THE EFFECT OF MOBILE BANKING ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY:

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DECLARATION

I declare that this is my original work and has not been presented for a degree in any other university.

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Signed_____ Date _____

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

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My thanks go to the Almighty God for seeing me through the entire period. I live for you.

Thanks to my family for their encouragement and support during this entire period.

Many thanks to my supervisor Mr. M'Maithulia for his patience during the entire research period. You gave me the chance to see my best side.

DEDICATION

This project is dedicated to my loving mother, Gladys Namalwa for her hard work in supporting me throughout my education. There is none like you Mother.

ABSTRACT

The study was carried out to determine the effect of mobile banking on the financial performance of commercial banks in Kenya. Various independent variables were identified and these included: income, salaries and wages, depreciation on plant and equipment, rent for branch premises, stationery, telephone and postage, amortization of Information Communication and Technology (ICT) systems and other administrative costs.

The study employed a linear multiple Regression to establish the effect index of mobile banking on the financial performance of commercial banks in Kenya. The population of interest in this study consisted 44 commercial banks registered and licensed under the Banking Act Chapter 488 of the Laws of Kenya and were inexistence by 1st May 2010. The analysis consists of responses from 34 commercial banks representing 77% response rate which was considered sufficient for data analysis.

The findings indicated that mobile banking had great effect on staff salaries and wages 17% followed by rent paid for branch premises16%. Income came in third with 15%, other administrative expenses 14%, Depreciation on plant and equipment and amortization on ICT systems each registered 13%. Least effect was recorded on the stationery, telephone and postage.

The overall effect of mobile banking on the financial performance of commercial banks was 72%. This index being above 50% indicates that mobile banking has had positive effect of the financial performance of commercial banks in Kenya.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Information communication and technology (ICT) has transformed many organizations bringing with it efficiency and improved productivity. The Banking sector has embraced changes occurring in ICT with most banks having already achieved branchless banking as a result. According to the Central Bank of Kenya annual bank supervision report (2006), the increased utilization of modern ICT has for example led to several banks acquiring automated teller machines, (ATMs) as part of their branchless development strategy measures. Several banks had also started offering e-banking services that included internet banking, short message service (SMS) and mobile banking. The trend in mobile banking was however still at infancy in terms of level of utilization expected in this sector. (Central bank annual report, 2005/2006)

Perumal and Shanmugan (2004) contend that, the banking industry is an extremely information intensive industry and must remain at the forefront of advanced use of information technology. Banks are continually looking for alternative ways of relating to customers, reduce costs, improve efficiencies and differentiate their products and services. One trend in this line is the increasing use of self-service technologies like Automated Teller machines, Internet Banking and Mobile phone banking.

The financial services industry has undergone phenomenal transformation. In just half a century, banking and customer's access to financial services has changed beyond the belief of traditional retail banks. It has changed from local branches, to branch networks,

to ATMs, to ATM- interbanks agreements, and to home banking software, to call centers, to telephone banking and internet banking and mobile phone banking is the most recent (Smith, 2001).

The way forward according to Quresh (2003) for Nigerian banks are to take full advantage of technological solutions including ATM, phone banking, home banking and internet banking if they are to remain competitive. He stresses that banks must adopt information technology or perish. The rapid changes in the financial services environment, increased competition by new players from both banking and non-banking sector on product innovations, globalization and technological advancements, have led to a market situation where battle for customers is intense. Customers want access to all their financial services from anywhere at any time regardless of who provides the service.

1.1.1 The Concept of Mobile Banking

Laudon and Laudon (2005) defines mobile banking (M-Banking) as the provision of banking services using handheld devices such as mobile phones, palmtop computers and personal digital assistants. Tiwari and Buse, (2007), define mobile banking as the provision and availment of banking and financial services with the help of telecommunication devices. The term M-Banking is used to denote the access to banking services and facilities offered by financial institutions such as account-based savings, payment transactions and other products by use of an electronic mobile device. Mobile banking has yielded a multiple effect on the number of solutions available to clients. This is in addition to more efficient transactional environment and the high substitution of banking point, (Otieno, 2008)

According to Wambari (2009), 35% of online banking households will be using mobile banking by 2010, up from less than 1% as at the year 2009. Upwards of 70% of bank center call volume is projected to come from mobile phones. Mobile banking will eventually allow users to make payments at the physical point of sale. "Mobile contact less payments" will make up 10% of the contact less market by 2010. Many believe that mobile users have just started to fully utilize the data capabilities in their mobile phones. In Asian countries like India, China, Bangladesh, Indonesia and Philippines, where mobile infrastructure is comparatively better than the fixed-line infrastructure, and in European countries, where mobile phone penetration is very high (at least 80% of consumers use a mobile phone), mobile banking is likely to appeal even more (Wambari 2009).

M-Banking started with the creation of services by banks which could be accessed through the mobile phone. These facilities aimed at enabling customers access information relating to their accounts. Subsequent innovations have seen the mobile banking phenomena continue to grow steadily. Mobile banking takes several dimensions of execution; all representing a new distribution channel that allows financial institutions and other commercial actors to offer financial services outside traditional bank premises, (Otieno, 2006)

Mobile phone communication has progressed rapidly extending the range of services that can be carried out through mobile telephony. Today, the mobile phone is no longer just

another communication tool. It is now being used in business applications especially with the introduction of 3G mobile phones which not only transmit voice and text messaging but also video messaging, video streaming, infotainment, multimedia messaging location services, online banking and financial services, online shipping and internet browsing. Mobile phones have come to represent a new era of secure electronic mobile commerce (Ontunya, 2006)

The financial services industry has undergone phenomenal transformation. In just half a century, banking and customer's access to financial services has changed beyond the belief of traditional brick and mortar bank networks. It has changed from local branches, to branch networks, to ATM machines, to ATM- inter-banks agreements, to home banking software, to call centers, to telephone banking and to internet banking and mobile banking is the most recent (Ontunya, 2006)

Customers can now conduct banking transactions via their mobile phones. Mobile banking with the regular mobile phones enables transactions such as getting an account balance, transferring money between accounts, getting real time alerts as transactions are passed on one's account, requesting cheque book and stopping cheque payment, enquire the status of a cheque, request account statement, getting utility bills payment details from the mobile phone among other services being introduced almost on a daily basis. In 2007, Card vendor Visa launched an initiative that saw its mode of transacting business shift from plastic cards to mobile phones. The move followed the launch of mobile phone based money transfer products in the Kenyan market (Otieno, 2008)

According to a study by financial consultancy Celent (2007), The rapid changes in the financial services environment, increased competition from both the banking and non-banking sector on product innovation, globalization and technological advancement, have led to a market situation where battle for customers is intense. Mobile phone service providers in Kenya have also entered the banking business where they provide their customers with services more similar to those provided by commercial banks. With a mobile phone, one is now able to send and receive money within and outside the country. In addition, bank customers can now access their account information via their mobile phone. At anytime regardless of where they are. This has meant that customers can now access their financial services from anywhere the services are provided from. In effect, the linking of a portable device such as a mobile phone and a bank account is seemingly the way forward.

