

Effect of Agency Banking on Financial Inclusion in Kenya

Mark Kariuki Munoru

Department of Economics, Accounting and Finance, The Jomo Kenyatta University of Agriculture and Technology

Abstract: *This study sought to evaluate the effect of agency banking on financial inclusion in Kenya. The objectives of this study were to analyze the effects of agency banking on financial inclusion in Kenya. Analyze and evaluate whether effects of cash deposit, payment of retirement and social benefits by customer, payment of bills and banking agencies engaged through agency banking transactions on financial inclusion in Kenya. The study was based on secondary data from the CBK. The sample size was Kenya Banking sector comprising of 13 banks out of 44 commercial banks as at December 2014. Data analysis entailed collection of data, compilation and editing of data for completeness using e-views statistical software. The study used inferential statistics, normality test, correlation analysis regression analysis, unit root test and error correction model to investigate the relationship between financial inclusion and agency banking. From the findings, agent banking had a positive and insignificant relationship with the financial inclusion. There was no causality between the variables. It was concluded that the financial inclusion initiative had no effect to agency banking on financial inclusion in Kenya. It was recommended that government to implement and always asses' impact of agency banking on financial inclusion initiative and policies to be analysed frequently. The study recommended future research to investigate other financial inclusion initiatives.*

Keywords: Agency banking, Financial inclusion, Kenya

1. Introduction

The chapter documents the statement of the research problem, general and specific objectives of the study, research hypotheses, significance, and scope of the study and limitation of the study.

1.1 Background

Banks play a vital role in the society because they create efficiencies geared towards economic development. They thus create an avenue which ensures that the individuals and entities which have excess funds are able to invest and earn a return. On the other hand, those with deficit and require financing for their viable investments are able to borrow sufficient funds at a cost. This process which links the lenders (those with excess funds) and the borrowers (those requiring financing) is called financial intermediation, which is basically what commercial banks do. There are other financial intermediaries which include insurance companies, investment banks, mutual companies and pension funds. As Mishkin and Eakins (2009) indicates, banks are financial institutions that accept deposits and make loans. Included under the term banks are firms such as commercial banks, savings and loan associations, mutual savings banks, and credit unions. Due to their vital position in the economy, it is not possible for an economy to operate without them and every average person interacts with them most frequently. The roles played by commercial banks in the economy include: credit provision, liquidity provision, risk management, remittance of money, rapid economic development and promotion of entrepreneurship Abel (2013).

1.1.1 Adoption of Agency Banking in Kenya

For a long time, the expansion strategy of many commercial banks in world over was through building premises for new branches or leasing space. Regardless of the achieved

expansion of branches network which mostly was challenged by high overheads and inefficiencies, the challenge of access to formal financial services remained a big impediment to financial inclusion. People (especially in remote areas) were forced to travel long distances and spend huge amounts of money on transport in order to access a branch. In addition to the cost of transport, time spent commuting to and fro could have been spent more productively.

In their endeavor to reach out to the unbanked population, commercial banks have developed innovative channels of availing financial services to this calibre of populace and consequently making money, without necessarily using the traditional branch networks or Automated Teller Machines (ATMs). The targeted poor are mostly in the rural areas and the slums, who are unable to access financial services such as opening bank accounts and loans. The channels the banks are adopting to reach this group of population involve engaging retail agents in shops, petrol stations, grocery stores, chemists, etc. These channels have proved to be cost effective and able to reach to the areas where it may not be economically viable to establish a branch.

This model has come to be known as Agency Banking Model. The object of this model is to increase the level of formal financial inclusion in un-served and underserved areas by encouraging people to open accounts, deposit cash and withdraw cash using the agencies instead of directly going to the banks.

1.1.2 Financial inclusion

Financial inclusion is an initiative aimed at ensuring that financial services are made available to the low levels of populace, specifically the least advantaged and low income individuals in the society and at an affordable cost. Jayanty (2012) has continued to postulate that agency banking has enabled commercial banks to extend their reach not only into areas with poor branch penetration but also up to the

doorstep of those who are reluctant, or otherwise unable to make a trip to the nearest branch.

Cash deposits and withdrawals are the most active attribute of agency banking. Mas and Siedek (2008), provides a brief description on how this aspect of agency banking operates in several countries in Latin America. They indicate that customers are issued bank cards with appropriate personal identification number (PIN)-based or biometric security features, and the local store (the banking agent) can be equipped with a point-of-sale (POS) device controlled by and connected to the bank using a phone line or wireless or satellite technology. Infrastructure requirements can be further reduced by using mobile phones both to hold “virtual cards” for customers and as a POS device at the store. Mas and Siedek (2008) continue to indicate that, if a customer wishes to make a deposit at a store, swiping a bank-issued card puts the customer in direct communication with the bank. The bank automatically withdraws the equivalent amount from the banking agent’s bank account to fund the deposit and issues a paper receipt to the customer through the POS device. The agent keeps the cash in compensation for the amount taken out of its bank account. If a customer wishes to make cash withdrawal, the opposite happens: the agent provides cash from the till, but is compensated by an equivalent increase in its bank account. Of course, the store manager will at some point need to go to the bank to balance the till. In effect, bank customers have delegated to the store manager the bothersome (and, in some cases, risky) job of having to go to the bank to balance the community’s net cash requirements, and for that the store manager gets a commission based on the number of transactions.

In terms of the inception and growth of agency banking model world over, Brazil is often recognized as a global pioneer in the area of agency banking since it was an early adopter of the model, having adopted the model in year 2000 and over the years has developed a mature network of agent banks covering more than 99% of the country’s municipalities. Other countries in Latin America have followed suit, including Mexico in year 2009, Peru in year 2005, Colombia in year 2006, Bolivia in year 2006, Ecuador in year 2008, Venezuela in year 2009 and Argentina in year 2010. Other countries around the world that have also utilized the agent banking model to expand financial services, include Pakistan, Philippines, Kenya, South Africa, Uganda, and India AFI (2012). As a driver of growth in agency banking in Kenya, technology has played vital role. As documented by Mbobua, et. al. (2013), technology has led to revolution in banking for the past 30 to 40 years. As a result, most commercial banks started adopting various alternative channels of banking that were based on technology. Therefore, there has been a paradigm shift from the traditional frontline counter services to technology based services. The agency banking model mostly uses mobile telephone networks as the back-bone of the operations. In Kenya for example, mobile telephone providers such as Safaricom, Airtel, Yu and Orange have been used by the banking agents as a means of interactions between themselves and the commercial banks.

In 2009, the Central Bank of Kenya (CBK) commenced measures to open up banking channels to non-bank agents

with the first commercial banks granted authority to operate agency banking in year 2010. Commercial banks in Kenya have adopted agency banking as part of financial inclusion initiatives aimed at reaching the poor and un-banked population, which is thought to alleviate poverty levels. In addition to the objective of financial inclusion, banks has used the agency banking to reduce their operational costs. Brick and mortar branches carry inherent administrative costs as opposed to distribution of services through mobile networks and third party agents which have been considered cost effective. Jansen (2010) supports this argument by stating that retail agents are highly cost-effective because they leverage existing infrastructure and reduce distance to banking entities and also reduce transaction costs for clients, yet allow for face-to-face interaction. An agent intermediates transactions through its own bank account that would otherwise require clients to travel to a branch. According to CBK (2013), guidelines issued by Central Bank of Kenya have stipulated the allowed activities by banking agents which are: cash deposit and cash withdrawal, cash disbursement and cash repayment of loans, cash payment of bills, cash payment of retirement and social benefits, cash payment of salaries, transfer of funds, balance enquiry, generation and issuance of mini bank statements, collection of documents in relation to account opening, loan application, credit and debit card application, collection of debit and credit cards, agent mobile phone banking services, cheque book request, cheque book collection by customers, collection of bank mail/correspondence for customers and any other activity as the Central Bank of Kenya may prescribe.

The available statistics of the agency banking adoption in Kenya are encouraging. As at 31st December 2014, CBK had authorized 16 commercial banks to offer banking services through third parties (agents). According to CBK (2014), since year 2010, a total of 35,789 and 58 agents had been contracted by commercial banks and microfinance banks respectively facilitating over 138.7 million transactions valued at Ksh. 752.5 billion cumulatively since 2010. In comparison with 31st December 2013, 13 banks had been authorized (no microfinance banks) and had contracted 23,477 agents, which facilitated over 80.7 million transactions valued at Ksh. 432 billion cumulatively since 2010.

1.2 Statement of the Problem

Agency banking as a branchless banking model has been very successful in propelling financial inclusion in many developing countries. Success stories have been reported in Colombia, Brazil, Peru and India. This is according to Kinyanjui (2011). However in Kenya just a few banks have so far taken up the option. CBK (2014) only 13 out of the 44 commercial banks have successfully embraced agency banking.

