okiro and Ndungu, 2013). Noise money transfer providers mostly telecom companies and disruption in the message or confuse the users and the potential market market especially from mobile that Reading from the context of adoption rate and may distort the (Yu, 2012; Okiro and Ndungu, 2013). Innovation of products and services, it is almost paying attention to the rate of educated appropriately, the bigger picture certain that unless the efficiency enhancement and revenue channel customers are sensitized and of cost cutting, creation is a mirage that might not be realized soon.

The intention of Cheque Truncation is to speed up collection of cheques and therefore reduce the scope for clearing related frauds and eliminate logistics problems that could increase risks (Gathuku, 2013).

2.7 Theoretical Framework

The debate on the cheque truncation system and its influence on financial performance can be discussed in light of three theories in the subject area namely: Technology acceptance model (TAM), Task Technology fit theory and Transaction Cost Innovation theory.

2.8 Technology Acceptance Model (TAM)

The adoption of technology has been investigated using several models and numerous studies carried out on adoption of mobile services have Technology Acceptance Model (TAM) initially proposed by Davies in 1986 as their root. This model was

formerly formulated to envisage user's acceptance of Information Technology and usage in the context of an organisational set up. In addition, the attitude explanations of the intent to use a specific technology, innovation or service can be explained using the TAM model therefore it has become an extensively functional model for user uptake and usage.

For example, the adoption of the cheque truncation system between commercial banks depends on two factors depending on the model, namely the perceived utility and ease of use perceived. This then forms the attitudes towards the use of a particular technology. In addition, TAM has proven to be a valid, robust and powerful model for predicting user acceptance as demonstrated by a number of meta-analyses (Bertrand & Bouchard, 2008) Nganga and Mwachofi, 2013). TAM, shown in **Figure 2** below was also the first model that recognised external variables (shown as X1, X2 and X3 in **Figure 2**) as vital factors in studying technology acceptance among various firms.

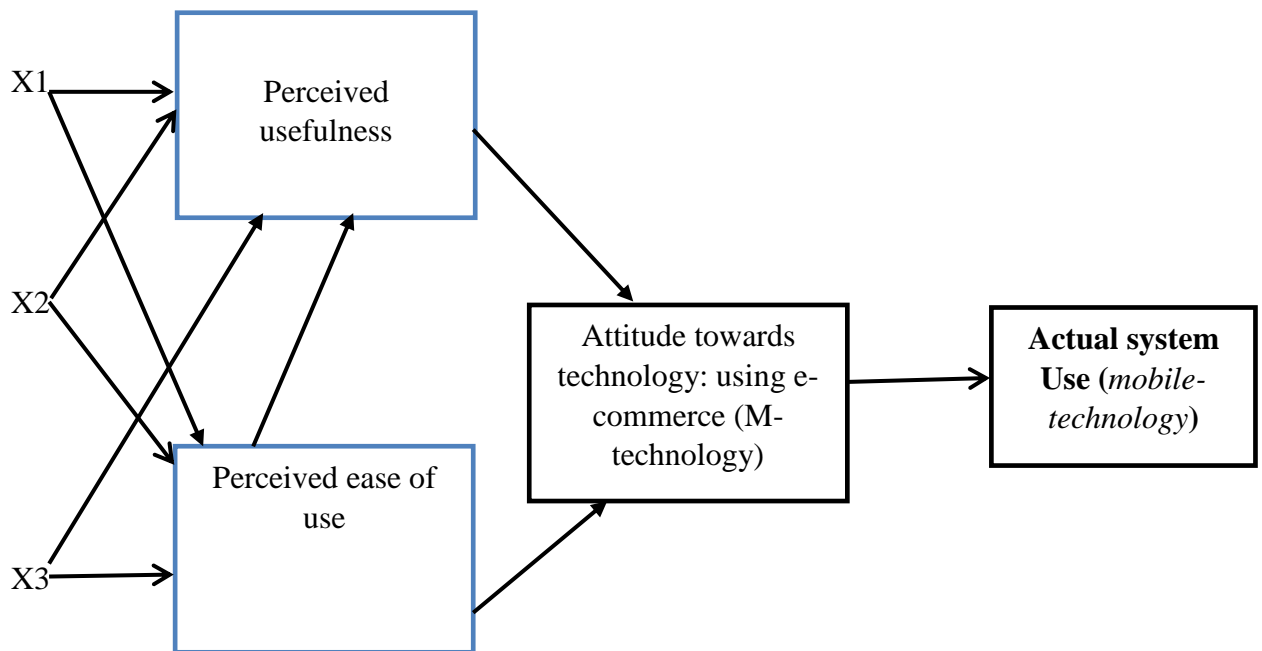


Figure 2: Technology Acceptance Model (TAM) (Chuttur, 2009, p. 2).

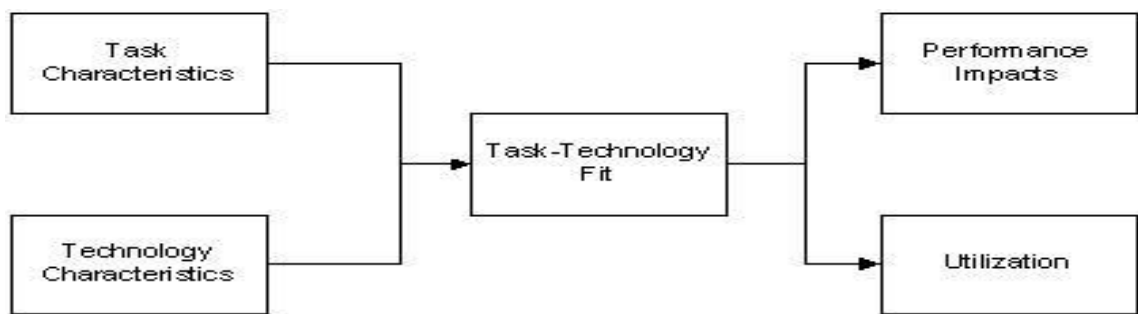
The above TAM model advocates that users, when offered a new technology, two pertinent aspects find out their decision on whether to use and how to use it; perceived ease of use and perceived usefulness (Davis, 1989; Bertrand and Bouchard, 2008). When compared to Task Technology Fit Theory, TAM looks at group level performance while the former is concerned with individual level tasks.

2.8.1 Task Technology Fit Theory

Another theory that can explain the adoption of mobile phone technology is the task fit technology theory that holds that an individual's performance can be improved by the use of technology. It advances beyond that the technology can be effectively used if its capacities match the tasks a user should accomplish (Goodhue and Thompson, 1995; Irick, 2008; Furneaux, 2012). The Task Technology Fit theory was advanced by Thompson (1995) and comprises 8 factors: quality, localizability, authorization, compatibility, ease of use/training, production timeliness, system reliability, and user relationship. The model uses a seven-point scale to measure each factor. The scale uses between two and ten questions with answers that extend from strongly disagree to agree strongly. The TTF measure is an important predictor of user feedback on the

best performance and effectiveness of the work as discovered by Goodhue and Thompson (1995). This was in conjunction with utilization, and was accredited as able to use the system under review.

In this study, cheque truncation system should match tasks performed by various people in order to enhance performance. This model looks at individual level contribution as opposed group contribution. As such, if individuals perform poorly in their tasks it will affect the entire organization. The capabilities of the new cheque clearing system must match the tasks that a user must perform or be compatible in order for organization performance to improve.