1.1.2 Context of the Study

The transformational mobile banking is made available by mobile phone service providers as part of their value added services. It is embedded among other services within the service providers menu. For commercial banks to be able to deliver their services on mobile phone, they have to invest heavily in technology that is compatible with that of the mobile phone service providers. The perceived difference between mobile service providers mainly lies on the pricing strategy, quality and scope of services as well as the pricing strategy (Zheng & Zhong, 2005).

M-banking reduces the cost of basic banking services to customers with over 60 percent from what it would cost through traditional channels. The electronically managed transactions result in huge cost savings, the benefits of which are transferred to customer. This is aptly demonstrated by the 85% score of M-baking customers who have registered lower transactional costs. CBK (2007) statistics put the average monthly cost of operating a current account with a Kenyan commercial bank at over Ksh 900 (Wambari, 2009).

Mobile banking information system is a relatively new technology which is being adopted at a high rate. Many organizations especially financial institutions are finding it a challenge to successfully use and adopt mobile banking information systems. It is also clear that managers face a lot of challenges when trying to implement new systems in their organization. It is only when the managers can successfully identify the challenges to implementation of mobile banking information system that they can ensure its smooth and successful implementation (Otieno, 2008).

1.2 Statement of the Problem

As cited earlier, authors have come up with different challenges to mobile banking. In Kenya, mobile network operators keen to having a share of the lucrative mobile banking market are also posing a challenge. Operators such as Safaricom (M-Pesa), Yu Esser (YU Cash) and Zain (Zap) have spent billions of pounds on third generation mobile phone licenses and are now desperate to find ways of recouping their money and some experts expect many operators to apply for banking licenses in the future, as the trend is shifting to mobile banking, there is a challenge for Chief Information Officers of banks to decide

on how to leverage their investment in internet banking and offer mobile banking in the shortest possible time (Otieno, 2008)

Siam (2006) studied the "Role of the Electronic Banking Services on the Profits of Jordanian Banks" He researched on the impact of changes from traditional banking services into electronic ones, on banks as well as on customers, banks measures to cut costs of their electronic operations, and the future of electronic banking in Jordan. According to Wambari (2009), mobile phones provide technological services that reduce costs; increase income and increases reach ability and mobility. They can help to extend social and business networks and they clearly substitute for journeys and, for brokers, traders and other business intermediaries.

Most of the existing studies in electronic banking services or electronic banking delivery of financial services in Kenya have adopted an organizational perspective or distribution/access channel perspective (Ontunya 2006, Otieno 2006, Otieno 2008 and Wambari 2009). This leaves the effects of mobile banking on the financial performance of commercial banks in Kenya unexplored territory yet the country has witnessed an increased rollout of mobile banking. How does this affect the financial performance of these institutions?

This research aims at filling the existing gaps by shedding light on the effect of mobile banking on financial performance of commercial banks in Kenya. It focuses on financial performance of commercial banks with respect to changes in operating costs as a result of

the implementation of mobile banking. The research attempts to answer the following question:-

What effect does mobile banking have on the financial performance of commercial banks in Kenya?

1.3 Objective of the Study

The objective of this study is to determine the effects of mobile banking on the financial performance of commercial banks in Kenya.

1.4 Importance of the Study

The study would be important to bank managers, mobile phone operators, mobile phone banking customers, government of Kenya and researchers as well as academicians. The findings can be used by the central bank and the government of Kenya in policy formulation to control and regulate mobile phone banking in Kenya.

For bank managers, the finding will be useful in understanding the effects of adoption of mobile phone banking on the financial performance hence guide their decisions in its application.

For mobile phone operators, the findings will enable them understand the impact of mobile phone banking on the financial position of their partners and hence effects on its uptake. This will enable them take necessary measures to correct any anomalies noted.

To academicians and researchers, the findings contribute new knowledge for the theoretical commercial bank behavior on implementing mobile phone banking as part of their services.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter delves into the body of existing literature and seeks to show the existing knowledge gaps on the effects of mobile phone banking on the financial performance of commercial banks in Kenya. DFID report (2006) indicates that mobile banking if properly implemented will open up financial services to the non-banked and besides it will play a greater role in the alleviation of poverty. For banks, it is the technology that will bring with it cheaper transaction costs and competitive advantage and an increase in the clientele base (Mennecke, 2003).

2.2 Overview of the Banking Sector in Kenya

Kenya's banking history goes back to 1896 when the National Bank of India opened a branch in this East African country. The banking system in Kenya consists of 44 commercial banks. Seventy three percent of all banking business is handled by 12% of the Kenyan banks (Ontunya, 2006).

Competition is stiff among banks in Kenya which has forced some banks to even open seven days a week in an effort to attract more clients. In addition, many banks have also extended their weekday working hours from the initial three o'clock closing time to eight o'clock. They are aggressively pursuing growth in personal loan products and credit card accounts or non secured loans. Kenya's banking industry still has a long way to go, salaries and wages are often very high because there are no IT systems as each has its

own infrastructure. New legislation, a new IT infrastructure and new strategic directions will strongly contribute towards growth of banking in Kenya. Most banks have achieved branchless banking through the ATM networks in Kenya although there is about one ATM for every 100,000 people (Ontunya, 2006).

2.3 Mobile Banking Business Models

According to Ravallion (1993) a wide spectrum of mobile/branchless banking models are evolving. However, no matter what business model, if mobile banking is being used to attract low income populations in often rural locations, the business model will depend on banking agents, i.e. retail or postal outlets that process financial transactions on behalf of commercial banks. The banking agent is an important part of the mobile banking business model since customer care, service quality, and cash management heavily rests with them. The other difference lies in the nature of agency between the bank and the non-bank. Models of branchless banking can be classified into three broad categories i.e. Bank focused, Bank led and non bank led.

2.3.1 Bank-focused Model

The bank-focused model emerges when a traditional bank uses non-traditional low-cost delivery channels to provide banking services to its existing customers. Examples range from use of automatic teller machines (ATMs) to internet banking or mobile phone banking to provide certain limited banking services to banks‟ customers. This model is additive in nature and may be seen as a modest extension of conventional branch-based banking (Wambari, 2009).

2.3.2 Bank-led Model

The bank-led model offers a distinct alternative to conventional branch-based banking in that customer conducts financial transactions at a whole range of retail agents (or through mobile phone) instead of at bank branches or through bank employees. This model promises the potential to substantially increase the financial services outreach by using a different delivery channel (retailers/ mobile phones), a different trade partner (telco / chain store) having experience and target market distinct from traditional banks, and may be significantly cheaper than the bank-based alternatives. The bank-led model may be implemented by either using correspondent arrangements or by creating a JV between Bank and Telco/non-bank. In this model customer account relationship rests with the bank (Wambari, 2009).