Many studies have been done on agency banking, but the studies are not exhaustive because agency banking is still at its formative stages and a lot of new developments and new changes are coming up on day to day. According to Ndome (2011) agent banking and its adoption in Nairobi focused on low end residential area within the city and it was evident

that the services and not financial inclusion but the high utilization of agent services was an indicator of some level of exclusion that was existent and which no one paid attention to.

The Financial Sector Deepening (FSD) and CBK (2010) did a study on measures to open up banking channels to non-bank agents using leading internal firms in this area (Bankable Frontier Associates). The study (Regulation and supervision of bank channels: policy options for Kenya) re-examined the role of branches and also looked into the policy options for future regulation of commercial banking channels. The findings were that agent banking could effectively reduce the cost of setting up branches and operational costs would be significantly reduced and some costs eliminated totally CBK (2010).

Barasa and Mwirigi (2013) indicates that agency banking has increasingly gained importance in developing countries over the last decade. However the extent to which agency banking can be used as a tool to deepen the financial sector remains largely unknown. This study sets out to evaluate the agency banking model in light of the highlighted challenges and establish the impact of agency banking on financial performance of commercial banks which have adopted the agency banking model. Some of the agency banking transactions which have impact on the financial inclusion in Kenya include customer cash deposits, customer payment of retirement and social benefits, number of new accounts opened and number of agencies engaged.

1.3 Objectives of the Study

General Objective

The general objective of this study is to establish the effect of agency banking on financial inclusion in Kenya

Specific Objectives

The specific objectives of the study are;

- 1) To determine the effect of customer cash deposits done through the agencies on financial inclusion.
- 2) To assess the effect of amount of customer payments for retirement and social benefits done through the agencies on financial inclusion.
- 3) To establish the effect of number of new bank accounts opened through the agencies on financial inclusion.
- 4) To assess the effect of the number of banking agencies engaged on financial inclusion.

1.4 Research Hypotheses

The study tests the following four hypotheses in order to achieve the defined objectives of establishing the effect of agency banking on financial inclusion in Kenya.

H₀₁: There is no significant relationship between customer cash deposits realized through agency banking and financial inclusion

H₁₁: There is significant relationship between customer cash deposits realized through agency banking and financial inclusion

H₀₂: There is no significant relationship between the amount of customer payments done through the agencies for retirement and social benefits and financial inclusion

H₁₂: There is significant relationship between the amount of customer payments done through the agencies for retirement and social benefits and financial inclusion

H₀₃: There is no significant relationship between the number of new accounts opened through the agencies and financial inclusion

H₁₃: There is significant relationship between the number of new accounts opened through the agencies and financial inclusion

H₀₄: There is no significant relationship between the number of agencies engaged and financial inclusion

H₁₄: There is significant relationship between the number of agencies engaged and financial inclusion

1.5 Significance of the study

The study sought to find out the various barriers in financial inclusion; that is, why some section of the population is excluded. The study shows how agency banking has helped to enhance financial inclusion by reaching the frontiers that wouldn't have been reached had it not for agency banking. This will increase and build on existing theory and knowledge and also update this theory on the changes that agent banking is going through as it develops.

The study is of great value in policy formulation. It is of great interest and importance to the government since it will help in the formulation and modification of the various policies and methods such as increasing incentives to motivate further inclusion and changing or modifying the regulatory framework to further enhance inclusion (Waihenya, 2012). In practice, this study is of more importance to the banks because they will know how much they are gaining through agency banking by reaching out to that extra person they will not have reached had they not engaged agent to help on agent banking. This study provides information to the public and all players; the agents, customers, banks, the regulator (CBK) on the impact of agent banking on reaching the previously unreached segments of the society. The essence of the study is to provide information on whether the agency banking model is viable for Kenyan banks in penetration to the unbanked. The study will also enumerate challenges in agency banking model and propose solutions which can be adopted to avoid the pit-falls in future. Additionally, since financial inclusion is a fundamental aspect of the Kenya's Vision 2030 Project, this study will be useful to the government of Kenya as a basis of evaluation of the achievements so far realized in the area of financial deepening and inclusion.

1.6 Scope of the study

This study used the 44 commercial banks in Kenya as at 31st December 2014 as shown in Appendix II. The main focus was 13 commercial banks which adopted and operated under the agency banking model for at least one to five year by 31st December 2014. These banks are tabulated in Appendix III. The study confined to the various attributes of agency banking which are: customer deposits through agency banking; payment of retirement and social benefits through

agency banking; payment of bills through agency banking and number of agencies through agency banking.

1.7 Limitations of the study

Most of the banks in Kenya have not enrolled for agency banking. It was therefore difficult accessing secondary financial data on performance of these banks and the effect of agency banking on financial inclusion in Kenya. Only thirteen out of the 44 banks in the country actively operate agency banking fully hence not significant enough to give a conclusive result. The study used a small sample of banks and since the population of the study is big, it may be necessary to see whether the results from the research can be confirmed by expanding the study to cover the individual agents.

The other challenge in the study is the use of only secondary data. This data has been presented by the banks with agency banking services to the CBK hence cannot be validated. Primary data could have also been used as first-hand information is obtained from the users of the service and the impact it creates in their lives.

Also, the study was analyzed for only a period of five years hence not bringing out the clear effect of agency banking on the lives of the users and its penetration in the society. This means that not full comparison was done on the variables to give out a clear picture of the effect of agency banking on inclusive financing.

Agency banking is still new in the country as it was commissioned in the year 2010. Therefore it was difficult getting empirical evidence on studies that have been done locally has there is no much data on local studies so far.

2. Literature Review

2.1 Introduction

This chapter presents the literature review on the adoption of agency banking model and its effect on the financial inclusion in Kenya. Various scholars have researched on this field and their work has been summarised in this chapter. The review covers both the theoretical and empirical aspects of the existing literature. The theoretical review helps in understanding of the current body of knowledge on the research topic while the empirical review help in understanding what other related studies have found and suggested. The reviews were used to develop conceptual frame work.

2.2 Theoretical review

The agency banking model is a fairly new innovation world over, initially pioneered in Brazil in the first decade of 21st century. As a result, the research work carried in this area is minimal. The theories which back the research work in the field of agency banking are not the conventional theories developed for finance or accounting field. However, in deciding on the adoption of the agency banking model, it is presumed that the commercial banks must have considered issues relating to how business can be done in order to grow

the customer base, satisfy the customers, reduce operating costs and have a competitive edge against the competitors. Thus the theoretical review in this study shall be on three theories namely, the diffusion of innovation theory, financial intermediation theory and agency theory.

2.2.1 Diffusion of Innovation Theory

In the recent past, innovation has been used by the commercial banks as a leading strategy to ensure survival and enhance profitability. Mbobua *et al.* (2013) notes some innovative initiatives which have been used by commercial banks include mobile phone banking, tele-banking, internet banking and fax. As indicated by Kwan (2001), while it is difficult to predict how the financial services sector in general, and the banking industry in particular, will evolve over time, financial regulators and policymakers are keenly interested in the course of financial modernization. As we look to the future of the financial services industry, it may be useful to revisit the roots of banking. Banking theories provide us with insights into why banks exist in the economy. If these theories are correct, banks exist because they perform certain special functions that no other financial services firms can replicate.

Rogers (2003) defines diffusion as the adoption of an innovation "over time by the given social system", as a consequence diffusion processes result in the acceptance or penetration of a new idea, behaviour, or physical innovation. Additionally, Sohail and Al-Jabri (2012) documents that the diffusion of innovation theory (DIT) could be considered as one of the most popular theories that have attempted to explore factors that affect an individual to adopt an innovation or a new technology. DIT is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Infante, et. al. (1997) indicates that diffusion research examines how ideas are spread among groups of people. Diffusion goes beyond the two-step flow theory, centering on the conditions that increase or decrease the likelihood that an innovation, a new idea, product or practice, will be adopted by members of a given culture. In multi-step diffusion, the opinion leader still exerts a large influence on the behaviour of individuals, called adopters, but there are also other intermediaries between the media and the audience's decision-making. One intermediary is the change agent, someone who encourages an opinion leader to adopt or reject an innovation.

Rogers (1995) explains that diffusion of innovation is dependent on the rate of adoption. Rate of adoption is the relative speed with which an innovation is adopted by members of social system. It is generally measured as the number of individuals who adopt a new idea in a specific period, such as each year. Rogers (1995) continues to document the perceived attributes of innovation as: relative advantage, i.e. the degree to which an innovation is perceived as being better than the idea it supersedes; comparability, i.e. the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters; complexity, i.e. the degree to which an innovation is perceived as relatively difficult to understand and use; triability, i.e. the degree to which an innovation may be experimented within a limited basis (new ideas that can be tried on the installment plan are

generally adopted more rapidly than innovations that are not divisible); observability i.e. the degree to which the results of an innovation are visible to others. The results of some ideas are easily observed and communicated to others, whereas some innovations are difficult to observe or describe to others. Additionally, Rogers (1995) enumerates other perceived attributes which affect the rate of innovation adoption. These are: the type of innovation-decision; the

nature of communication channels diffusing the innovation at various stages in the innovation-decision process; the nature of the social system in which the innovation is diffusing; and the extent of change agent's promotion efforts in diffusing the innovation. These relationships are as shown below in Figure 2.1.