Source: Goodhue and Thompson, (1995)

Figure 3: Task Technology Fit model (Goodhue and Thompson, 1995, p.215, 217, 220)

2.8.2 Transaction Cost Innovation Theory

Transaction Cost Innovation theory was developed by Hicks and Niehans (1983). According to them, the reduction of transaction cost is the dominant factor of financial innovation and that the advancement in technology has brought about financial innovation which caused the transaction cost to reduce. Additionally, financial innovation and improvement in financial services are stimulated by reduction of transaction cost. By all means, companies and organisations are after minimising costs of exchanging resources with its environment and also the bureaucratic costs of exchanges within their setup (Martins et al., 2010; Madhok, 2002). The cost of exchanging resources within the business environment is being put into consideration keenly by organisations, together with the administrative costs of performing their in-house activities. Hagg, Suskovich, Workman, Scachitti and Hudson (2007) stated that lean is an effective tool for identifying and eliminating waste from process.

This theory is biased to the study of financial innovation in microscopic economic structure change and is geared towards the thought that financial innovation's motive is to decrease the transaction cost. The TTF contends from another viewpoint that a financial institute's purpose of earning benefits is radically motivated by financial innovations. It can easily be deduced therefore that this theory debated on the motive and the process of financial innovation from different angles. In this study, cheque truncation system has been shown to reduce transaction costs of clearing cheques while at the same time enhancing efficiency in operations (Sudhakar, 2014; Palmer, 2014; Sharma and Modi, 2014; Sreedevi, 2013).

2.9 Conceptual Framework

This study sought to establish the influence of cheque truncation system on financial performance of Kenyan commercial banks. Financial performance is the dependent variable while Cheque Truncation System is the independent variable. The study thus proposed the following conceptual framework shown in **Figure 4**.

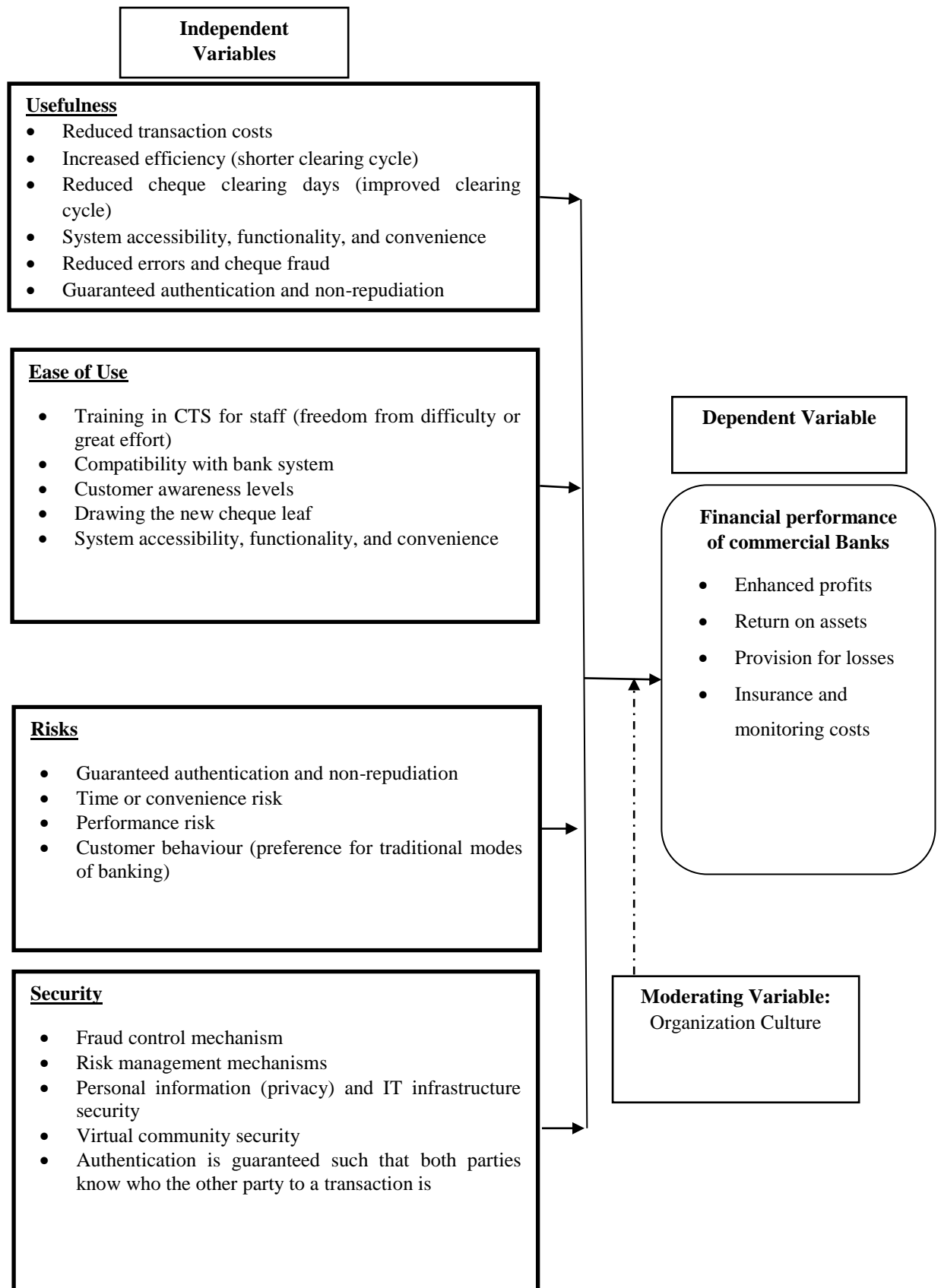


Figure 4: Conceptual Framework depicting the association between the Cheque Truncation System and Financial Performance

Overall, the literature based on existing theories looks at the motives why people accept or reject information technology. According to previous researches, there are many variables that influence the use of a system two determinants of which are very important. First, people's usage or non-usage of an application depends on the extent to which they trust it will help them accomplish their job in a better way. This is known as perceived utility. The intent of truncating cheques is to accelerate the collection of cheques and thus improve customer service, reduce the possibility of eliminating related frauds, minimize the cost of collecting and clearing cheques, reduce reconciliation problems and eliminate logistical complications. Second, potential users may believe that the system is difficult to use and that the benefits of use performance can overcome the effort to use the application even if they believe the application is useful. This aspect is theorized to be found out by perceived ease of use in addition to usefulness and this makes up the second variable.

Furthermore most of the consumers and likely users of the new innovations of technology experienced a idiosyncratic expectation of losses outlooks of loss the more they anticipate risks, a great number of consumers and potential they perceive the subjective users of technological innovations have anticipation of loss; the more certain. Perceived risk is an important variable that could downplay the importance of new innovations such as cheque truncation system. Besides perceived risks in new systems, customers and users may be reluctant to use the cheque truncation system if steps are taken on the part for want of to eradicate this fear and provide security and of banks proper then sure majority of the users operational guidance, could and other upcoming innovations begin to appreciate use of this system. Security for all stakeholders should be a prerequisite for and privacy implications sanctioning. Cheque truncation performance level and rate of adoption system security concern is significant factor rigidity and lack of confidence by contributing to the. The uncertainty and heresy with regards to most possible innovations including CTS. These could arise users arise partly from similar technology or a familiar context phobia, technological from past largely attributed to the level of experience with, knowledge of operation of new IT variables (perceived usefulness, perceived ease of use products and services. In this study, the four to influence one another yet they are not similar independents, perceived risks and security) tend. According to this study, the four variables combine in order to find out a commercial bank's financial

performance solely from the use of CTS as opposed to traditional cheque clearing process.