2.3.3 Non-bank-led Model

The non-bank-led model is where a bank does not come into the picture (except possibly as a safe-keeper of surplus funds) and the non-bank (e.g. telco) performs all the functions (Wambari, 2009). Quite a number of commercial banks have adopted M-banking in Kenya. To sample a few, we have SMS banking offered by Commercial bank of Africa (CBA). CBA's SMS banking has transformed the way banking is done in Kenya. This service allows customers to access their accounts via their mobile phones- quickly and conveniently without the need to visit their branches. A complete package, with a host of benefits: Easy set-up, User friendliness and security: the system uses PIN and phone combinations to ensure maximum security, 24hours access- no more space and time constraints. The transactions customers perform with CBA SMS banking include account balance enquiries and mini-statement request (Otieno, 2008)

The services available on NIC M-Banking include: Balance Enquiry, Top up Airtime ‘,ini Statement Request, M-Pesa ,Funds Transfer, Pay Bills, Stop Cheques, Service Requests - Cheque Book & Full Statement requests, Cheque Status, Forex Rates and My Settings (change settings). The alerts and notifications include: debit and credit notifications, loan credit notification and unpaid items notification (NIC Bank)

The cooperative bank of Kenya offers Mobile banking which offer information services like balance enquiry, mini-statement, automatic advices to customers on credits and airtime purchase as the only payment service. Customers utilize the cell phone to query the balances and other informational services, but no payment services at all (Ontunya, 2006).

2.4 Theoretical framework

Traditional theories of intermediation are based on transaction costs and asymmetric information. They are designed to account for institutions which take deposits or issue insurance policies and channel funds to firms. However, in recent decades there have been significant changes. Although transaction costs and asymmetric information have declined, intermediation has increased. The role or roles played by these intermediaries in the financial sector is found in the many and varied models in the area known as intermediation theory. These theories of intermediation have built on the models of resource allocation based on perfect and complete markets by suggesting that it is frictions such as transaction costs and asymmetric information that are important in understanding intermediation. Gurley and Shaw (1960) have stressed the role of

transaction costs. For example, fixed costs of asset evaluation mean that intermediaries have an advantage over individuals because they allow such costs to be shared. Similarly, trading costs mean that intermediaries can more easily be diversified than individuals.

2.4.1 Information Asymmetry

Asymmetries can be of an ex ante nature, generating adverse selection, they can be interim, generating moral hazard, and they can be of an ex post nature, resulting in auditing or costly state verification and enforcement. The informational asymmetries generate market imperfections, i.e. deviations from the neoclassical framework. Many of these imperfections lead to specific forms of transaction costs. Financial intermediaries appear to overcome these costs, at least partially. For example, Diamond and Dybvig (1983) consider banks as coalitions of depositors that provide households with insurance against idiosyncratic shocks that adversely affect their liquidity position. Another approach is based on Leland and Pyle (1977). They interpret financial intermediaries as information sharing coalitions. Diamond (1984) shows that these intermediary coalitions can achieve economies of scale. Diamond (1984) is also of the view that financial intermediaries act as delegated monitors on behalf of ultimate savers.

Frictions that relate more to investors' information sets, numerous authors have stressed the role of asymmetric information as an alternative rationalization for the importance of intermediaries. One of the earliest papers, Leland and Pyle (1977), suggests that an intermediary can signal its informed status by investing its wealth in assets about which it has special knowledge. Diamond (1984) has argued that intermediaries overcome asymmetric information problems by acting as "delegated monitors." Many others

followed, expanding on these two contributions and advancing the literature in substantive ways.

2.4.2 Transaction Costs

Transaction costs theory is based on non-convexities in transaction technologies. Here, the financial intermediaries act as coalitions of individual lenders or borrowers who exploit economies of scale or scope in the transaction technology. The notion of transaction costs encompasses not only exchange or monetary transaction costs (Tobin, 1963; Towey, 1974; Fischer, 1983), but also search costs and monitoring and auditing costs (Benston and Smith, 1976). Here, the role of the financial intermediaries is to transform particular financial claims into other types of claims (so-called qualitative asset transformation). As such, they offer liquidity (Pyle, 1971) and diversification opportunities (Hellwig, 1991). With transaction costs, and in contrast to the information asymmetry, the reason for the existence of financial intermediaries, namely transaction costs, is exogenous.

2.5 Financial performance

Evaluating bank performance is a complex process that involves assessing interaction between the environment, internal operations and external activities. In general, a number of financial ratios are usually used to assess the performance of banks. Financial performance has been studied under different yardsticks of performance i.e., size, profitability, financing pattern, economic efficiency, operational efficiency, asset quality, diversification and cost of operations.

2.5.1 Cost of Operation

In addition to revenue enhancement, Internet banking may enable banks to reduce costs of operation, in particular, by allowing them to reduce expenditures on "brick and mortar." To the extent this may be so, Internet banking could be considered a causal factor in generating lower expenses related to maintaining physical branches. On the other hand, banks with relatively high expenses in maintaining their branch networks may be expected to have the incentive to adopt Internet banking. The adoption of Internet banking would thus be the effect of existing characteristics of banks (Furst et al., 2002).

2.2.2.3 Profitability, Operating Efficiency and Financing

On an average, Internet banks are more profitable than non-Internet banks and are operating with lower cost as compared to non-Internet banks, thus, representing the efficiency of the Internet banks. The study will be similar to Furst et al. (2000a, 2000b, 2002a and 2002band Hernando and Nieto, 2005). The benefits of mobile banking include: Reduced operating costs as mobile banking eliminates the need for costly call centres and customer service help desks. Using a mobile platform such as SMS text messaging for simple and repetitive tasks such as reminders about payments due or balance requests can reduce the burden on IT and personnel resources. Using secure and integrated messaging platforms enables an organization to reduce the costs and errors associated with paper-based payments. For example, one of Clickatell's clients on the African continent, SatCom Networks Africa Ltd operates out of Tanzania and uses SMS notifications to alert banks on problems before they become customer complaints. This includes alerting banks to ATM events such as low stock of funds or paper, power

failures, attempts at frauds among other activities. This innovative service allows banks to proactively resolve problems before they become issues (Al-Hajri and Tatnall, 2008).

Mobile Banking reduce risk for the banking institutions as SMS mobile banking is cost-effective which lowers the financial risk involved in rolling out new banking initiatives. It is immediate and effective and with two-way messaging enabled, campaigns can be monitored in real-time affording the opportunity to change strategy if need be. Clickatell's SMS mobile banking solutions can be integrated into existing infrastructure or externally managed thereby reducing the need for additional personnel. SMS mobile banking reduces the potential for fraud immediately as fraud and account transaction notifications are sent in real-time empowering customers to take action immediately. This gives customers peace of mind around the accuracy and security of their financial transactions through SMS authentication PIN codes and transaction text notifications.

Use of premium-rated SMS to charge for banking transactions creates an additional revenue stream for commercial banks. Commissions and service fees on mobile payments and transfers are another potential income stream. Customers can also purchase goods and services via a mobile banking platform and the mobile number database can be used for cross-selling purposes - particularly time and event related options. This could include insurance packages, discounted holiday packages and premium banking services. Prepaid airtime, electricity vouchers, coupons etc can all be purchased via mobile phone (Otieno, 2008).

Offering existing customers an additional, secure, easy to use banking channel is sure to improve the loyalty or 'stickiness' of customers to a financial institution's brand. It also act as an attraction point to new customers looking for ease of access and innovative banking services. SMS text messaging may be used in many ways to increase the level of service a bank offers its customers. These may include: Using SMS transaction and fraud alerts to guarantee their level of banking security; allowing customers to receive critical information and services via SMS messages; allowing customers to communicate with the bank via SMS text message and set-up an 'intelligent customer callback service' that negates the need for customers to wait in frustrating phone queues; running SMS marketing campaigns to attract new customers to your financial institution; because these campaign results are available immediately, the return on investment is measurable; allowing customers the flexibility and peace of mind to access their bank accounts on the go, receive their balance notifications and perform banking functions; A simple SMS service offering 'point of sale' SMS receipts contributes to customers feeling assured that their money transactions are accurate and secure; Mobile to mobile fund transfers are a very convenient way for customers to make payments (Jeckins, 2008).