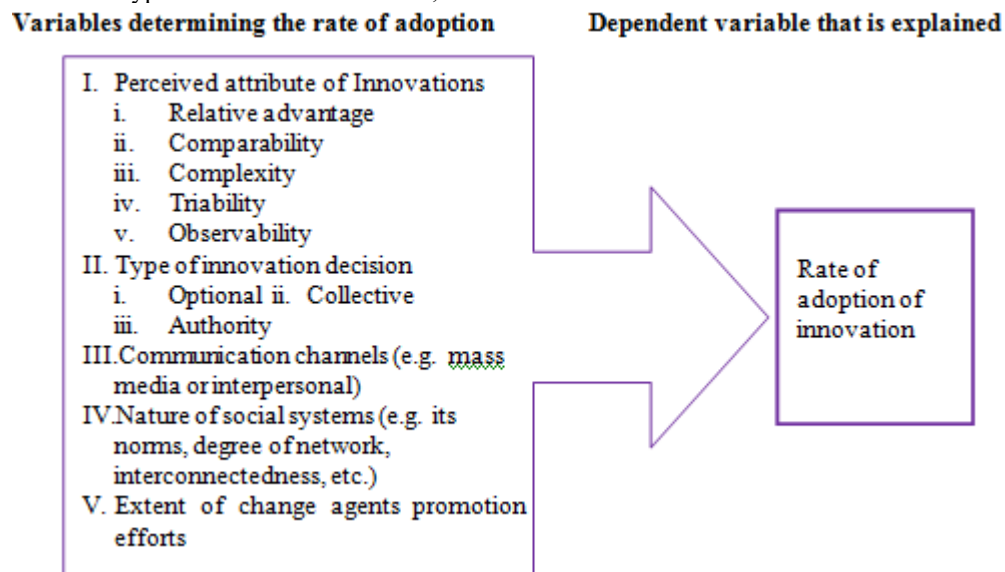


Figure 2.1: Variables affecting rate of adoption of innovation

Source: Rogers (1995)

Fast adoption and acceptance of agency banking as an innovation in the banking sectors will result to the customers having confidence in the banking agents and thereby using them to perform banking related transactions instead of having to visit the commercial banks. Thus it will enhance usage of the agents by customers to: open new bank accounts and pay for services. Additionally, it will also contribute to the willingness of more entities to operate as banking agents. In this regard, the diffusion of innovation theory supports three objectives of the study, namely: objective (ii) 'to assess the effect of amount of customer payments for retirement and social benefits done through the agencies on financial performance of commercial banks; objective (iii) 'to establish the effect of number of new accounts opened through the agencies on financial performance of the commercial banks'; and objective (iv) 'to assess the effect of the number of banking agencies engaged on financial performance of commercial banks'.

2.2.2 Financial Intermediation Theory

Financial intermediation is the process which provides a link between lenders - the individuals and entities who have excess funds and need to invest; and borrowers - those who have deficit and need financing. Due to information asymmetry and high transactional costs, it is almost impossible for the borrowers and lenders to meet directly. Thus financial intermediaries, for example, banks, insurance companies, mutual funds, pension funds etc, provide the necessary link between the lenders and borrowers. Agency banking is thus driven by this need of the commercial banks to achieve the goal of financial intermediation. Allen and Santomero (1996), indicates that in the traditional Arrow-Debreu model of resource allocation, firms and households

interact through markets and financial intermediaries play no role. When markets are perfect and complete, the allocation of resources is Pareto efficient and there is no scope for intermediaries to improve welfare. However, since markets have imperfections and information asymmetry exists, financial intermediation will always be required. Andries (2009), postulates that the financial intermediation is based on the theory of informational asymmetry and the agency theory. In principle, the existence of financial intermediaries is explained by the existence of the following categories of factors: high cost of transaction, lack of complete information in useful time; and the method of regulation. Additionally, Andries (2009), notes that the main and most used factor in the studies regarding financial intermediation is constituted by the argument regarding informational asymmetry. This asymmetry can be of type: ex-ante generating the so called problem of adverse selection; concomitant generating the moral hazard; or ex-post leading to the need of applying some costly verification and auditing procedures or even the forced execution of the debtor. Aduda, et. al. (2013) also supports the argument on need of financial intermediation where they indicate that financial intermediation places financial institutions (banks and their agents) as intermediating between money and the market or households. Resource (money) allocation based on perfect and complete markets is hindered by frictions such as transaction costs and asymmetric information.

Economies grow through mobilization and efficient allocation of resources. Commercial banks are useful in this aspect. In this regard, Ongore and Kusa (2013) postulates that through their intermediation function, banks play a vital role in the efficient allocation of resources of countries by

mobilizing resources for productive activities. They transfer funds from those who don't have productive use of it to those with productive venture. In addition to resource allocation, good bank performance rewards the shareholders with sufficient return for their investment. When there is return, there shall be an investment which, in turn, brings about economic growth. On the other hand, poor banking performance has a negative repercussion on the economic growth and development. Poor performance can lead to runs, failures and crises. Since financial intermediation has the objective of ensuring entities with excess funds are able to avail them to entities which need financing. Agency banking has brought the banking services to areas where ordinarily banks would not access. As a result entities (individuals and businesses) are able to bank the excess cash they have. Thus, the financial intermediation theory supports objective (i) of the study, 'to determine the effect of customer cash deposits done through the agencies on financial performance of the commercial banks'.

2.2.3 The Agency Theory

Commercial banks have come to realize that providing banking services to the rural population and slums is not tenable through the use of usual branch network. They have thus engaged third parties (retail outlets) which can act on their behalf and facilitate the provision of basic banking services such as account opening, cash deposits and withdrawals, among other services. This arrangement between the commercial banks and the retail outlets effectively creates the agency relationship, where the banks are the principals while the retail outlets are the agents. According to Ross et. al. (2010), a relationship exists whenever someone (the principal) hires another (the agent) to represent his or her interests. Jensen and Meckling (1976) in their documentation on agency theory defined agency

relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal. The principal can limit divergences from his interest by establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit the aberrant activities of the agent. In addition in some situations it will pay the agent to expend resources (bonding costs) to guarantee that he will not take certain actions which would harm the principal or to ensure that the principal will be compensated if he does take such actions. As the commercial banks adopt the agency banking model and engage the various agents, the principal-agent relationship is entered into. The commercial banks have to compensate the agents adequately through the transactional commissions. Due to the adequate compensation, more entities would be willing to become agents of the commercial banks. Thus, the agency theory supports the objective (iv) of the study, 'to assess the impact of the number of banking agencies engaged on financial inclusion'.

2.3 Conceptual framework

Rudestam and Newton (1992) define conceptual framework as a less developed form of theory and consisting of statements that link abstract concepts to empirical data. The conceptual model shown below is formulated to disclose the relationship between factors influencing the financial inclusion that have adopted agency banking as measured by percentage of adult population bank having accounts.

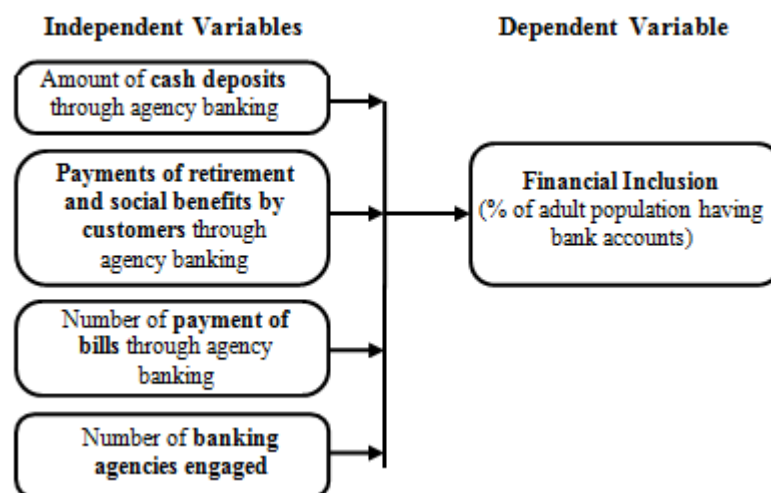


Figure 2.2: Conceptual Framework

2.4 Empirical Studies on Agency Banking

Since the adoption of agency banking model in the early 21st century, research has been done in this area which has created knowledge base for banks which may desire to venture into adopting the model. The back-bone of the agency banking model is mainly the fast changing technological advancements world over. Commercial banks

have hence leveraged on the technology to design innovations which have assured their existence in the face of ever changing environment. A feature of the banking industry across the globe has been that it is increasingly becoming turbulent and competitive. Banks, aided by technological developments, have responded to the challenges by adopting a new strategy, which emphasizes on attempting to build customer satisfaction through offering

better products and services and at the same time to minimize operation costs (Sohail and Shanmugham, 2003). Muzigiti and Schmidt (2013) indicate that innovations in information and communication technology (ICT) have transformed the banking sector. There are novel delivery channels for financial products and services. The best-known and probably most important innovation was transferring money by mobile phone. In this area, Africa has actually become the world leader. Some 16% of African adults are estimated to use mobile devices to pay bills or to send or receive money. The global average is less than five per cent. Additionally, the trend towards mobile-phone finance is likely to continue in Africa with ever more low-income earners owning cellular phones. It equally matters that connectivity is improving and ICT technology keeps making progress.