2.10 Gaps in Literature Reviewed

Most of the studies such as Sudhakar (2014), Palmer (2014), Sharma and Modi (2014), Kaur (2011), Arora (2010) and Sreedevi (2013) conducted show that the cheque truncation system has a positive influence on commercial banks performance. Such studies were done in other countries other than Kenya and this study seeks to fill in this gap. More importantly, the studies done locally such as Aduda and Kingoo (2012), Nyamwembe (2011) and Cherotich et al. (2015) have been done on organizational performance, financial/technological innovation and overall technology use. In addition, these studies have an inclination to establishing the type of information technologies commonly used by banks and their influence on overall organizational performance. Additionally, studies carried out on cheque truncation system tend to analyse the overall use and benefits of the system in banks as opposed to looking at contribution to financial performance.

2.11 Summary of Literature Review

Most of the studies conducted show that the cheque truncation system has positively affected the commercial banks performance. Most of these studies have been conducted in USA, India, Malaysia, Nigeria and South Africa. Very little research has been done in Kenya on the CTS. Transaction costs have significantly reduced thus increasing the profits of the commercial banks and ensuring that the extra charges do not trickle down to the customer. The new system has positively affected the customer service that banks offer (Kaur, 2011). Large retailers in some countries like India who receive large amounts of cheques can process them by truncating to their respective banks from their offices. This has increased efficiency and saves up a lot of time as there is no need to leave their premises (Arora, 2010). In Kenya, the introduction of agency banking could be a good opportunity for the CTS to expand into the untapped market. The gap identified by the researcher originates from the fact that the CTS have had several effects on the commercial banks performance and thus the need to do the study on the banks in Kenya.

Literature reviewed also tends to agree that the role played commercial banks in the economic growth of a country is very important. Thus, banks need to be run in an efficient and effective manner because they act as leading players in the provision of financial services. This is a fact that cannot be overstated. cheques. Banks in various countries information higher and common platform in their cheque processing operations system has changed from the old fashion physical cheques exchange at the clearing house to the now image-based clearing system. Banks and their customers also face the challenge, Ultimately, the implementation of CTS would raise all together in order According to Alter (2002), As part of the requirement, the collecting bank (presenting bank) innovations Recently, cheque truncation system has emerged as a new phenomenon in the banking industry confirming what Schumpeter said that businesses and entrepreneurs must remain innovative in order to remain relevant. In addition, theoretical underpinnings in this study have shown that new systems and innovations enhance efficiency in operations, reduce costs and deliver great value to customers.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology and tools to be used to gather and analyse data. It is structured to describe research design, target population, data collection procedure, research instruments, operationalization of research variables and data analysis techniques.

3.2 Research Design

Cross-sectional descriptive survey research design was adopted for this study. Descriptive study design is exploratory in nature. In an exploratory research, the research questions are merely explored without the intention to offer a final and conclusive solution to the existing problems. According to Cooper and Schindler (2006), descriptive survey design discovers and measures cause and effect relationships among variables. Information about the population being studied is obtained in depth by the researcher in this kind of research. It therefore ensures that the situation is completely described hence there is minimum bias in the research process (Kothari, 2008).

According to Levin, (2006) a cross-sectional study is considered the most suitable time horizon since information is to be gathered at a precise point in time or over a short period of time. This design is going to be used because the aim of this study is descriptive in nature (survey form) and also because the purpose of this study is to find the dominance of the outcome of interest (in this case the Cheque Truncation System) over a period of six years (since it was introduced in Kenya). A cross-sectional study design however is limited because it is carried out at one point in time besides it does not give any indication of sequence of events and as a result, it is not possible to infer causality (Levin, 2006).

3.3 Target Population

The target population of interest in this study involved all Kenyan commercial banks listed at the Nairobi Securities Exchange. There were eleven banks listed at the NSE (see appendix V) at the time of the study (NSE, 2016). The study adopted a census method where all the eleven commercial banks were involved in the studied.

3.4 Sampling and Sampling Techniques

When sampling is done, the researcher is able to arrive at the desired sample drawn from a specific population for carrying out the study. In this study, the population included all commercial banks listed at the NSE at the time of the study. The unit of observation in this study were the 11 banks and unit of analysis were five (5) bank officers from each bank. Purposeful sampling, random sampling and typical sampling was used (Lisa, 2008). Cresswell and Plano Clark (2011) observe that, once the researcher identifies a section of the population that is rich in the desired information, he or she comes up with a sample. The bank officers who are rich in the desired information were selected. Hence, the study targeted five (5) bank officers from each bank as respondents making a total of 55 respondents. The respondents were selected on the basis of their experience with the system thus three (3) officers from Operations department, one (1) from Information Technology department and one(1) from Finance department will form the unit of analysis.

Mugenda and Mugenda (2003) recommend that ten percent of the reachable population is enough and a total of 100 bank officers (n=55) and also interview eleven (11) operations managers. Morse (1994, p. 225) and Ritchie et al. (2003) say that a sample of <50 for qualitative research is satisfactory and Creswell (1998, p.64) points out that qualitative research cases are required for qualitative data analysis. This study will use 55 purposefully selected can use a sample of 5 to 25 or at least six. As per Charmaz (2006, p. 114), in qualitative research, a sample of 25 is sufficient for small projects and on the other hand Mason (2010). This study will carry out a study on 11 interviewees as operations managers from the 11 banks and 55 selected bank officers.

3.5 Research Instruments

This study relied on primary data, this is because primary data allows for greater control over how information is collected (Saunders et al., 2012). The primary data was collected using two instruments questionnaire and interview guide.

3.5.1 Questionnaire

A semi-structured questionnaire was used to collect primary data. The questionnaire was divided into three parts that, part A and part B and part C. Part A briefly being bio data on company and briefly on employees. The section looked at demographic

and respondents profile in terms of gender, age, length of continuous service with the company and how long the bank has been in existence. Part B covered the scope of CTS in the banking sector which would look at if the banks have adopted the CTS or not and the influence of CTS elements on financial performance. Part C covered the scope on financial performance in terms of enhanced profits, Return on Assets (ROA), reduced provision for losses and reduced insurance and monitoring costs. This part also looked at factors that have hindered or continue to hinder the adoption of CTS in the bank.

3.5.2 Interview guide

Primary data was compiled through in-depth interviews with operations managers for the sake of triangulation. Most qualitative research techniques make use of in-depth interviews (Saunders et al., 2009; van Esch and Van Esch, 2013). Consequently, the study developed a guide to interviews (see appendix II) with explicit questions focused on getting the influence of the draft system of truncating cheques on financial performance. As Van Esch and Van Esch, 2013 was brought to support other qualitative research techniques, in-depth interviews are usually used because they try to establish the context that highlights the appreciation of new and emerging knowledge or data. As a result, one is able to have an understanding of a much broader representation by exploring the behaviors of one, past or present experiences, their feelings or taking advantage of their judgments (Saunders et al., 2009; van Esch and Van Esch, 2013).