Just by implementing SMS mobile banking commercial banks will effectively enhance the value and reach of their brand and build consumer confidence by offering them customer-centric service. SMS mobile banking becomes a unique tool for not only radically improving customer service but also to generate additional revenue and aid in the prevention of fraud (Layman, Porteous, and Pickens, 2008).

2.6 Empirical Studies

The world witnesses an information and technology revolution (Siami, 2006). This revolution has touched every aspect of people's life including banking. Singh (2002) opined that technology has introduced new ways of delivering banking services and products to the customers, such as ATMs, and internet banking (IB). Hence banks have found themselves at the forefront of technology adoption for the past three decades. These changes and developments in the banking industry have impacts on serves quality, future of the banking activities, and consequently its continually competitive ability in the world markets since going along with technology is one of the most important factors of economic organizations success in general and banks in particular (Siami, 2006). This motivates banks to spend more on technology and information to achieve maximum returns and attract large number of clients.

Zheng and Zhong (2005) examined the trend in the internet revolutions that have set the Chinese banking sector in motion and the Factors which have influenced the adoption of IB in china. It was revealed that internet availability, awareness, attitude towards change, computer and internet access, cost, trust in ones bank, security concerns, ease of use and convenience were the major factors affecting the adoption. Al-Hajri (2008) examined various factors that might act to determine whether a given technology is likely to be adopted by the banking industry in developing country such as Oman by comparing it with a developed country such as Australia. The result indicated that relative advantage, organizational performance, Customer organizational relationship and ease of use, can shed light on the reasons for adoption of Internet technology. An exploration done by

Singhal and Padhmabhan, (2008), revealed that utility request, security, utility transaction, ticket booking and funds transfer were major factors contributing to internet banking adoption. Tat, et.al (2008) examined predictors of intention among users of internet banking to continue using IB services. It was revealed that trust was the strongest predictor followed by compatibility and ease of use.

Mirza,et.al.,(2009) revealed a significant difference between demographic and attitude of users and non-user groups. The majority of customers were very comfortable and willing to use IB services. Security concerns, lack of technological knowledge and awareness stood out as being obstacles to the adoption of Internet Banking. Yuttapong et.al (2009) investigated the factors impacting the adoption of internet banking and found that complexity had a negative relationship with intention to adopt the internet banking in Thailand. Further, it was indicated that compatibility had a high positive relationship with intention to adopt IB. Al-ghamdi and King (2009) explored how IB affects the relationship between customers' trust and their loyalty. The study also examined how factors may affecting IB usage can be different in UK and Saudi Arabia. The study considered privacy aspects, communication, customer experience, usefulness, self-efficacy and ease of use as major factors trust and customer loyalty.

According to Wambari (2009), a wide spectrum of Mobile/branchless banking models is evolving. However, no matter what business model, if mobile banking is being used to attract low-income populations in often rural locations, the business model will depend on banking agents, i.e. retail or postal outlets that process financial transactions on behalf telecoms or banks. The banking agent is an important part of the mobile banking business

model since customer care, service quality, and cash management will depend on them. Many telecoms work through their local airtime resellers. However, banks in Colombia, Brazil, Peru, and other markets use pharmacies, bakeries, etc. These models differ primarily on the question that who will establish the relationship (account opening, deposit taking, lending.) to the end customer, the Bank or the Non-Bank/Telecommunication Company (Telco). Another difference lies in the nature of agency agreement between bank and the Non-Bank. Models of branchless banking can be classified into three broad categories - Bank Focused, Bank-Led and Nonbank-Led.

Ontunya (2006) examined consumer adoption of mobile phone banking in Kenya. It was revealed for most users, the service must be affordable, convenient and secure. Customers should not be worried of interception or hang up of systems that run the service. They also hoped that the mobile phone user interface for the mobile phone would improve, as it was key to usability i.e. keypad user friendliness. Customers needed support occasionally. For non users, they wanted to be sure that the service worked therefore they wanted to try using the service before adopting it. Confidence was very valuable in the use of mobile phone banking service.

Otieno (2008) examined the challenges in the implementation of mobile banking information systems in commercial banks in Kenya. It was revealed that successful implementation of mobile banking was crucial for provision of mobile banking services. A number of factors posed challenge to the implementation, these factors included security, legislative and user related challenges. Users had not been keen to adopt mobile

banking services because of insecurity fears and the fact that they were still accustomed to the normal banking systems. Another challenge posed by users was the fact that users were slow in adopting the new technology especially the old.

Weila (2008) examined the adoption of online credit operations by commercial banks in Kenya.. Her findings indicated that online credit operations had only been adopted to a small extend by commercial banks. This online technology had been employed in credit operations, loan repayment, cash deposit and withdrawal, electronic funds transfer and other operational areas. The research identified some benefits enjoyed by customers and banks as a result of having online credit operations which included reduction in paperwork, time saving, ease in carrying out bank transactions and a reduction in throughput time (from when a loan is applied for to when funds are released).

Murugami (2008) surveyed on Short Message Service (SMS) banking application in commercial banks in Kenya. The study revealed that there were only a few services that were utilized by customers to commercial banks using SMS banking. These services included balance inquiry, mini statement, and utility bills payment. The research revealed that the challenges hindering SMS banking included security, top management support, literacy levels of customers, customer awareness of SMS banking and outcome expectations.

2.7 Mobile Banking in Kenya

The transformational mobile banking is made available by mobile phone service providers as part of their value added services. It is embedded among other services

within the service providers menu. The perceived difference between mobile service providers mainly lies on the pricing strategy, quality and scope of services as well as the pricing strategy (Otieno, 2008).

The mobile banking services are available to mobile phone users of the two major mobile service providers namely Safaricom and Zain. Safaricom's service is branded M-Pesa, Zain's service goes by the Zap brand name and YU Esser's YU Cash. The latest entrant Orange / Telkom is also expected to roll out its mobile banking services in the course of time. While the fees charged for transactions are largely below those levied by traditional banks for similar services, low incomes amongst the vast proportions of the population tends to reduce the levels of affordability. But prices are expected to decline over time as competition intensifies. For instance the launch of Zap service at a flat rate of Kshs. 10 is expected to have a ripple effect on M-Peas whose average transaction charge stands at Kshs. 35 (Wambari, 2009).

The collective access points of mobile banking are numerous and widespread. The service vests a heavy reliance on airtime distributors who double as agents. It is these agents who decide on the most strategic points to locate their service outlets. This highly differs from the conventional banking systems whereby banks will only be located in major urban centers. Currently Safaricom has over 5,000 agents across the country; while Zain prides itself of having over 3,000 agency set ups in the short span it has operated the Zap service (Wambari, 2009).

This translates to over 8.000 mobile banking outlets around the country within a span of three years since inception. A Central Bank of Kenya survey CBK (2008) sets the number of conventional branches at 876. In addition to these branches there are only 1424 ATM machines in total implying that within the short duration of operation the M-banking outlets have tripled that of traditional banks (Wambari, 2009).