Barasa and Mwirigi (2013) indicates that agency banking has become an important avenue for growing access to banking services in technologically upward developing economies. In Kenya, for example, banking technology and other related technologies have grown rapidly in the last decade. At the center of these technologies are money transfer technologies that have given rise to innovative products like M-pesa which is a mobile phone-based savings and money transfer product operated by Safaricom, one of Kenya's premier telecommunications firm.

2.4.1 Financial Inclusion

Financial inclusion, of late, has become the buzzword in academic research, public policy meetings and seminars drawing wider attention in view of its important role in aiding economic development of the resource poor developing economies Agarwa, (2010). The size of the financially excluded population in the world is enormous according to the United Nations, approximately three billion people around the globe lack access to formal financial services- such as bank account, credit, insurance, a safe place to keep saving and a secure and efficient means to receive social benefit payments- through a registered financial institution Chibba, (2008). This sizeable population of the world particularly poor, low income and vulnerable group remain excluded from the most basic financial services provided by financial sector. It has been universally accepted that developing financial sector and improving access to financial services accelerate economic growth and helps to achieve inclusiveness growth.

Rangarajan Committee (2008) on financial inclusion stated that: "Financial inclusion may be defined as the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost." The financial services include the entire gamut of savings, loans, insurance, credit, payments, etc. The financial system is expected to provide its function of transferring resources from surplus to deficit units, but both deficit and surplus units are those with low incomes, poor background, etc. By providing these services, the aim is to help them come out of poverty. One common measure of financial inclusion that is by and large accepted universally is the percentage of adult population having bank accounts. The number of savings accounts as percent of number of

households is considered to be a better indicator of banking penetration than other deposit accounts as percent of number of households, Agarwal, (2008).

2.4.2 Adoption and growth of agency banking model

In the countries where the agency banking model has been adopted, the number of commercial banks embracing the initiative has been growing. These banks have realised that it is easier to expand their services without incurring unnecessary overhead costs which arise from setting up normal branch networks. Gardner, et. al (2000) notes that agency banking systems are up to three times cheaper to operate than branches for various reasons which include the fact that agent banking minimizes fixed costs by leveraging existing retail outlets and reducing the need for financial agent banks to invest in their own infrastructure. Although agent banking incurs higher variable costs from commissions to agents and communications, fixed costs per transaction for branches are significantly higher (Gardner, et. al., 2000). As noted by Veniard (2010), as a result of lower transaction costs and a transaction-driven revenue model, agent banking systems are most cost effective for transactional accounts with low balances and frequent transactions. For example, an account that sees two deposits and two withdrawals per month will incur more than 70 percent fewer costs if the customer transacts through an agent rather than a branch. In addition, transactional accounts can make money off the transaction services provided (e.g., Person to Person -P2P transfers, bill pay, etc.). The cost reduction has resulted to more people willing to transact using banks, especially the previously unbanked population. Studies also show that there is a direct relationship between the number of years agency banking has been in existence in a particular country and the number of agents in a given country. Alliance for Financial Inclusion - AFI (2012) gives statistics which confirm this relationship, where Brazil had 151,958 agents since adopting agency banking in 2000; Colombia - 9,843 agents since 2007; Mexico - 9,303 agents since 2010; Kenya - 8,809 agents since 2010; and Peru - 6,028 agents since 2008. Over the four years since the introduction of agency banking model in Kenya, the commercial banks reported increased transactions, mostly in cash deposits, cash withdrawals and account balance enquiries. As indicated by CBK (2014), as at 31st December 2014, for the period 2010-2014, 16 commercial banks and 3 microfinance banks had been approved to operate agency banking and they had contracted 35,789 and 58 agents respectively facilitating about 138.7 million transactions valued at Ksh. 752 billion.

The breakdown of the type, number and values of transactions through agent banking is summarized in the Table Appendix IV

In any given model of operation, challenges are inevitable. Some research work has been done to test this. As documented by Arulmurugan and Devi (2013), the agency banking model in India (Business Correspondents) has had some loopholes which has hindered its adoption. These included: firstly, the flat fee (or the revenue) for this segment was limited to 1.75% which was considered low for the services delivered by them; secondly, to keep their margins, the Business Correspondent(BCs) companies reduced the

employee force which led to infrequent services as the beneficiaries per BC increased. Due to delayed showing up of the BCs, the villagers refrained to keep money with them as it became an unreliable source to park money; thirdly, the attrition rate of BCs is around 70-80%. This simply means that till a new agent is not appointed, the village loses the access to the financial services; fourthly, this also had an adverse effect on the associated Government welfare programmes, for example, the payments under National Rural Employment Guarantee Act (NREGA) were supposed to reach the beneficiary within the stipulated period of 15 days but these were intentionally delayed by the BCs to earn interest on the payments; fifthly, to check these malpractices, the government ordered the payments of pensions within first 4 days of the month. That meant huge employee requirements in the beginning of the month. Hence, so many of the BCs started to out-source these activities to meet the workload, which in turn meant further cost elevation.

2.4.3 Commercial bank cash deposits

Commercial bank cash deposits is used as an independent variable to show the amount of cash deposits realized from customers through the agents engaged by commercial banks. In relation to competition for customer deposits, Haron and Azmi (2009) posit that the process of financial liberalization has intensified competition between financial institutions, thus forcing commercial banks to compete for deposits in various forms. First, banks are unconstrained in terms of deposit facilities they can offer. Thus, the range of products is much broader than what was previously available. Banking deposits are in various types. Haron and Azmi (2009) postulate that commercial banks offer three categories of deposit facilities that are demand, savings and time deposits. Demand deposit facility is most commonly referred to as current account and is designed for those who need money for transaction purposes. This motive can be looked at from the point of view of consumers who want income to meet their household expenditure and from the viewpoint of businessmen who require money and want to hold it in order to carry out their business activities. Hence, the purpose of deposit facility is for convenience or for making daily commitments. The second category of deposit is the savings account, which caters for the need of those who wish to save money but at the same time desire to earn an income. Depositors of savings account hold money because of precautionary motives while are simultaneously induced by their investment motives. Precautionary motive for holding money refers to the desire of people to hold cash balances for unforeseen contingencies. Others are bounded by the speculative motive for holding money. The speculative motive relates to the desire to hold one's resources in liquid form in order to take advantage of market movements regarding the future changes in the rate of interest. The final category of deposit facility is time (fixed) deposits. Such facility is offered by banks to cater for the investment motives of customers who normally have idle funds and are looking for better returns on their money.

Studies have shown that there is a positive correlation between customer deposits and customer lending. According to Obamuyi (2013), banks all over the world, thrive on their ability to generate income through their lending activities.

The lending activity is made possible only if the banks can mobilize enough funds from their customers. Since commercial banks depend on depositor's money as a source of funds, it means that there are some relationships between the ability of the banks to mobilize deposits and the amount of credit granted to the customers. Thus, the main function of financial institutions of mobilizing funds from the surplus economic agents to the deficit economic agents is put to test in order to generate economic growth.

2.4.4 Payments for retirement and social benefits

The service where customers are able to use banking agents to pay for retirement and social benefits is a fairly current phenomenon. As per CBK (2014), about 970,000 transactions with value of Kshs. 3.5 billion had been realized between 2010 and 2014 in regard to payment for retirement and social benefits. The avenue of making such payments is part of the innovative way in which commercial banks have started to use as a departure from the traditional commercial banking and thereby guaranteeing the commercial banks more income especially in the face of increased competition. Veniard (2010) indicates that by bringing the channel closer to the client, agent transaction platforms may also benefit from additional revenue associated with transactions acquired by the agent, such as person-to-person transactions and bill payments. Although customers can conduct these transactions in a branch, proximity may increase their willingness to pay for these services and increase the number of transactions conducted through the channel. Additionally, Veniard (2010) notes that, fees on transactions through agents are not higher than in traditional banking channels. However, given the benefits of greater proximity, we believe there may be increased customer willingness to pay for transaction services delivered nearby. Banks generate income from this service in terms of commissions received from the companies which provide services to the bank customers since the commercial banks collect the payments on behalf of the companies. In Kenya, the retirement & social benefits entities are National Social Security Fund (NSSF) and National Hospital Insurance Fund (NHIF).