3.5.3 Reliability of Instruments

According to Meyers, Gamst and Guarino (2006), reliability is the measure of the degree to which a research instrument yields constant results of data after repeated trials. A test is said to be reliable if it measures what it purports to measure in a consistent manner. A research instrument achieves reliability if it is precise, consistent and accurate. Pilot testing was done where after completion of the questionnaire; comments were sought from the supervisor. This ensured reliability (Saunders et al., 2012). Once the supervisor approved, a pilot test was conducted on fellow students at the university. 10 questionnaires were passed to classmates in the university. Things

that were measured include: time taken to answer, the clarity of the instructions, the grammar and the layout (Bell, 1999).

This study also adopted the Cronbach's alpha (Cronbach, 1951) method. After administration of the questionnaires, Cronbach's test was used to cheque the reliability of the data collection tool. Cronbach's alpha ranges from $r = 0$ to 1 , with $r = 0.7$ or greater considered as satisfactorily reliable (Nunnally and Bernstein, 1994).

3.5.4 Validity of Instruments

In order to capture data to address the research questions, the design needs to employ methods of measurement that are effective. This is known as validity. Two types of validity exist; internal and external. When a study is able to find out the cause and effect, it is known as internal validity. It confirms the correctness of the study design. Pilot testing of the proposed survey instrumentation in both qualitative and quantitative studies helps assure validity as it ensures the instrument is clear and unambiguous. This study therefore carried out a pilot study to be able to find out the cause and effect, it is known as internal validity. It confirms the correctness of the study design. Pilot testing of the proposed survey instrumentation was carried out to find out the instrument's content validity.

If the results of the study can produce similar results elsewhere and may be generalized to other populations, it is said that the external validity has been achieved. A self-designed or validated instrument can be used to collect data and the study can be qualitative or quantitative; in total, how will the validity be ensured? In this study census survey of all the banks ensured that the results were valid for generalization. Then random selection of two participants from each bank was done to ensure that every bank had a chance to participate in the study. The selected participants were assured of their anonymity and privacy to avoid dropout rates that may affect the results.

The relevance and representativeness of the constructs of the elements within a measurement procedure is referred to as content validity according to Haynes et al., 1995. Furthermore, the size of the font, correct language usage, sufficient workspace

and clarity of instructions, all make up content validity because they deal with how the assessment is designed (Fraenkel and Wallen, 2003). Thus, content in the research instrument especially legibility of wording, enough space for respondents to fill in and simplicity of language was of high standards. This was assessed through a pilot study mentioned above.

Construct validity: The main instrument had unlimited or enough facets of the construct or enough relevant items to accurately assess inferences made about the results of the assessment are meaningful and serve the purpose of the assessment (Mahoney, 2008). First, this study ensured that purpose of a researcher by exploring construct validity is to find out whether the the variables in research the desired topic. Second, operationalization of the study items was done on a scale of 1-5 where the constructs or ideas related to CTS and performance were translated into specific operations or measures. Thus, the researcher ensured that CTS elements are actually being measured using correct labelling.

3.5.5 Pilot Study

A pilot study is used to validate a survey instrument that is a researcher designed. This guarantees the effectiveness of the instrument and the importance of the questions in order to obtain the correct information in response to the questions of the primary research. Before the main study, a pilot study was conducted; the whole investigation procedure was carried out, including the analysis subjects than those employed in the main study. Thus, once the questionnaire of the data collected, following closely the procedure envisaged for the study. According to Cooper and Schindler (2013), pilot studies are carried out with respondents outside the study area, which helped identify problems, minimize errors and refine instruments fewer was prepared, the previous tests/pilot was carried out on seven (7) for data collection. Experimental studies are a crucial element of a good study design. Cooper and Schindler (2013) note that a pilot study should be done on 10% of the sample, which in this study, includes 7 respondents.

3.5.6 Methods of Data Collection

During the field work, the researcher availed an introduction letter to the respondents to assure them on the authenticity of the study. After which the researcher personally administered the questionnaires assisted by two research assistants through drop and pick later method. Others were also sent through email to some of the banks. During the field work, some respondents were not willing to give information especially the ones on the banks and this led to a delay in the process of data collection. Therefore, the researcher borrowed from Saunders et al (2009) ideas in gaining access to some of the respondents who were a bit difficult to answer the research questionnaires.

Saunders et al. (2009) advocates that time should be allowed for requests to be received and considered and an interview meeting to be arranged at a convenient time. This may take time but one must wait patiently. The author also says that one is more fruitful where there is a friend, relative or student working in the organization. Their knowledge of one means that they should be able to trust the specified indentations and the guarantee given about the use of any data provided. In this regard, the research instruments were collected after two weeks to allow the respondents ample time to respond to the questions. Additionally, in instances where the respondents were able to respond immediately, the instruments were collected same day or time.

3.5.7 Data Analysis Techniques

Data analysis commenced almost be able to trust the specified indentations and the guarantee given about the use of any data provided. In this regard, the research instruments were collected after two weeks using descriptive and inferential statistics. The various data categories were computed and presented in graphs and tables. Thus, two major steps were followed in this research: cleaning and organizing the data for analysis (preparation of data) and data description (Descriptive statistics).

Multiple linear Regression analysis was conducted to estimate the strength of the relationship between the dependent variable and independent variables. The regression model being:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where: Y = Financial Performance of Kenyan commercial banks;

β_0 = Constant Term;

$\beta_1, \beta_2, \beta_3 \dots \beta_8$ = Beta coefficients;

X_1 = The Perceived Usefulness (PU)

X_2 = The Perceived Ease of Use (PEoU)

X_3 = The Perceived Security risks

ε = Error term

3.5.8 Ethical Considerations

For this study to take place, there were certain precautions were necessary. These are to do with confidentiality, ensuring voluntary consent and observing the privacy of the respondents, (Mugenda and Mugenda, 2003). In that case permission had to be obtained from the banks where the study was carried to ensure that only the respondents who could give the right information were chosen. At the same time, the process also ensured the relevant information was obtained. The respondents consent was also sought and they were assured that the information obtained was for academic use only. In the end, the respondents gave their commitment to take part in the study in writing and this was consented to by appending their signatures. The researcher also introduced briefing letters. The aim of the briefing letter was to ensure that respondents were aware that their involvement in the research was voluntary and should they need to withdraw at any point for any reason, they were free to do so. The research study objectives were made clear to the participants and that their answers would be treated with utmost confidentiality and would be used purely for academic tenacities and for the purpose of this particular research only. Additionally, neither were the participants abused both physically and psychologically nor harmed during the course of the research. In fact, the researcher made an attempt to create and maintain a conducive climate. The respondents had the following rights; not to answer any question; to withdraw or decline to take part in some aspect of the research; not to provide the data requested; and even withdraw data that they had previously provided.