2.8 Chapter Summary

Kenyan mobile banking sector presents a delightful outlook of exploitation. Most stakeholders acknowledge the importance of mobile banking in a myriad of their daily activities. Commercial banks have been in the fore-front in the adoption and embracing of new technologies. The theories of intermediation especially the transaction costs and information asymmetry are especially important as the banks can easily communicate with their customers on their products at a relatively lower costs. Many banks are serving their customers using m-banking which range from ATM, internet banking and mobile phone banking.

Several studies have been done on mobile banking in Kenya. However, these studies have concentrated on the adoption of mobile banking both among commercial banks and customers. There is no study that has sought to establish the effect of mobile banking on the financial performance of commercial banks in Kenya hence this study seeks to fill this existing gap.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the overall methodology to be used in the study. It includes: research design, population, a description of data collection methods, and data analysis approach to be used.

3.2 Research Design

This will be a census survey that collects data from the entire population of 44 commercial banks in Kenya. Each bank will be given one questionnaire through the finance department. The choice of census is based on the relatively small population (44) of commercial banks in Kenya and the fact that they are mainly concentrated in Nairobi thus making it easy and cost effective to contact them. Moreover, most banks have their head offices in Nairobi where financial results are generated and analyzed. The research will be collecting descriptive data for analysis purposes because of the sensitive nature of quantitative data relating to the study. Self administration of questionnaires will be used to distribute questionnaires to identified respondents. The variables will be assessed using descriptive measures, according to Otieno (2008) a descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation.

3.3 Population and Sample of the study

The population of the study is 44 commercial banks listed by the Central Bank Kenya (CBK). These are organizations that are involved in providing financial services to

clients. For purposes of this research, the entire population will be used because only one questionnaire will be given to each bank and most banks have their head office operations in Kenya located in Nairobi hence easily accessible. Therefore a total of 44 questionnaires are expected to be filled. The banking sector was selected largely because it has taken a lead role in implementing new ICT services and systems, Otieno (2008) and has also been willing to try new technology. Besides, the banking sector is one of the sectors that have invested heavily in ICT systems.

3.4 Data Collection

Primary data was collected using a self-administered questionnaire with semi-structured questions. The first part of the questionnaire is constructed to collect general information about the respondent and the financial institution while the second part was to concentrate on gathering data related to the effects of mobile banking on operating costs of commercial bank in Kenya. The respondents will be finance managers or people working in finance department. Finance managers were chosen because of their role and ability which give them ability to effectively respond to most of the questions. The questionnaire will be piloted to two banks and revisions made where necessary before the main data collection exercise. The drop and pick method will be used. The questionnaires will be hand delivered to commercial banks with self addressed envelops enclosed.

3.5 Data Analysis

The collected questionnaires from the field was inspected for errors and omissions, accuracy, uniformity and completeness, edited, coded and then inputted into IBM Statistical Package for Social Sciences (SPSS) Statistics version 17 package. Given that

this is a descriptive design, data analysis will be done using ratios, percentage and proportions to assess the relative importance of various grouped factors. The following regression model will be used to compute the relative effects of mobile banking on the financial performance of commercial banks:

$$Y = \frac{AA^w}{T_a} + \frac{BB^w}{T_b} + \frac{CC^w}{T_c} + \frac{DD^w}{T_d} + \frac{EE^w}{T_e} + \frac{FF^w}{T_f} + \frac{GG^w}{T_g}$$

Where Y- Effect of mobile banking on performance of commercial banks

A- The weight assigned to Income in affecting financial performance

B- The weight assigned to salaries and wages in affecting financial performance

C- The weight assigned to depreciation of plant and equipment in affecting financial performance

D- The weight assigned to rent for branch premises in affecting financial performance

E- The weight assigned to stationery, telephone and postage in affecting financial performance

F- The weight assigned to amortization of ICT systems in affecting financial performance

G- The weight assigned to other administrative cost in affecting financial performance

A^w- Total score of respondents for income

B^w- Total score of respondents for salaries and wages

C^w- Total score of respondents for depreciation on plant and equipment

D^w- Total score of respondents for rent for branch premises

E^w - Total score of respondents for stationary, telephone and postage

F^w - Total score of respondents for amortization of ICT systems

G^w- Total score of respondents for other administrative costs

T_a- Total possible maximum score for income

T_b- Total maximum possible score for salaries and wages

T_c- Total maximum possible score for depreciation on plant and equipment

T_d- Total maximum possible score for rent for branch premises

T_e- Total maximum possible score for stationery, telephone and postage

T_f- Total maximum possible score for amortization on ICT systems

T_g- Total maximum possible score for other administrative costs

The basis for using descriptive measure was to give a basis for determining the weights of the variables under the study. A ranking based on the likert scale will also be used to help analyze the data closely. Zhengh and Zhong (2005) and Waila (2008) have used the likert scale in the studies successfully. Findings will be presented using pie charts and bar graphs for easier interpretation

3.6 Data Reliability and validity

Mugenda and Mugenda (2003) asserted that, the accuracy of data largely depended on the data collection instruments in terms of validity and reliability. Validity as denoted by Robinson (2002) in the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. Validity will be ensured by having objective data. This will be achieved by pre-testing the questionnaire to a sample of two

respondents of the information to be collected to determine the accuracy of the instrument. Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda and Mugenda 2003). In this study, reliability will be ensured by pre-testing the data with a selected sample of two commercial banks in Kenya.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter covers data analysis and findings of the research. The data is summarized and presented in the form of tables and pie-charts. The collected data has been analyzed and interpreted in line with the aim of the study which is to determine the effects of mobile banking on the financial performance of commercial banks in Kenya.

4.2 Data Presentation

A total of 44 questionnaires were distributed to commercial banks operating in Kenya. 34 commercial banks filled the questionnaires. The information was collected from finance managers, branch managers, human resource managers and Information technology managers. The banks that did not respond gave various reasons including the competitive sensitivity of the information required; only senior officers of the bank could authorize release of the information and they were out of office on official duties, some banks feared misuse of the information required.

Table 4.1: Overview of Data Collected

Institutions	Number of Institutions	Population (t)	Response rate (r)	Non responsive error (t-r)
Commercial Banks	44	44	34	10
Total	44	44	34	10

Key: t= Population (100%); r= Response Rate (77.28%); t-r=Non-responsive error (22.72%)

Source: Research Data

Out of 44 questionnaires that were administered, 34 were dully filled and returned. This represents 77%, which is considered significant enough to provide a basis for valid and reliable

conclusions with regard to the effects of mobile banking on the financial performance of commercial banks in Kenya. This is well explained in table 4.1 above.

4.3 Data Analysis

Table 4.2: Ownership of the Commercial Banks

Ownership structure			
	Government	Private	Total
No. of respondents	2	32	34
Total	2	32	34
Percentage	6%	94%	

Source: Research Data

A majority (94.12%) of the respondents were from privately owned commercial banks while 5.88% had government ownership. All banks were incorporated and licensed to operate in Kenya under the Banking Act, Cap 488.

Table 4.3: Age of Commercial Banks in the Industry

No. of years	No. of respondents	Percentage
Less than 15 years	1	2.94%
16 to 30 years	16	47.06%
31 to 45 years	4	11.76%
Above 46 years	13	38.24%
Total	34	100.00%

Source: Research Data

The research established that majority of the commercial banks have been in operation for between 16 and 30 years (47.06%), 38.24% more than 46 years, 11.76% for between 31 and 45 years and only 2.94% for less than 15 years.