2.4.5 Payment of Bills

In traditional banking, a customer is required to pay their bills in the station of the provider. This requirement to some extent poses hindrances to some prospective bank customer especially if the provider is a distance from the usual residence of the customer. Agency banking seeks to help the customer surmount these perceived challenges associated with the traditional banking. The advantage of the banking agencies to the prospective customers is that they are the usual outlets they are used to, e.g. pharmacies, supermarkets, cyber cafes etc. Additionally, the banking agencies are situated at areas easily accessible to the prospective bank customers. It is assumed that increased agency banking will lead to more payment of bills. As noted by (Alliance for Financial Inclusion – AFI (2012), facilitation of payment of bills through agency banking is perhaps one of the most meaningful services that a banking agent can offer with respect to financial inclusion. Facilitating payment of bills is significant because it means creating a new formal bank customer. In some countries, regulators have decided that the risks involved with allowing an agent to facilitate the opening of an account, such as those related to anti-money

laundering or know-your-client procedures, outweigh the potential benefits. Alliance for Financial Inclusion - AFI (2012) continues to state that in Colombia and Brazil, agents are not permitted to open a bank account for a new client, but they are able to facilitate the process and act as a liaison between the new client and the bank. In Brazil the agent can collect and forward the paperwork for account openings. In Colombia the agent is able to facilitate the application and, since 2009, is even able to conduct the mandatory interview with the potential client on behalf of the bank. Therefore, while the account is not opened in real time, the potential client no longer has to physically visit the bank branch to open an account.

2.4.6 Banking agencies

Alliance for Financial Inclusion - AFI (2012) gives statistics of several countries which have adopted agency banking model by the end of year 2011, where Brazil had 151,958 agents since adopting agency banking in 2000; Colombia - 9,843 agents since 2007; Mexico - 9,303 agents since 2010; Kenya - 8,809 agents since 2010; and Peru - 6,028 agents since 2008. As indicated by Alliance for Financial Inclusion - AFI (2012), the types of businesses acting as agents on behalf of banks vary from country to country. Often an agent can be any type of legal entity or business. Mexico and Peru have the additional condition that an agent cannot be an entity whose primary business is financial services. On the other hand, in Brazil and Colombia, MFIs, Savings and Credit Cooperatives, and other financial entities are acting as agents for larger financial institutions. Alliance for Financial Inclusion - AFI (2012) continues to state that in all four countries, banks are held fully liable for the services delivered by their agents. However, there is usually regulation that sets minimum requirements that agents must fulfill, such as number of years in business or a credit record from the agent. The stricter the requirements the lower the risk to the financial system, but strict requirements can also limit the ability of financial institutions to expand into areas where there are fewer qualified businesses to act as agents. It should additionally be noted that the agency banking model has cost implication to the commercial banks. The agencies engaged by the commercial banks are paid pre-agreed commissions on the various transactions they carry out on behalf of the commercial banks. The banks hence have to continuously do a cost-benefit analysis to ensure that the optimal number of agents is maintained to avoid incurring unnecessary losses.

2.5 Critique of Existing Literature

Some of the early studies done after the adoption of agency banking, especially for the pioneering countries in the Latin America, include those done by Ivatury and Mas (2008). In their findings, they opined that branchless banking had been noted to reduce costs of service delivery; the channels were being mostly used for making payments but not for saving or credit; and fewer people than expected had started using the branchless banking financial services. Sharma and Kukreja (2013) did a research meant to explore the need and significance of financial inclusion for economic and social development of society and specifically to analyze the current status of financial inclusion in Indian economy. Their findings showed that, in India, 35 per cent of people

had formal accounts versus the global average of 50 per cent and the average of 41 per cent in developing economies. In a similar research carried out in India, Dangi and Kumar (2013) investigated the factors that may be barriers to financial inclusion, where they concluded that the barriers to financial inclusion included psychological and cultural barriers, legal identity, level of income, lack of basic education/limited literacy, place of living, type of occupation and attractiveness of the product. These findings are corroborated by the research done by Chikoko and Mangwendeza (2012) where they noted the barriers to financial inclusion to include socio-economic factors (e.g. financial education, low and irregular income and geography), regulatory factors (stringent account opening requirements e.g. provision of identity documentation and proof of residence to open accounts) and product design factors (e.g., minimum account balance requirements and bank charges which are high).

Barasa and Mwirigi (2013), indicated that agency banking has created benefits to both banks and customers. Some of the notable benefits to commercial banks according to their research were:- increased sales from additional foot-traffic; lower transaction cost; ease of expansion; lower expansion costs and improved efficiency. The benefits that accrued to the clients included:- lower costs of service; decentralization of banking services which brought the bank to the customer's doorstep; lumping of bank services with shop items which created a one-stop shop for banking and retail; purchasing by the client; access to longer banking hours; shorter banking time periods owing to reduced queues at the 'bank'; easier access to the bank by the less literate and the very poor customers who would otherwise feel intimidated in branches. In addition to the enumerated benefits, Barasa and Mwirigi (2013) also indicated the challenges of managing agency banking to include confidentiality issues, security concerns due to location of the agencies, quality of customer service the agents provide to the bank and issues of fraud.

2.6 Knowledge Gap

The agency banking model is fairly a new phenomenon which banks have adopted as a financial deepening and inclusion initiatives and particularly to reach the unbanked population. In the last five years, research has been carried on financial inclusion and also to assess the adoption levels of the agency banking model. However, minimal research has been carried out with the objective of establishing the impact of model on financial inclusion. The minimal research in this area can be attributed to the fact that the model is fairly new and the effects it may have will take time to be directly observed in changes in financial performance. This research sets out to add into the knowledge in the area of agency banking and its impact on financial inclusion in Kenya.

3. Research Methodology

3.1 Introduction

This chapter documents the design and methodology of the study. It examines in detail the research design, target

population, sample size, data collection procedures and finally the data processing analysis approach.

3.2 Research Design

A research design is the conceptual structure within which research is conducted. According to Mugenda et al., (2003), this design is a systematic inquiry into which the researcher does not have direct control of the independent variables because their manifestation has already occurred. The study has used Inferential design where measures of the proposed determinants of acceptance were taken once in a cross sectional study of the respondents (Hopkins, 2000). The study adopted a time series approach in research design that sought to investigate the study variables without manipulating any of them or tampering with them in an attempt to understand, describe and explain well the effect of agency banking on financial inclusion in commercial banks in Kenya. The secondary data shall be obtained from Central Bank of Kenya.

3.3 Target Population

According to Singh (2006), population or universe means, the entire mass of observations, which is the parent group from which a sample is to be formed. The sample observations provide only an estimate of the population characteristics. In this study, all the 44 commercial banks in Kenya as at 31st December 2014 (Appendix II) shall be considered.

3.5 Sampling Size

The sample size in this study is 13 commercial banks that have adopted and operated the agency banking model for a period of at least one to five years. The banks are listed in Appendix III.

3.6 Data Collection Procedure

All the commercial banks in Kenya are required to file their annual financial statements with Central Bank of Kenya by the virtue of it being the regulator of the financial sector. Thus, the secondary data to be used in the study in regard to the financial inclusion of the sampled commercial banks for the period between 2010 and 2014 shall be obtained from reports compiled by Central Bank of Kenya (CBK). The CBK guideline on agent banking requires that all banks offering agency banking must furnish the Central Bank of Kenya with data and other information on agency operations, including the number of transactions from the agents of each bank, money flowing from each agent, incidents of fraud, theft or robbery, Customer complaints and remedial measures taken to address customer complaints. Failure to submit this data accurately and on time not later than the tenth day of the following month attracts administrative sanctions.

3.7 Data Processing and Analysis

The data shall be captured using excel spread sheet, cleaned and coded. Then it shall be analyzed using E views version 8. Inferential analysis, were used to make a prediction about

the dependent variable based on the covariance with the concerned independent variables. While the correlation measures the degree of association between variables under consideration, the regression shall estimate the relationship between the dependent and independent variables, where the dependent variable is financial Inclusion and the independent variables are various attributes of agency banking.

The regression model shall be analyzed in time series in the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y- Financial Inclusion (Bank accounts as a percentage of adult population)

β_0 - The regression constant,

$\beta_1 - \beta_5$ - Regression coefficient indicating the various levels of importance.