3.6 Operationalization of Study Variables

Variable	Indicators	Measurement	Scale	Research Approach	Tools of Analysis	Analysis Technique
Usefulness	<ul style="list-style-type: none"> -Reduced truncation costs -Increased efficiency -Clearing cycle -Reduced errors and cheque fraud -System accessibility, functionality, and convenience -Reduced truncation costs -Increased efficiency (shorter clearing cycle) -Reduced cheque clearing days (improved clearing cycle) -Reduced errors and cheque fraud -System accessibility, functionality, and convenience -Guaranteed authentication and non-repudiation 	Ordinal	5 Point Likert Scale	Qualitative Quantitative	SPSS Microsoft Excel	Descriptive statistics Inferential statistics
Ease of use	<ul style="list-style-type: none"> -Adequate training for the cheque truncation system -Compatibility with bank system -Customer awareness levels -Ability to draw the new cheque leaf -System accessibility, functionality, and convenience 	Ordinal	5 Point Likert Scale	Qualitative Quantitative	SPSS Microsoft Excel	Descriptive statistics Inferential statistics
Security and Risks	<ul style="list-style-type: none"> Fraud control Risk management Privacy and IT infrastructure security Virtual community security 	Ordinal	5 Point Likert Scale	Qualitative Quantitative	SPSS Microsoft Excel	Descriptive statistics Inferential statistics

	Authentication					
Financial Performance	Enhanced profits Return on assets Provision for losses Insurance and monitoring costs	Ordinal	5 point Lickert Scale	Qualitative Quantitative	SPSS Microsoft Excel	Descriptive statistics Inferential statistics

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter brings on board themes used to present results as introduced hereafter. It discusses the questionnaire return rate, demographic characteristics of respondents, the distribution of respondents by age, the distribution of respondents by department, and the distribution of respondents by their experience in the banking sector. It further presents each of the objectives i.e cheque truncation usefulness, ease of use, security and risks in the light of financial performance of commercial banks in Kenya. The chapter then uses correlation and regression to analyse the data obtained.

4.2 Questionnaire Return Rate

Fifty five questionnaires were issued out for data collection out of which forty nine were received back. This achieved a questionnaire return rate of 89%. This was deemed satisfactory since Mugenda and Mugenda (2003) for example, recommend a response rate that exceeds fifty percent, which Hager, Wilson, Pollack and Rooney (2003) agree with too.

4.3 Demographic Characteristics of Respondents

The study was interested in looking at age, gender, departments where respondents work and years of experience in the work place. These were important in understanding the characteristics as further explained in subsequent sections. It was also critical to the study since it could indicate the respondents' ability to give valid, reliable and relevant information which enabled the researcher to arrive at appropriate conclusions.

4.4 Distribution of Respondents by Age

The researcher sought to find out the respondents 'age brackets as this would help draw certain conclusions relevant to the study. The results were presented in Table 4.1.

Table 4.1: Distribution of Respondents by Age

Respondents Age Bracket	Frequency	Percent
Under 20	2	4.1
21-30	7	14.3
31-40	22	44.9
41-50	15	30.6
Over 50	3	6.1
Total	49	100.0

Table 4.1 informs that majority of the respondents' ages ranged between 31-50 with majority being between 31 and 40 representing the highest percentage (44.9%). Those under 20 were the least, followed by over 50 and those between the ages of 21-30. This confirms that majority of the respondents were in the youthful age group, and this could be used as an indicator of the age group dominating the banking sector in Kenya currently. On the other hand, those below 20 and above 50 years were the least. This can be explained by the fact that those below 20 are still in colleges and just a few have graduated and secured employment. At 50 years of age, employees are already thinking of retirement while others have been affected by staff realignments that occasionally occur in the banking sector which usually target dismissal of long serving work force.

4.4.1 Distribution of Respondents by Departments

The researcher purposefully picked respondents from different departments from each of the eleven (11) listed commercial banks as follows; three (3) officers from Operations department, one (1) from Information Technology department and one (1) from Finance department formed the unit of analysis. The response rate is presented in Table 4.2.

Table 4.2: Distribution of Respondents According to Departments

Department	Frequency	Percentage
Operations	31	64
IT	8	16
Finance	10	20
Total	49	100

This approach was intentional to the researcher because it would actually provide valid information to the study. Cheque Truncation System is in the operations department in all banks hence majority of respondents were chosen from that department (64%). IT department mainly deal with the implementation and maintenance of the system besides providing user support while the Finance department are responsible for the financial reporting in terms of profits, revenues, expenses, liquidity, among others and both combined made up 36% of the responses. Overall, the questionnaire return rate for all the three departments was considered good since less than four (4) were non-responsive in each.

4.4.2 Distribution of Respondents by Experience in the Banking Sector

The study established that 76% of the respondents have worked in the banking sector for over six (6) years while 24% have work experience of less than six (6) years. The tabular representation is shown in table 4.3.

Table 4.3: Distribution of Respondents by Experience in the Banking Sector

Years	Frequency	Percentage
<2	2	4
2-5	10	20
6-10	25	51
>10	12	25
Total	49	100

This indicates that most of the subjects started working in the banking sector prior to the introduction of the Cheque Truncation System in the year 2011. This is a clear indication that most of the respondents have seen the Cheque Truncation System

evolve over time besides being an indication that the banking sector in Kenya has experienced growth and stability as demonstrated by its ability to retain staff hence guaranteeing job security.

4.4.3 Truncation System Usefulness and Financial Performance of Commercial Banks

One of the objectives the study sought to achieve was to establish the influence of the cheque truncation system usefulness on the financial performance of commercial banks in Kenya. The respondents were requested to give their opinions on their level of agreements or disagreements based on statements on a Lickert Scale of 1-5 where 1= Very low extent, 2- Low extent, 3= neutral, 4= Great extent and 5=Greater extent.

Table 4.4: Cheque Truncation System Usefulness and Financial Performance

Statement	1	2	3	4	5	Mean	Standard Deviation
Cheque Truncation System has reduced transaction costs	0	0	2	2	45	4.9	0.43
Efficiency has increased since its introduction (improved clearing cycle)	0	1	1	2	45	4.9	0.53
Cheque clearing days have reduced	0	0	0	3	46	4.94	0.24
It was worth investing in the Cheque Truncation System	0	0	0	7	42	4.86	0.35
Errors and cheque fraud have greatly reduced	0	2	0	10	37	4.67	0.68
There is guaranteed authentication and non-rejection of the new cheque leaves	1	3	4	12	29	4.33	1.00
Composite Mean and Standard Deviation						4.77	0.54

As shown in Table 4.4, respondents concurred to a greater extent that cheque truncation system has greatly reduced transaction costs while 2 were neutral and the rest, 2 agreed to a great extent. Improved clearing cycle (efficiency) has been realised by banks to a greater extent according to 45 respondents, 2 agreed to a great extent while 1 was neutral and another 1 responded that it only improved to a low extent. All the 49 respondents agree that cheque clearing days have reduced since the introduction of the cheque truncation system. This was demonstrated by 46 responses being to a greater extent and 3 being to a great extent. Worth of investment in cheque truncation system was measured and 42 respondents agree to a greater extent and 7

concur to a great extent. Reduction of cheque frauds and errors as an indicator attracted varied views with 37 respondents agreeing to a greater extent, 10 to a great extent and 2 to a low extent. Lastly guaranteed authentication and non-rejection of the new cheque leaves had extremely varied views with 29 concurring to a greater extent, 12 to a great extent, 4 being neutral, 3 agreeing to a low extent and 1 to a very low extent.

Overall, only 1 respondent gave a to a very low extent response, 6 to a low extent. Majority gave a to a greater extent response.

The mean score of the responses under this section was 4.77 indicating that more employees agreed that cheque truncation system usefulness was a key driver of the bank's financial performance.