Table 4.4: Clientele Base of Banks

Clientele Base		
	No. of respondents	Percentage
Less than 100,000	0	0.00%
Between 100,000- 499,999	12	35%
Between 500,000- 999,999	18	53%
Over one million	4	12%
Total	34	100.00%

Source: Research Data

The researcher wanted to establish the number of customers served by different commercial banks operating in Kenya. The study found that majority of the respondents (53%) had clients between 500,000 – 999,999 followed by 12 respondents (35%) having between 100,000 and 499,999 clients. 4 respondents (12%) had over one million clients. No respondent had less than 100,000 clients. This is as shown in table 4.4 above.

Table 4.5: Provision of Mobile Banking Services

Provision of Mobile Banking Services		
	No. of respondents	Percentage
Yes	34	100%
No	0	0%
Total	34	100%

Source: Research Data

The researcher sought to find the implementation of mobile banking services among commercial banks operating in Kenya. All the 34 respondents who returned the questionnaire have implemented mobile banking system. This is as represented in table 4.5 above.

Table 4.6: The Type of Mobile Banking Services Offered

Type of Services offered through mobile Banking				
	Offering the service	Proportion	Not offering the service	Proportion
Point of sale services	13	38%	21	62%
ATM services	34	100%	0	0%
Internet Banking	23	68%	11	32%
Mobile Phone Banking	34	100%	0	0%

Source: Research Data

Point of sale services were provided by 13 commercial banks representing 38%. All (100%) respondents offered Automated Teller Machine services. Internet banking was offered by 68% of respondents while mobile phone banking services were provided by all the respondents. The service that has not been taken up by most respondents was point of sale and internet banking.

Table 4.7: Age of Mobile Banking In the Industry

Age of mobile Banking in the industry		
	No. of respondents	Percentage
Less than 1 year	0	0.00%
1-5 years	11	32%
more than 5 years	23	68%
Total	34	100%

Source: Research Data

Majority of the respondents (68%) have been offering mobile banking services for more than 5 years closely followed by respondents with between 1 and five years. Majority of the respondents in the category of 1-5 years commenced their operations in Kenya between the year 2005 and 2010 when this study was conducted.

Table 4.8: Mobile Banking Clientele Base

Mobile banking clientele base		
	No. of respondents	Percentage
Less than 100,000	0	0.00%
100,000-200,000	5	14.71%
200,000-300,000	3	8.82%
300,000-400,000	3	8.82%
400,000-500,000	2	5.88%
over 500,000	21	61.76%
Total	34	100.00%

Source: Research Data

The respondents were asked to indicate the number of customers utilizing their mobile banking services. 21 respondents (62%) had over 500,000 mobile banking customers, 5 had customers between 100,000 and 200,000. The number of respondents having mobile banking customers ranging between 200,000 and 400,000 was 6.

Table 4.9: Importance of Factors in Affecting Financial Performance

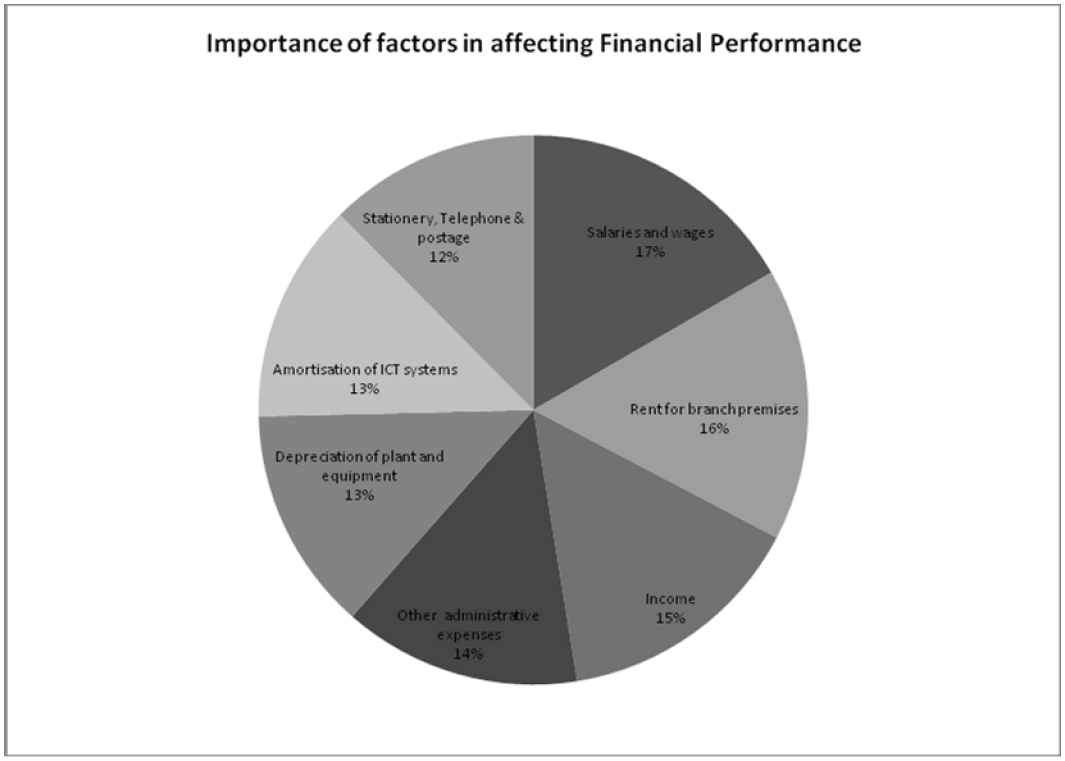
Factor	Score (%)
Salaries and wages	17
Rent for branch premises	16
Income	15
Other administrative expenses	14
Depreciation of plant and equipment	13
Amortisation of ICT systems	13
Stationery, Telephone & postage	12
Total	100

Source: Research Data

Respondents were asked to rank the factors affecting the financial performance of commercial banks. Respondents attached great importance on salaries and wages (17%), followed by rent for branch premises (16%), Contribution to income (15%), Other

administrative expenses were ranked fourth with 14% while Depreciation of plant and equipment and amortization coming in closely in sixth and seven positions respectively with 13% each. Stationery, telephone and postage were ranked the least important in affecting financial performance of commercial banks in as far as mobile banking is concerned. The results are presented in a pie-chart below