X_1 - Customer deposits realized through agency banking per month each bank.

X_2 - Retirement and social benefits payments by customers through agency banking per month each bank.

X_3 - Payment of Bills realized through agency banking per month each bank.

X_4 - Number of agencies engaged per month each bank.

ε - Error term

The given equation can be said to indicate that the financial inclusion of commercial banks (dependent variable) can be expressed as a liner function composed of one or more independent variables and a random measurement error which accounts for other factors not discussed.

Proper tests shall be carried out to ensure the model complies with the assumptions of a classical linear regression. These assumptions include test for homoscedasticity and multicollinearity (Gujarati, 2004). The data should conform to the assumption of OLS (Ordinary Least Squared) for regression analysis. The series need to be stationary; time series data is at time s non stationary and leads to high R^2 with large standard deviation errors and insignificant coefficients thus need to achieve stationarity. The Augmented Dickey Fuller test ADF (1979) is used to test for stationarity, while histogram of residual will be used to determine normality of the variables used with the use of Jacque Bera statistics.

4. Data Analysis, Presentation and Interpretation

4.1 Introduction

This chapter presents the analysis and findings of the study as set out in the research methodology. The data has been collected monthly from commercial banks that adopted agency banking summarized, organized, presented and interpreted using normality test, descriptive statistics, and Regression analysis using ordinary least squares method. Test for Stationarity using Augmented Dickey Fuller (ADF) test.

4.2 Descriptive Statistics

Table 4.1: Descriptive Statistics

	FI	CD	PRSBC	PB	BAE
Mean	8.333350	1010485.	16166.47	9461.467	1631.233
Median	8.323636	1000348.	21335.50	9826.000	1346.000
Maximum	9.344043	3158862.	38962.00	26632.00	3988.000
Minimum	7.258035	10231.00	0.000000	985.0000	512.0000
Std. Dev.	0.360959	865238.8	14020.40	7758.913	886.5720
Skewness	-0.081946	0.614579	-0.106676	0.642211	1.275516
Kurtosis	4.570996	2.453315	1.387965	2.292948	3.915792
Jarque-Bera	6.237221	4.524229	6.610439	5.374158	18.36610
Probability	0.044219	0.104130	0.036691	0.068079	0.000103
Sum	500.0010	60629074	969988.0	567688.0	97874.00
Sum Sq. Dev.	7.687194	4.42E+13	1.16E+10	3.55E+09	46374589
Observations	60	60	60	60	60

The results in table 4.1 indicate the mean and median of financial inclusion are equal. All the values for Jarque-Bera are reasonable hence supporting the finding that there is an even distribution.

The probability Values for obtaining the Jarque-bera values for financial inclusion was 25.8% while cash deposit through agency banking was 19.8% payments for retirement and social benefits through agency banking was 26.5% and payment of bills through agency banking was 21.8% Banking agencies engaged through agency banking was 20.7% all of them are above 5% level of significance, hence an indication of normal distribution.

4.3 Data Characteristics

4.4.1 Correlation analysis

Table 4.2: Correlation matrix for variables

	FI	CD	PRSBC	PB	BAE
FI	1.00000	0.008716	0.02768	0.034326	-0.00321
CD	0.008716	1.00000	0.776674	0.833757	0.793641
PRSBC	0.02768	0.776674	1.00000	0.664414	0.598574
PB	0.034326	0.833757	0.664414	1.00000	0.808102
BAE	-0.00321	0.793641	0.598574	0.808102	1.00000

The correlation matrix was used to examine the linear relationship between the variables and to establish the existence of multicollinearity between the explanatory variables. (Guajarati & Sangeetha 2007) defines multicollinearity as existence of perfect or exact relationship among some or all explanatory variables of a model. They further indicate that, when correlations between two variables is 0.8 and above there is evidence of high multicollinearity.

However from the above all the coefficients of between the explanatory variables of financial inclusion discussed are less than 0.8, a clear indication of absence of multicollinearity in the data series hence a justification of use of OLS regression.

4.4.2 Stationarity test

Non-stationary series in time series is often regarded as a problem in empirical analysis since it leads to spurious

results with a near-unity R-squared attained while the t coefficients are less significant. It is therefore important to ensure that the variables are stationary or cointegrated to the same order. The study used time series data and a unit root test was performed to establish stationarity of the variables, since non-stationary data leads to spurious results with test statistic exhibiting significant relationship with the variables even with the absence of such a relationship.

The Augmented Dickey Fuller (ADF Test, 1979) was used with the use of the following regression model.

$$\Delta Y_t = \alpha + \beta Y_{t-1} \sum_{j=1}^k + \Pi_j \Delta Y_{t-1} + l_t$$

Where Δ was the difference operator, Y_t is the series tested, hence ΔY_t the change in the series under consideration. k is the number of lagged difference, l_t the error term, α the constant and β the vector of the coefficient on Y_{t-1} and Π_j the lag. The data was tested for unit root using the augmented Dick fuller test. The null hypothesis is that, there a unit root. Meaning the time series are not stationary.

4.4.3 Unit Root Test

Table 4.3: Unit Root Test for Financial inclusion showing stationarity
Level (No Difference)

Variable	ADF Test T-statistic	Critical Values 5%	PP Test T-statistic	Critical Values 5%
FI	-3.982355	-2.91173	-3.999068	-2.91173
CD	-1.583318	-2.91173	-1.371314	-2.91173
PRSBC	-1.497622	-2.91173	-1.371403	-2.91173
PB	-1.062485	-2.91173	-0.889058	-2.91173
BAE	-2.316495	-2.91173	-2.029559	-2.91173

FI is the only stationary variable at level using both tests
(First Difference)

Variable	ADF Test T-statistic	Critical Values 5%	PP Test T-statistic	Critical Values 5%
FI	-12.83945	-2.92378	-7.910739	-2.912631
CD	-7.131921	-2.912631	-9.429998	-2.912631
PRSBC	-8.414565	-2.912631	-8.652665	-2.912631
PB	-7.580742	-2.912631	-8.950858	-2.912631
BAE	-10.22342	-2.912631	-14.10694	-2.912631

However all variables become stationary at first difference.

The test displayed above seeks to test the null hypothesis that the data has unit root (non-stationary) against the alternative hypothesis that the data has no unit root (stationary). The results of the panel unit root gave values less than those at 5% leading to rejection of the null hypothesis thus an indication of stationarity in all the series.

4.4.4 Cointegration

Table 4.4: Cointegration Test				
Date: 10/18/16 Time: 16:01				
Sample (adjusted): 2010M03 2014M12				
Included observations: 58 after adjustments				
Trend assumption: Linear deterministic trend				
Series: FI CD BAE PB PRSBC				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.364680	60.12357	69.81889	0.2316
At most 1	0.268727	33.81324	47.85613	0.5121
At most 2	0.165285	15.66105	29.79707	0.7359
At most 3	0.070076	5.182481	15.49471	0.7892
At most 4	0.016562	0.968657	3.841466	0.3250
Trace test indicates no cointegration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.364680	26.31032	33.87687	0.3021
At most 1	0.268727	18.15219	27.58434	0.4825
At most 2	0.165285	10.47857	21.13162	0.6988
At most 3	0.070076	4.213824	14.26460	0.8361
At most 4	0.016562	0.968657	3.841466	0.3250
Max-eigenvalue test indicates no cointegration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

No cointegration which rules out the use of Vector Error Correction Model and we proceed using multiple linear regression.

4.4.5 Regression Analysis

This section contains the results of a regression analysis run on financial inclusion as the dependent variable and cash deposits payments for retirement and social benefits, payment of bills and banking agency engaged through agency banking which is a percentage of total deposits.