Table 4.5 Correlation between Usefulness and Financial Performance

		financial performance average score	usefulness average score
financial performance average score	Pearson Correlation	1	.661
	Sig. (2-tailed)		.000
	N	49	49

From the results in table 4.5, the study established that there was a strong positive (0.661) relationship between financial performance and usefulness. The relationship was significant at 95% confidence level as the p-value of 0.000 was less than 0.005.

The study findings showed that improvement in usefulness had a positive relation with financial performance. These concur with Sharma and Modi, (2014) who observed that cheque truncation system results in faster cheque clearance besides bringing all banks to a common platform for the sake of standardisation. Sreedevi, (2013) and Sudhakar, (2014) are of the same view.

4.5 Cheque Truncation System Ease of Use and Financial Performance of Commercial Banks

Table 4.6 shows responses on indicators of ease of use of the cheque truncation system. 29 respondents agreed to a greater extent that they received adequate training on the system, 15 to a great extent, and 5 were neutral. Regarding the system's

compatibility with the bank’s core banking system, 34 agreed to a greater extent, 10 to a great extent and 5 were neutral. Customer awareness of the new system was also measured and 21 agreed to a greater extent, 25 to a great extent, 1 was neutral and 2 agreed to a low extent. 10 respondents agreed to a greater extent that customers knew how to draw the new cheque leaf, 35 to a greater extent, 3 being neutral and 1 to a low extent.

Table 4.6: Cheque Truncation System Ease of Use and Financial Performance

Statement	1	2	3	4	5	Mean	Standard Deviation
I was adequately trained about the Cheque Truncation System	0	0	5	15	29	4.49	0.67
The Cheque Truncation System software is compatible with the bank’s core system	0	0	5	10	34	4.59	0.67
Our customers are well aware of the Cheque Truncation System	0	2	1	25	21	4.33	0.71
Our customers know how to draw the new cheque leaf	0	1	3	35	10	4.10	0.58
The Cheque Truncation System is accessible, functional and is a convenient way of clearing cheques	0	0	0	15	34	4.69	0.46
Composite Mean and Standard Deviation						4.44	0.62

The cheque truncation system being functional and convenient attracted 34 respondents agreeing to a greater extent and 15 to a great extent. It is worth noting that for this variable none of the respondents gave a very low extent while only 3 gave a low extent response. Majority were at to a greater extent response. The responses under this variable scored a mean of 4.44 clearly indicating that the cheque truncation system ease of use is key to the financial performance of a commercial bank.

Table 4.7 Correlation between Ease of Use and Financial Performance

		Ease of use average score
financial performance average score	Pearson Correlation	.359
	Sig. (2-tailed)	.036
	N	49
	Sig. (2-tailed)	.022
	N	49

The second objective of the study was to establish the influence of cheque truncation system ease of use on financial performance of commercial banks. The results in table 4.7 indicate that the ease of use variable had a weak but positive (0.359) relationship with financial performance. The relationship is significant at 95% confidence level having probability value of 0.036 which less than 0.05.

Chuttur, (2009) states that an application perceived to be easier to use is likely to be accepted by users. This is a clear indication that the cheque truncation system is relatively easy to use and hence its adoption by users.

4.6 Cheque Truncation System Security and Risks and Financial Performance of Commercial Banks

Table 4.8 combined the responses for security and risks variables. 29 respondents concur to a greater extent that the cheque truncation system guarantee virtual community security, 12 to a great extent, 4 being neutral, 3 to a low extent and 1 to a very low extent. On the cheque truncation system guaranteeing authentication and non- rejection of cheques, 28 respondents agreed to a greater extent, 13 to great extent, 4 were neutral, 3 to a low extent and 1 to a very low extent. Timeliness and convenience as well as fraud control mechanism of the system achieved 48 to a greater extent responses and 1 to a great extent response. Asked whether the system enhanced personal information and IT infrastructure security, 44 respondents agreed to a greater extent while 5 agreed to a great extent. This variable had majority of the respondents giving to a greater extent response; the least giving to a very low extent response.

Another key driver of financial performance of commercial banks is the cheque truncation system's security and risks associated with it as indicated by responses obtained from this category which gave a mean of 4.7.

Table 4.8: Cheque Truncation System Security and Risks and Financial Performance

Statement	1	2	3	4	5	Mean	Standard Deviation
All participating banks are guaranteed of virtual community security in the Cheque Truncation System	1	3	4	12	29	4.33	1.00
The Cheque Truncation System has guaranteed authentication and non-rejection of cheques during clearing	1	3	4	13	28	4.31	0.99
Cheques go through clearing in a timely and convenient manner since the introduction of the Cheque Truncation System	0	0	0	1	48	4.98	0.14
Fraud control mechanism in Cheque Truncation System is stronger than it was in the traditional clearing system	0	0	0	1	48	4.98	0.14
Personal information (privacy) and Information Technology infrastructure security is enhanced in the Cheque Truncation System	0	0	0	5	44	4.90	0.30
Composite Mean and Standard Deviation						4.7	0.51

The above findings confirm that security is among the most important determinants of consumer adoption/ rejection of technology as advanced by Laforet and Lis, (2005). This indicates that the banking industry has strived to eradicate security fears and hence majority of users have begun to deviate to new systems cheque truncation

system included (Tiwari, Buse and Herstatt, 2006). Further Gathuku, (2013) concurs that the intention of cheque truncation system is to speed up collection of cheques and therefore reduce the scope of clearing related frauds and eliminate logistics problems that could increase risks.

Table 4.9 Correlation between Security and Risks and Financial Performance

		financial performance average score	Security and risks average score
financial performance average score	Pearson Correlation	1	.380
	Sig. (2-tailed)		.007
	N	49	49
	Sig. (2-tailed)	.007	
	N	49	49

The results in table 4.9 indicate that there was a positive (0.380) relationship between financial performance and cheque truncation system security and risks. The relationship is also significant at 95% confidence level. The study findings exhibited that an improvement on the security and risks measure would have a positive result on financial performance.

4.7 Cheque Truncation System and Financial Performance of Commercial Banks

Overall assessment of the cheque truncation system vis a vis financial performance of commercial banks attracted responses as given in table 4.10.

Table 4.10 : Cheque Truncation System and Financial Performance

Statement	1	2	3	4	5	Mean	Standard Deviation
The cost incurred during the cheque clearing cycle affects the bank's financial performance	1	3	4	12	29	4.33	1.00
The traditional cheque clearance system was lengthy, costly, cumbersome, and insecure and this greatly increased the bank's financial performance	0	0	0	15	34	4.69	0.46
The Cheque Truncation system reduces the lengthiness of clearing cycle thus reducing the overall bank's financial cost	0	0	0	15	34	4.69	0.46
The cheque truncation system only transmit images electronically and thus reducing the transmission costs considerably which affects the bank performance	1	3	4	12	29	4.33	1.00
Bank's profits have increased since the introduction of the Cheque Truncation System	0	0	0	0	49	5.00	0.00
The bank efficiently utilizes the Cheque Truncation System (as an asset) to generate earnings/income	0	0	0	4	45	4.92	0.27
Cheque Truncation System has contributed greatly to the bank's reduction of provision for losses since there are no cases of cheque losses and misplacement.	0	0	0	3	46	4.94	0.24
Cases of cheque frauds have greatly reduced and hence the bank has reduced its insurance and monitoring costs.	0	0	0	6	43	4.88	0.33
Composite Mean and Standard Deviation						4.72	0.47