Figure 4.1: Relative Importance of Factors



Source: Research Data

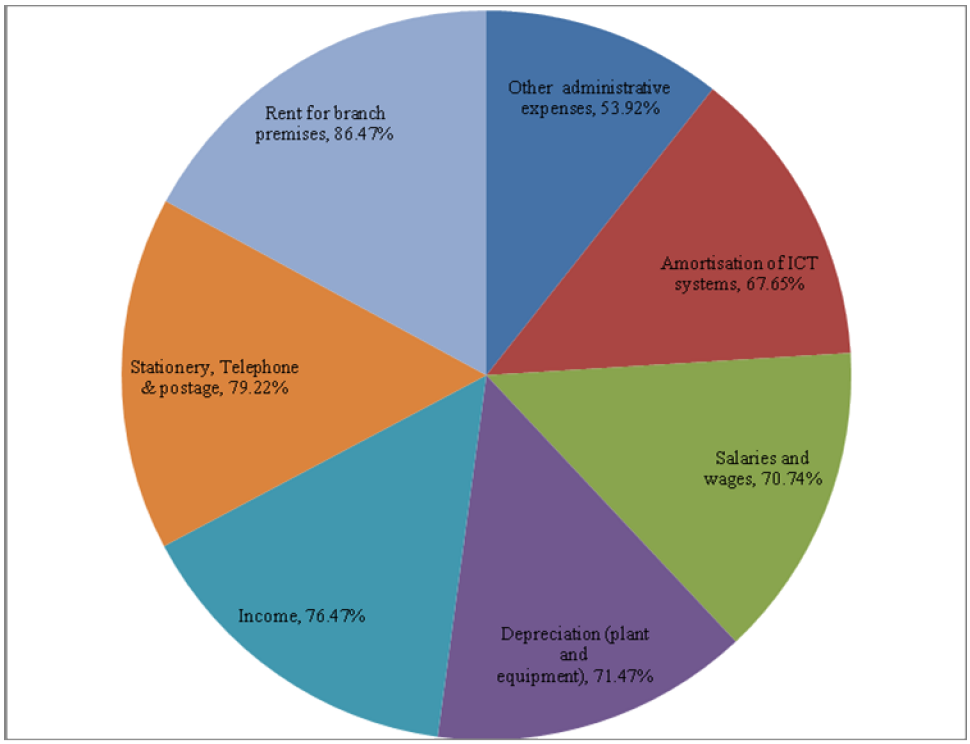
Table 4.10: Factor Analysis Score

Factor	Total score
Other administrative expenses	54%
Amortisation of ICT systems	68%
Salaries and wages	71%
Depreciation of plant and equipment	71%
Income	76%
Stationery, Telephone & postage	79%
Rent for branch premises	86%

Source: Research Data

Respondents indicated that mobile banking had great effect on the rent for branch premises at 86%, followed by stationery, telephone and postage charges (79%). The least score was recorded on other administrative expenses (54%). Income came in at third position with 76%, Salaries and wages, and depreciation on plant and equipment tied at 71%. Amortisation of ICT systems was at 68%.

Figure 4.2: Effect of Mobile Banking On the Factors



Source: Research Data

As indicated under research methodology in Chapter 3, the following regression model will be used to compute the index effects of mobile banking on the financial performance of commercial banks in Kenya.

$$Y = A\frac{A^w}{T_a} + B\frac{B^w}{T_b} + C\frac{C^w}{T_c} + D\frac{D^w}{T_d} + E\frac{E^w}{T_e} + F\frac{F^w}{T_f} + G\frac{G^w}{T_g}$$

Where Y- Effect of mobile banking on performance of commercial banks

A- The weight assigned to Income in affecting financial performance

B- The weight assigned to salaries and wages in affecting financial performance

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F^w - Total score of respondents for amortization of ICT systems

G^w- Total score of respondents for other administrative costs

T_a- Total possible maximum possible score for income

T_b- Total maximum possible score for salaries and wages

T_c- Total maximum possible score for depreciation on plant and equipment

T_d- Total maximum possible score for rent for branch premises

T_e- Total maximum possible score for stationery, telephone and postage

T_f- Total maximum possible score for amortization on ICT systems

T_g- Total maximum possible score for other administrative costs

Therefore, this can be summarized in the table 4.11 below

Table 4.11: Mobile Banking Effect Computation

Factor	Total score (%)	Factor weight (%)	Effect (%)
Other administrative expenses	54	14	8
Amortisation of ICT systems	68	13	9
Salaries and wages	71	17	12
Depreciation of plant and equipment	71	13	9
Income	76	15	11
Stationery, Telephone & postage	79	12	10
Rent for branch premises	86	16	14
Total Effect (Y)		100	73

Source: Research Data

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings and makes conclusions based on the specific objective of this study i.e. to determine the effect of mobile banking on the financial performance of commercial banks in Kenya. It also includes the study recommendations, limitations of the study and suggests areas for further research.

5.2 Summary of the findings and conclusions

The study reveals that all 34 commercial banks included in this research have implemented mobile banking systems. However, various banks are at various stages of implementation and are experiencing different levels of effect on their financial performance. The effect index was 72%. This indicates that the banks that have fully operationalized mobile banking are having a greater effect on their financial performance than those yet to fully embrace it. The study revealed that mobile banking has greatest effect on staff salaries and wages (17%), followed closely by rent for branch premises (16%). Income came in third (15%) while other administrative expenses 14%. Depreciation on plant and equipment had the same index with amortization of ICT systems at 13% each and the least affected was stationery, telephone and postage charges which registered a 12% index. From these findings mobile banking has greatly affected staff salaries and wages hence leading to a great effect on the financial performance of commercial banks.

5.3 Limitations of the study

Mobile banking is a relatively new technology and not very many studies have been done especially on its effect on the financial performance of commercial banks. The few studies that have been done have tended to concentrate on its adoption. Furthermore, the banking industry is a very competitive environment and as such, the bank management did not want to disclose their information for fear of competition. On the same note, due to the insecurity risks involved in the banks, management in some instances were suspicious of any inquisitive personality especially on issues which are believed to be used by the competitors in extracting sensitive information.

The extent of the study was limited by time to collect all the questionnaires from the respondents, which may have led to improved conclusions.

5.4 Suggestions for further Research

This was a study of the effect of mobile banking on the profitability of commercial banks in Kenya. Since no study had been carried out in this area, I recommend that another study be carried out after a period of time (say three to five years) to measure the change in the effect index. As more and more banks chose to deliver their financial services through mobile banking, a study on the factors hindering full adoption of mobile banking by all banks need to be carried out to establish the reasons behind some commercial banks not fully utilizing mobile banking systems.

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APPENDICES

Appendix A: Income statement format of commercial banks

	Current year KShs	previous year KShs
Interest income	xx	xx
Interest expense	(xx)	(xx)
NET INTEREST INCOME	xx	xx
Commissions	xx	xx
Foreign exchange gain	xx	xx
Changes in fair value of investments	xx	xx
Net (losses)/ gains on re-measurement of investments	xx	xx
Amortisation of investments held to maturity	xx	xx
Amortisation of capital grants	xx	xx
Other income	xx	xx
OPERATING INCOME	xx	xx
Net impairment losses on loans and advances	xx	xx
Other operating expenses	xx	xx
OPERATING EXPENSES	xx	xx
PROFIT BEFORE TAX	xx	xx
TAX CHARGE	xx	xx
NET PROFIT FOR THE YEAR	xx	xx
Basic and Diluted Earnings per share (KShs.)	xx	xx
Dividend per share (KShs.)	xx	xx

Source: CBK May 10, 2010

Appendix B: Components of other operating expenses components

	Current year	previous year
Salaries and wages	xx	xx
Depreciation on property and equipment	xx	xx
Rent for branch premises	xx	xx
Motor vehicle running & other equipment maintenance	xx	xx
Stationery	xx	xx
Travelling	xx	xx
Telephone & postage	xx	xx
Contribution to Deposit Protection Fund	xx	xx
Amortisation of intangible assets	xx	xx
Directors' emoluments	xx	xx
Other administrative expenses	xx	xx
Other operating expenses	xx	xx

Source: CBK May 10, 2010

Appendix C: List of Commercial Banks operating in Kenya.