Table 4.5: Regression analysis

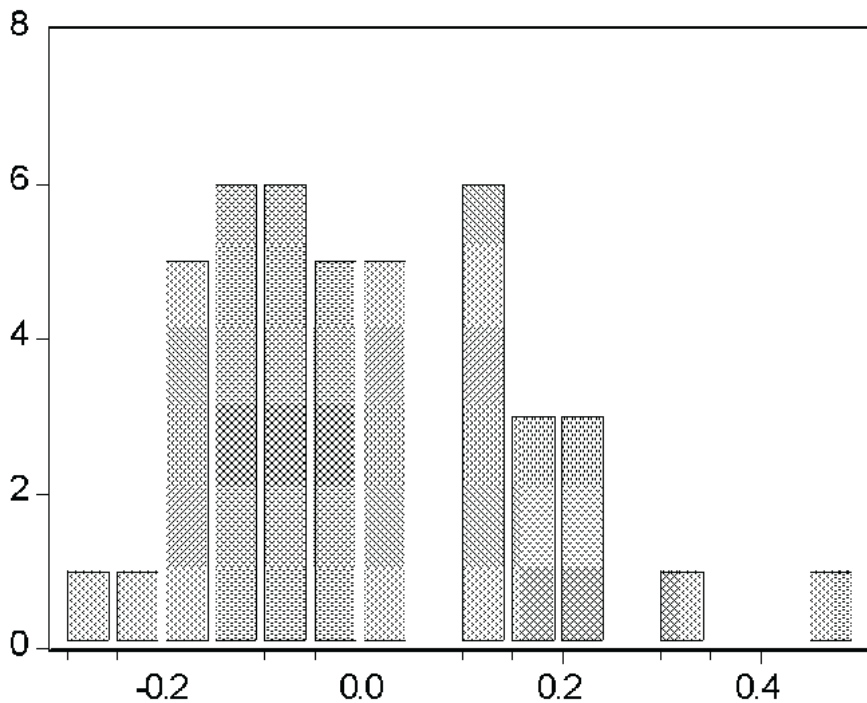
Dependent Variable: FI				
Method: Least Squares				
Date: 08/13/16 Time: 05:05				
Sample(adjusted): 2010:01 2014:07				
Included observations: 43 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CD	50.101467	0.005234	-2.280232	0.0408
PB	7.007440	0.002621	-2.839105	0.0171
PRSBC	10.029603	0.025252	2.172296	0.0330
BAE	30.029896	0.026984	0.183215	0.1514
C	205.49815	0.615907	4.056049	0.0002
R-squared	0.732136	Mean dependent var	3.486047	
Adjusted R-squared	0.690146	S.D. dependent var	0.238628	
S.E. of regression	0.167015	Akaike info criterion	-0.653060	
Sum squared resid	1.087864	Schwarz criterion	-0.489228	
Log likelihood	18.04079	F-statistic	15.58000	
Durbin-Watson stat	2.056743	Prob(F-statistic)	0.000001	

From the regression input above there exist a positive relationship between all the variables and financial inclusion as indicated by the positive coefficients. The t-statistics obtained are greater than 2 in absolute term other than banking agency engaged, which show an indication that all variables are stationary significant at 5% other than banking agency engaged. 8-The R^2 value is 0.73 implies that the variables account for up to 73.2% of changes on financial inclusion while 26.8% change caused by other variables not discussed by the paper.

ADF and R^2 are close that is 73.2% and 69.0% an indication of minimal penalty on R^2 since $\frac{3}{4}$ of total variables are stationary significance in financial inclusion.

An amount of 205.49815 of financial inclusion is autonomous/exogenous, an indication that this amount is caused by other factors other than the variables discussed above. The four variables have a positive relationship with financial inclusion i.e. 1 unit is inverse in cash deposit (CD), payments of bills (PB), payment for retirement and social benefits (PRSBC), banking agency engaged (BAE) increases financial inclusion by 50.101467, 7.007440, 10.029603, and 30.029896 respectively when all other variables assumed not to be constant.

4.4.6 Normality test



Series: RES
 Sample 2010:01 2014:07
 Observations 60

Mean 1.19E-15
 Median -0.035096
 Maximum 0.481850
 Minimum -0.294356
 Std. Dev. 0.160940
 Skewness 0.632554
 Kurtosis 3.317894

Jarque-Bera 3.048621
 Probability 0.217771

Figure 4.6: Normality test results for results for residual (Error term)

The skewness is close to zero for normal distribution at 0.63 the kurtosis is 3.31 hence close to 3 for a normal distribution. The Jarque-bera statistics is at 3.0. The probability of getting that value is 21% that is above the 5% level of significance. This results to rejection of null hypothesis that the residual is approximately normally distributed.

- Jarque-Bera probability is 0.217770 which is greater than 0.1 that is 10% this is an indication of a normal distribution.
- The expected value of the residual 1.19E-15 that is approximately zero thus an indication of normal distribution.

4.4.7 Heteroscedasticity

Breusch-Pagan Godfrey test for heteroskedasticity

This test was used to establish possibility of presence of non-constant variance within the time-series data set. The results below indicate presence of heteroscedasticity in the data set since the probability of the Observed R-squared had a P value of 0.1293 which was greater than 0.05 implying that the null hypothesis of constant variance was rejected. This indicated that the variance of the error term is varies across observations. In order to achieve standard errors, the Newey-West regression was conducted.

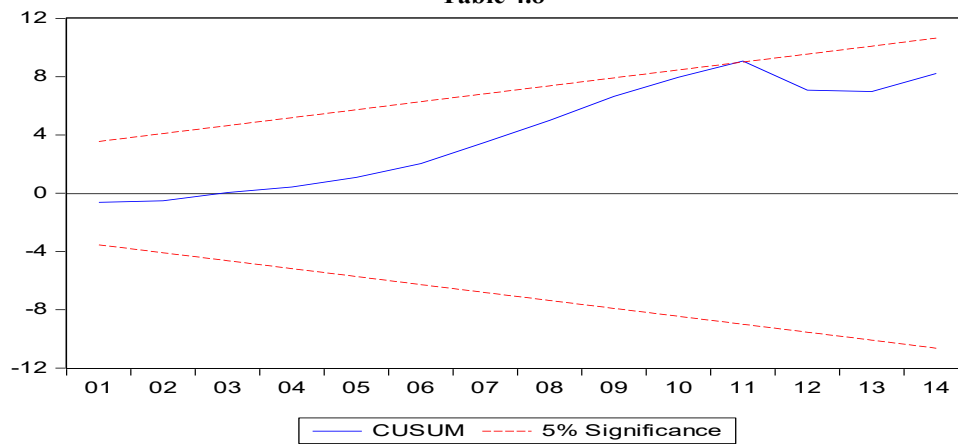
Table 4.7

Table 4.7

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	2.100852	Prob. F(4,14)		0.1349
Obs*R-squared	7.126806	Prob. Chi-Square(4)		0.1293
Scaled explained SS	1.688470	Prob. Chi-Square(4)		0.7928
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 10/15/16 Time: 22:15				
Sample: 2010 2014				
Included observations: 60				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.641898	0.911943	0.703879	0.4931
CD	0.044107	0.025692	1.716770	0.1081
PSCB	-0.293208	0.139942	-2.095214	0.0548
PB	0.045690	0.120215	0.380065	0.7096
BAE	1.05E-07	1.29E-07	0.813485	0.4296
R-squared	0.375095	Mean dependent var		0.020425
Adjusted R-squared	0.196551	S.D. dependent var		0.019603
S.E. of regression	0.017572	Akaike info criterion		-5.024132
Sum squared resid	0.004323	Schwarz criterion		-4.775595
Log likelihood	52.72925	Hannan-Quinn criter.		-4.982069
F-statistic	2.100852	Durbin-Watson stat		2.815759
Prob(F-statistic)	0.134923			

4.4.8 Model stability

Table 4.8



Results of model stability using the Cusum test above indicate that the regression model used is stable since its trend-line lies within the bounds.

4.4.5 Hypothesis testing

Hypothesis H_{01} The results of the regression tests in table shows t-statistics has -2.280232 which is more than 2 and probability of 0.0008 which is less than 5% indicate that cash deposit (CD) is significant on financial inclusion. This results to failing to reject the null hypothesis.

Hypothesis: H_{02} The results of the regression tests in table shows t-statistics has -2.839105 which is more than 2 and probability of 0.0071 which is less than 5% indicate that payment of bills (PB) significant on financial inclusion. Again, this results to failing to reject the null hypothesis.

Hypothesis: H_{03} The results of the regression tests in table shows t-statistics has 2.172296 which is more than 2 and probability of 0.0002 which is less than 5% indicate that payment for retirement and social benefits (PRSBC), significant on financial inclusion. This results to failing to reject the null hypothesis.

Hypothesis: H_{04} The results of the regression tests in table shows t-statistics has 0.183215 which is more less 2 and probability of 0.7087(7.087%) which is more than 5% indicate that banking agency engaged (BAE), not significant on financial inclusion. This results to failing to reject the null hypothesis.

5. Summary of Findings, Conclusions and Recommendations

5.1 Introduction

This Contains a summary of the results as presented in the previous chapter and give conclusions, recommendations and the recommendation of future research based on the findings of the study.

5.2 Summary of Findings

Inclusive financial systems allow producers and households to smoothen their production and consumption of goods and services through which income is generated in an economy. Thus, financial inclusion drives income generation through

increasing productive capacity especially among those without assets to start with and facilitates inclusive growth. The over-reaching and cross-cutting nature of financial inclusion has made it one of the main pillars of the development agenda. Distress in the advanced economies has increased vulnerability of the poor and brought the needs for safety nets into even sharper focus. The efforts on financial inclusion will only be successful if they are supported by reliable data and common indicators.