Table 4.10 shows that 29 respondents agree to a greater extent that the cost incurred during cheque clearing affect the bank's financial performance, 12 to a great extent, 4 were neutral, 3 to a low extent and 1 to a very low extent. 34 respondents concur to a greater extent that the traditional cheque clearing system was lengthy, cumbersome, costly and insecure while 15 agree to a great extent and the same numbers respectively agree that the cheque truncation system has reduced the lengthiness of

the cheque clearing cycle. Whether the system reduces cheque transmission costs considerably, 29 agree to a greater extent, 12 to a great extent, 4 being neutral, 3 to a low extent and 1 to a very low extent. All the 49 respondents agree to a greater extent that bank profits have increased since the introduction of the cheque truncation system. 45 respondents agree to a greater extent that the cheque truncation system is an asset used by banks to generate income while 4 agree to a great extent. Banks have reduced provision for losses to a greater extent according to 46 respondents and 3 to a great extent. Reduction in insurance and monitoring costs have been realised to a greater extent as indicated by 43 respondents and to a great extent by 6 respondents. as depicted in the above table majority of the responses fell on the to a greater extent scale.

An overall observation of the cheque clearing system under this section using the responses obtained gave a mean score of 4.72 which is a strong indicator that actually cheque truncation system strongly influences the financial performance of commercial banks. This is in agreement with Sreedevi, (2013) who observed that the automation of existing banking system could eliminate voluminous paper work and improve operational efficiency. Sharma and Modi, (2014) also agree that cheque truncation system has gone a long way in enhancing financial performance of commercial banks.

4.10 Regression Analysis.

The main objective of the study was to establish the influence of the independent variable on the dependent variable and to determine this, a multiple linear regression analysis was performed and the results presented in Table 4.11 below.

Table 4.11: Model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.397 ^a	.157	.101	.230

From the results, the study obtained a coefficient of determination as 0.157 which means 15% of the variability in financial performance can be explained by ease of use, usefulness, security and risk factors.

The study also sought to determine the overall predictive power of the model and the results are shown in Table 4-2 below.

Table 4-12: Anova

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.444	3	.148	2.801	.043 ^b
	Residual	2.377	45	.053		
	Total	2.820	48			

From the results above the p-value for the study is 0.043 which is less than the alpha value (0.05) at 95% confidence level hence showing that the model has a significant predictive power. To establish the effect of the independent variable to the dependent variable a T-test was performed which established the predictive power of each independent variable within the model and the findings are presented below.

Table 4.13: Coefficients

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.501	.777		4.506	.000
	usefulness average score	.167	.101	-.120	-.669	.007
	ease average score	.076	.094	.154	.814	.030
	Security and risks average score	.056	.125	.436	2.854	.017

From the results in table 4.13, security, risk, usefulness and ease of use factors have significant predictive power within the model going by the probability value of 0.007, 0.030 and 0.017 respectively which are less than the alpha value at 95% confidence level.

While holding all other factors constant the study established that a unit improvement in security factors, financial performance will improve by 5%.also while all factors are held constant a unit improvement in ease of use factors the financial performance improves by 7%. A unit change in usefulness of the system, while all the factors are held constant, financial performance will adjust by 16%.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter present the study summary findings discussion, conclusion and recommendation for further studies.

5.2 Summary of Findings

The study targeted 11 commercial banks that are listed in the Nairobi stock exchange and the study achieved 89% questionnaire return rate. On the demographic information the study where the main attributes were respondents' age, gender and the experience in the banking sector. Age group with majority respondents were between 31-40 years while the least respondents were of age group below 20 years. The study also established that 76% of the respondents had experience of more than 6 years in the banking sector which affirm that most of the respondents had worked in the banking sector before and had experienced the transition to the cheque truncation system. They had also witnessed the evolution of the system with time. In summary, cheque truncation system greatly influences the financial performance of commercial banks in Kenya.

5.2.1 Cheque Truncation system Usefulness and Financial Performance of Commercial Banks

Cheque truncation usefulness was one of the independent variables which was a factor of the financial performance of the banks. Several attributes including reduced transaction costs, increased efficiency, reduced clearing cycle, system accessibility, reduced errors and cheque frauds and guaranteed authentication, articulated the measure of this variable and from the results the cheque truncation system usefulness had a mean score of 4.77 which showed that most of the respondents were positive on the usefulness of the cheque truncation system. The study established that while holding all the other factors constant a unit change in the usefulness of the system, financial performance will improve by 16%.

5.2.2 Cheque Truncation System Ease of Use and Financial Performance of Commercial Banks

Cheque truncation system ease of use was the next independent variable which had a mean score of 4.44 which was above average. The ease of use attributes included compatibility with the bank core system, adequate training, customer awareness and system accessibility/ convenience. The study established that while holding all the other factors constant a unit change in the ease of use factor, financial performance will improve by 7%. It can therefore be deduced that there is a positive correlation between the system ease of use and financial performance.

5.2.3 Cheque Truncation System Security and Risks and Financial Performance of Commercial Banks

Cheque truncation system security and risks were the last but not least independent variables and the average score obtained was 4.7. The attributes measured included time, convenience and performance risks, fraud control mechanism, personal information security, virtual community security and authentication. The study established that while holding all the other factors constant a unit change in the risk and security factor, financial performance will respond by 5%. It can therefore be summarized that the cheque truncation system security and risks influences financial performance.

5.3 Conclusion

The main objective of the study was to assess the influence of cheque truncation system project on financial performance of Kenyan commercial banks. The study therefore concludes that cheque truncation system has had a positive impact on the financial performance of commercial banks in Kenya with key areas being security, risk, ease of use of the system and usefulness.

1. The study concluded that the cheque truncation system usefulness had a significant positive impact on the financial performance of commercial banks in Kenya. Descriptive statistics show that respondents agreed to a greater extent that the system has reduced transaction costs, improved the clearing cycle (efficiency), reduced cheque clearing days, reduced cheque frauds and errors and guaranteed authentication and non-rejection of clearing cheques.

2. According to the study, the cheque truncation system users experienced to a greater extent ease of use of the system. There is a positive correlation between the two and hence the study concluded that the system ease of use had a significant positive impact on the financial performance of commercial banks. The respondents agreed to a greater extent that they received adequate training on the system, that the system is compatible with the current core banking system and that the system is functional and convenient.
3. The study further concluded that the cheque truncation system security and risks associated with it had a positive correlation with the financial performance of commercial banks in Kenya. This was corroborated by the descriptive statistics findings that show that respondents agreed to a large extent that the system had enhanced virtual community security, personal information and information technology infrastructure security. Further, the system ensured convenience and timeliness of cheque clearance, a tight fraud control mechanism and non-rejection of cheques.

5.4 Recommendations

From the results above the study established that cheque truncation system had positive impact on the financial performance of the commercial banks. The study therefore recommends;

1. Adoption cheque truncation system as it improves efficiency in service delivery such as improved clearing cycle, time for clearing cheque and also guaranteed authentication error detection and minimal fraud cases. All this leads to improved financial performance.
2. Training and awareness of both the customers and the staff on cheque truncation procedure and its role in running the daily operations of the banks
3. The banks to ensure that the cheque truncation system is accessible, functional and convenient in clearing cheques.
4. Timely cheque processing and proper authentication procedure which is always convenient to the client since the risk factor is a key element in ensuring improved financial performance.
5. Prioritise confidentiality of information shared between the bank and its clients in order to boost customer confidence.