1. African Banking Corporation, Nairobi
2. Bank of Africa Kenya, Nairobi
3. Bank of Baroda, Nairobi
4. Bank of India, Nairobi
5. Barclays Bank of Kenya, Nairobi
6. CFC Stanbic Bank, Nairobi
7. Charterhouse Bank Ltd, Nairobi
8. Chase Bank Ltd, Nairobi
9. Citibank, Nairobi
10. City Finance Bank, Nairobi
11. Co-operative Bank of Kenya, Nairobi
12. Commercial Bank of Africa, Nairobi
13. Consolidated Bank of Kenya Ltd, Nairobi
14. Credit Bank Ltd, Nairobi
15. Development Bank of Kenya, Nairobi
16. Diamond Trust Bank, Nairobi
17. Dubai Bank Kenya Ltd, Nairobi
18. Equatorial Commercial Bank Ltd, Nairobi
19. Equity Bank, Nairobi
20. Family Bank, Nairobi
21. Fidelity (Commercial) Bank Ltd, Nairobi
22. Fina Bank Ltd, Nairobi
23. First Community Bank Ltd, Nairobi
24. Giro Commercial Bank Ltd, Nairobi
25. Guardian Bank, Nairobi
26. Gulf African Bank Ltd, Nairobi
27. Habib Bank A.G. Zurich, Nairobi
28. Habib Bank Ltd, Nairobi (foreign owned)
29. Housing Finance Co. Ltd, Nairobi

30. Imperial Bank, Nairobi
31. I&M Bank Ltd (former Investment & Mortgages Bank Ltd), Nairobi
32. K-Rep Bank Ltd, Nairobi
33. Kenya Commercial Bank Ltd, Nairobi
34. Middle East Bank, Nairobi
35. National Bank of Kenya, Nairobi
36. National Industrial Credit Bank Ltd (NIB Bank), Nairobi
37. Oriental Commercial Bank Ltd, Nairobi
38. Paramount Universal Bank Ltd, Nairobi
39. Prime Bank Ltd, Nairobi
40. Southern Credit Banking Corp. Ltd, Nairobi
41. Standard Chartered Bank , Nairobi
42. Trans-National Bank Ltd, Nairobi
43. UBA Kenya Bank Ltd., Nairobi
44. Victoria Commercial Bank Ltd, Nairobi

Source: CBK May 10, 2010

Appendix D: Questionnaire

INVESTIGATING THE EFFECTS OF MOBILE BANKING ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

Date _____

Please take a few minutes to complete this questionnaire. Your honest answers will be completely anonymous, but your views, in combination with those of others are extremely important in building knowledge on effect of mobile banking in Kenya. Kindly answer all questions.

Section A: Demographic and Mobile Banking Details

1. Name of the Bank (optional) _____
2. How can you describe the ownership of your Bank?

(a) Government [ ] (b) Private [ ]

3. How long has your Bank been in operation?

(a) 1- 15 years [ ] (b) 16-30 years [ ] (c) 31-45 years [ ] (d) Over 46 years [ ]

4. What is your clientele base? (Tick as appropriate)

a) Less than 100,000 [ ]

b) Between 100,000- 499,999 [ ]

c) Between 500,000- 999,999 [ ]

d) Over one million [ ]

Section B; Mobile Banking implementation

5. Does your bank offer mobile-banking services to its customers?

(a) Yes [ ] (b) No [ ]

6. If yes, which ones (tick all that apply)

(a) Point of sale services [ ]

(b) ATM services [ ]

(c) Internet Banking [ ]

(d) Mobile Phone Banking [ ]

(e) Other (please specify)_____

7. If No, please give reason(s) _____

8. For how long has the Bank been offering mobile-banking services? (tick as appropriate)

(a) Less than 1 year [ ]

(b) Between 1-5 years [ ]

(c) More than 5 years [ ]

9. What is an approximate number of your mobile-banking clientele base? (tick as appropriate)

(a) Less than 100,000 [ ]

(b) Between 100,000- 200,000 [ ]

(c) Between 200,000-300,000 [ ]

(d) Between 300,000-400,000 [ ]

(e) Between 400,000-500,000 [ ]

(f) Over 500,000 [ ]

Section C: Effects of Mobile Banking

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
INCOME					
M-Banking services has increased the income from service fees	[ ]	[ ]	[ ]	[ ]	[ ]
The M-Banking has increased the bank's net interest income	[ ]	[ ]	[ ]	[ ]	[ ]
OPERATING COST					
SALARIES & WAGES					
M-Banking has reduced permanent staff head count	[ ]	[ ]	[ ]	[ ]	[ ]
M-Banking has reduced casual staff employed by the bank	[ ]	[ ]	[ ]	[ ]	[ ]
M-Banking has reduced queues in the hall	[ ]	[ ]	[ ]	[ ]	[ ]
M-Banking has reduced total salaries & wages	[ ]	[ ]	[ ]	[ ]	[ ]
DEPRECIATION OF PLANT AND EQUIPMENT					
M-Banking has reduced the depreciation levels of plant and equipment in the bank	[ ]	[ ]	[ ]	[ ]	[ ]

M-Banking has extended the useful life of the bank's plant and equipment	[ ]	[ ]	[ ]	[ ]	[ ]
RENT FOR BRANCH AND PREMISES					
M-Banking has reduced physical branches for the bank	[ ]	[ ]	[ ]	[ ]	[ ]
ATM/internet banking/mobile phone banking has reduced need for setting up physical branch offices	[ ]	[ ]	[ ]	[ ]	[ ]
STATIONERY , TELEPHONE AND POSTAGE					
M-Banking has reduced printing costs	[ ]	[ ]	[ ]	[ ]	[ ]
M-Banking has reduced telephone costs	[ ]	[ ]	[ ]	[ ]	[ ]
M-Banking has reduced postage costs	[ ]	[ ]	[ ]	[ ]	[ ]
Amortisation of ICT SYSTEMS					
Amortisation of ICT systems has increased since the adoption of M-Banking	[ ]	[ ]	[ ]	[ ]	[ ]
Litigation costs arising from M-Banking frauds are high	[ ]	[ ]	[ ]	[ ]	[ ]
OTHER ADMINISTRATIVE EXPENSES					
The cost of integrating the systems with those of mobile banking service providers has increased administrative costs	[ ]	[ ]	[ ]	[ ]	[ ]
M-Banking advertisement costs are high	[ ]	[ ]	[ ]	[ ]	[ ]
In general, operating costs have increased with the introduction of M-Banking	[ ]	[ ]	[ ]	[ ]	[ ]

Section C: Respondents' Priority

Below are factors that are important to commercial banks in measuring the effects of mobile banking on their financial performance. On a scale of 1-5, please score them in order of importance in affecting of financial performance. (5 represents the most important)

Number	Factor	Score (1-5)

	Income	
	Salaries and wages	
	Depreciation of plant and equipment	
	Rent for branch premises	
	Stationery, Telephone & postage	
	Amortisation of ICT systems	
	Other administrative expenses	