6. Review the cheque clearing cost because it affects the banks' financial performance and is worth noting that the increased cost reduces preference for cheque truncation.

5.5 Suggestion for Further Studies

The study therefore recommends further studies on;

1. Other factors apart from the three main variables in this study which include cheque truncation risks factors, ease to use and usefulness and their impact on the financial performance of commercial banks.
2. Factors that affect the financial performance of other financial institution apart from commercial banks.

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APPENDICES

Appendix I: Research Questionnaire

Dear respondent, am conducting a research study on the topic: influence of cheque truncation system (CTS) project on financial performance of Kenyan commercial banks. The questionnaire items are about the study and you are kindly requested to participate in responding to the questions below. The information given will be treated as confidential and the results of the study will be used for academic research purposes only.

PART A: Demographic and Respondents Profile

1. Name of your organization (optional)
.....
2. Gender: Male Female
3. What is your age bracket? (Tick as applicable).
Under 20 years
21 – 30 years
31 – 40 years
41- 50 years
Over 50 years
4. Length of continuous service with the company?
Less than two years
2-5 years
6- 10 years
Over 10 years
5. For how long has your company been in existence?
Under 5 years
6-10 years
11-15 years
Over 16 years

Part B: Cheque Truncation System

6. On a scale of 1-5 where 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent, to what extent do physical cheques still account for commercial banks truncations?

7. Please indicate your level of acceptance with the following statements relating to Cheque Truncation System, its benefits and influence on financial performance of your bank.

Key: Scale of 1-5 where 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent

		5	4	3	2	1
CTS Usefulness (U)/benefits						
1	Cheque Truncation System has reduced truncation costs					
2	Efficiency has increased since its introduction (improved clearing cycle)					
3	Cheque clearing days have reduced					
4	It was worth investing in the Cheque Truncation System					
5	Errors and cheque fraud have greatly reduced					
6	There is guaranteed authentication and non-rejection of the new cheque leaves					
Ease of Use (EoU)						
6	I was adequately trained about the Cheque Truncation System					
7	The Cheque Truncation System software is compatible with the bank's core system					
8	Our customers are well aware of the Cheque Truncation System					
9	Our customers know how to draw the new cheque leaf					
10	The Cheque Truncation System is accessible, functional and is a convenient way of clearing cheques					
Security and Risk						
1	All participating banks are guaranteed of virtual community security in the Cheque Truncation System					

2	The Cheque Truncation System has guaranteed authentication and non-rejection of cheques during clearing				
3	Cheques go through clearing in a timely and convenient manner since the introduction of the Cheque Truncation System				
4	Fraud control mechanism in Cheque Truncation System is stronger than it was in the traditional clearing system				
5	Personal information (privacy) and Information Technology infrastructure security is enhanced in the Cheque Truncation System				

Part C: Effect of CTS on Financial Performance

8. To what extent do you agree with the following statements regarding the effect of CTS on financial performance in your bank? 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent

	5	4	3	2	1
The cost incurred during the cheque clearing cycle affects the bank's financial performance					
The traditional cheque clearance system was lengthy, costly, cumbersome, and insecure and this greatly increased the bank's financial performance					
The Cheque Truncation system reduces the lengthiness of clearing cycle thus reducing the overall bank's financial cost					
The cheque truncation system only transmit images electronically and thus reducing the transmission costs considerably which affects the bank performance					
Bank's profits have increased since the introduction of the Cheque Truncation System					
The bank efficiently utilizes the Cheque Truncation System (as an asset) to generate earnings/income					
Cheque Truncation System has contributed greatly to the bank's					

reduction of provision for losses since there are no cases of cheque losses and misplacement.					
Cases of cheque frauds have greatly reduced and hence the bank has reduced its insurance and monitoring costs.					

9. To what extent did the following factors influence the adoption of the Cheque Truncation System in your bank? Use 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent

	5	4	3	2	1
Top management commitment					
Resource availability (people, equipment, software, etc.)					
Employees and customers embracing change					
Stakeholder engagement					
Effective measurement of quality improvement					
Proper training/adequate Human Resource Development					
Adequate managerial skills					
Organization culture					
Compatibility with existing systems					
Systems reliability					

Appendix II: Interview Guide

The following questions will revolve around establishing the influence of CTS on financial performance: A case of Kenyan commercial banks. The interview questions will be in line with the research objectives.

Interview questions to operation managers

PART A: General information

1. Kindly confirm to me/us your name and position you hold in the bank?
2. How long have you worked with your bank?

PART B: Research objectives

3. Do you understand what is termed as the Cheque Truncation System?
4. What services or functionalities are on your bank's Cheque Truncation System platform?
5. On a scale of 1-5 where 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent. To what extent do physical cheques still account for your bank's truncations?
6. On a scale of 1-5 where 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent. Indicate your level of acceptance with the following statements
 - i. CTS has reduced truncation costs, has enhanced efficiency, has reduced cheque clearing days, has reduced errors and has curbed fraud
 - ii. CTS is useful to the bank due to its accessibility, functionality, and convenience
 - iii. CTS has curbed various risks such as stealing personal information, loss of cheques and others
7. To what extent do you agree with the following statements regarding the effect of CTS on financial performance in your bank? 5) Greater extent; 4) Great extent; 3) Moderate extent; 2) Low extent; 1) Very low extent
 - i. CTS has enhanced the bank's profits
 - ii. CTS has enhanced the bank's Return on Assets (ROA)
 - iii. CTS has reduced provision for losses often caused by frauds and cheque losses
 - iv. CTS has reduced insurance and monitoring costs often related to frauds and

cheque losses

8. What are the benefits of Cheque Truncation System to account holders and the Kenyan commercial banks?
9. What factors facilitated the adoption of Cheque Truncation System in your bank?
10. Any other thoughts in relation to Cheque Truncation System technology?

Appendix III: Commercial Banks Listed at the NSE

Barclays Bank Ltd	I&M Holdings Ltd
CFC Stanbic Holdings Ltd	Kenya Commercial Bank Ltd
Diamond Trust Bank Kenya Ltd	National Bank of Kenya Ltd
Equity Bank Ltd	NIC Bank Ltd
Housing Finance Co Ltd	Standard Chartered Bank Ltd
The Co-operative Bank of Kenya Ltd	

Source: NSE (2016)


Appendix IV: NACOSTI Research Permit

THIS IS TO CERTIFY THAT:
MS. AGNES CHEPKEMOI MOSONIK
of UNIVERSITY OF NAIROBI, 0-200
NAIROBI, has been permitted to conduct
research in Nairobi County

on the topic: INFLUENCE OF CHEQUE
TRUNCATION SYSTEM PROJECT ON
FINANCIAL PERFORMANCE OF
COMMERCIAL BANKS. A CASE OF
NAIROBI COUNTY

for the period ending:
17th August, 2019

Permit No : NACOSTI/P/18/61147/24387
Date Of Issue : 20th August, 2018
Fee Received :Ksh 1000





Applicant's Signature

Director General
National Commission for Science,
Technology & Innovation

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