From the findings it's evident that there is a strong positive relationship between financial inclusion and agency banking. The tests conducted shows that the correlation coefficient between agency banking aspects (the independent variables) and financial inclusion (the dependent variable) was 0.69 which is enough to indicate the existence of strong relationship between the independent variables and the dependent variable. The R-square (coefficient of determination) is 0.732 which means that 73.2% of the variance in the financial inclusion variable can be explained and predicted by the agency banking aspects variables. Therefore the effect of agency banking on inclusive financing cannot be ignored but should be embraced by all the stakeholders as it's a measure of reducing poverty.

Every governments dream is to have an efficient and inclusive financial system for purposes of resource mobilization. The agent banking model is a continuously improving and growing system, and as it grows, the level of financial inclusion grow proportionately. Thus agent banking has the effect of increasing the level of financial inclusion and should be supported and encouraged by all players- the banks, government, and licensing bodies especially local authorities; so as to reduce the high gap of the unbanked.

5.3 Conclusions

The studies concludes that because finance is about exchanging the cash people need on a daily basis for return of value, and vice versa, proximity is objective number one. And because these promises need to be maintained if people are going to find finance at all useful. Agent banking should therefore provide the previously unbanked and under banked with affordable, accessible and appropriate financial products, in order to increase financial inclusion. As a precursor to a more robust framework designed to increase

access to credit as this is the key that will unlock economic activities in remote areas agency banking will also spur and enhance opening of accounts to the unbanked and increase financial literacy by aiding people to have a better appreciation of and consumption of financial services. Financial inclusion of the total population of a country's people is every government's goal. The world over and especially in the developing countries, governments are working on various strategies and regulatory frameworks to ensure they reach all those excluded. The concept of inclusive financing is dynamic and has evolved significantly since its inception. Once viewed as means to tackle poverty and reduce income inequality, today the concept has developed into an important pre-requisite for financial stability and economic development.

5.4 Recommendations

Agency banking has enabled cost saving and accessibility of financial services by banks and customers as well. Banks have made huge savings on operational costs and infrastructure costs by using banking agents. Customers are able to access the basic banking services as opposed to the traditional banking. However, despite these achievements, cash availability and security are most critical factors in agency banking and they influence the performance of banks. It's therefore recommended that:

- i. Banks should adopt a risk – based approach to the supervision and regulation of agency banking. Enough security measures should be put in place.
- ii. The commercial Banks should establish training centre where employees working in agent banks and entrepreneurs come for short courses in order to improve their performances.

5.5 Recommendations for future research

Further research should be carried on the effect of agency banking on the economic development of a country. This will help the stakeholders to know how important this model is and if at all it will aid in the economic empowerment of the country.

Further research should be conducted on the quality of service the agents offer to its clients and the security measures that are put in place by the banks to ensure for the security of both the customers and the agents carrying on services on their behalf.

6. Acknowledgement

My foremost gratitude is to God who gave me the strength, ability and grace to surmount the enormous challenge completing my degree course.

It is a pleasure to thank those who made this research project possible. I wish to express my gratitude to my supervisor, Dr Moses C Kiptui for his encouragement, guidance and support.

Special thanks also to all my graduate friends, for their invaluable assistance. Last but not least, I wish to express

my gratitude to my beloved families; for their understanding and support throughout the duration of my studies

References

- [1] Abel S. (2013). Role of Banks in the Economy. *The Herald*. Retrieved on 25th April 2014 from <http://www.herald.co.zw/role-of-banks-in-the-economy/>
- [2] Aduda, J., Kiragu, P. and Ndwiga, J.M. (2013). The Relationship between Agency Banking and Financial Performance of Commercial Banks in Kenya. *Journal of Finance and Investment Analysis*, vol. 2(4), pp 97-117
- [3] Agarwal A. (2008), The Need for Financial Inclusion with an Indian Perspective, *Economic Research*, March 3, IDBI Gilts, India
- [4] Agency Banking in Kenya. (2011). Banking in Kenya. Retrieved on 24th April 2014 from <http://bankinginkenya.com/233/agency-banking-kenya>.
- [5] Allen, F. and Santomero, A.M. (1996). The Theory of Financial Intermediation. TheWhat on Financial Institutions Center, University of Pennsylvania, Philadelphia.
- [6] Alliance for Financial Inclusion – AFI (2012).Agent Banking in Latin America. Discussion paper, March 2012.
- [7] Andries, A. M. (2009). Theories Regarding Financial Intermediation and Financial Intermediaries – A Survey. *The Annals of The "Ştefancel Mare" University of Suceava. Fascicle of The Faculty of Economics and Public Administration* Vol. 9, No. 2(10).
- [8] Arulmurugan, P., Karthikeyan, P., and Devi, N. (2013). Financial Inclusion in India: A Theoretical Assessment. *Indian Journal of Applied Research*. Vol. 3(3), pp 217-222.
- [9] Atandi, F.G. (2013). Challenges of agent banking experiences in Kenya. *International Journal of Academic Research in Business and Social Sciences*. Vol. 3(8) pp 397-412.
- [10] Barasa, D. A. and Mwirigi, F. M. (2013).The Role of Agency Banking in Enhancing Financial Sector Deepening in Emerging Markets: Lessons from the Kenyan Experience. *European Journal of Business and Management*. Vol.5(21).
- [11] Bhattacharjee, A. (2012). Social Science Research: Principles, Methods, and Practices. 2nd Edition. Published under the Creative Commons Attribution-Non Commercial-Share Alike
- [12] CBK (1972). Money and Banking in Kenya.
- [13] CBK(2013). Banking Development Report, September 2013.
- [14] CBK(2014). Bank Supervision Annual Report, 2014.
- [15] CBK(2013). Prudential Guidelines, January 2013.
- [16] Chakrabarti, M. (2012).The role of regional rural banks (rrbs) in financial inclusion: an empirical study on West Bengal State in India. *National Monthly Referred Journal of Research in Commerce & Management*. Vol. 2(8)
- [17] Chikoko, L. and Mangwendeza, P. (2012).Financial inclusion by Zimbabwean commercial banks in a liquidity constrained environment. *Journal of Economics and International Finance*. Vol. 4(10), pp. 252-259.

- [18] Chiteli, N. (2013). Agent Banking Operations as a Competitive Strategy of Commercial Banks in Kisumu City. *International Journal of Business and Social Science*, Vol. 4(13)
- [19] Dangi, N. and Kumar, P. (2013). Current Situation of Financial Inclusion in India and Its Future Visions. *International Journal of Management and Social Sciences Research* Vol (8), pp 155-166.
- [20] Dupas, P., Green, S., Keats, A. and Robinson, J. (2012). Challenges in Banking the Rural Poor: evidence from Kenya's Western Province. *Journal of Banking & Finance*. Vol.32 (11).
- [21] Gakure, R. and Ngumi, P. (2013). Do bank innovations influence profitability of commercial banks in Kenya? *Prime Journal of Social Science*. Vol. 2(3), pp. 237-248.
- [22] Gardner, M.J., Mills, D.L. and Cooperman, E. (2000). Managing Financial Institutions an assets liability approach (4th ed.) Malaysia, Asia. John Wiley & Sons.
- [23] Gujarati (2004). Basic Econometrics, 4th Edition. McGraw Hill.
- [24] Haron, S. and Azmi, W.N.W. (2006). Deposit Determinants of Commercial Banks in Malaysia. *Finance India*. Vol.20(2).
- [25] Infante, D., Rancer, A. and Womack, D. (1997). Building Communication Theory. 3rd Edition. Prospect Heights, IL: Waveland.
- [26] Ivatury, G. and Mas, I. (2008). Early Experience with Branchless Banking. Focus Note – Consultative Group to Assist the Poor, No. 46, April, 2008.
- [27] Jansen, S. (2010). Managing the Risks of Mobile Money: The Banking Agent Reform in Kenya. A Scenario – Based Policy Analysis. Centre for International Development (CID) at Harvard University. Working Paper No. 45, April, 2010.
- [28] Jayanty, S.K. (2012). Agency Banking: New Frontiers in Financial Inclusion. Bangalore, India: Infosys, Finacle.
- [29] Kandie, Gertrude Chelagat (2013) The effect of agency banking on financial inclusion in Kenya http://erepository.uonbi.ac.ke/bitstream/handle/11295/59761/Kandie_The%20Effect%20of%20Agency%20Banking%20on%20financial%20inclusion%20in%20Kenya.pdf?sequence=4&isAllowed=y
- [30] Kwan, S. (2001). Financial Modernization and Banking Theories. FRSB Economic Letter. Retrieved on 24th April 2014 from <http://www.frbsf.org/economic-research/publications/economic-letter/2001/december/financial-modernization-and-banking-theories/>.
- [31] Khrawish, H.A. (2011) Determinants of Commercial Banks Performance: Evidence from Jordan. *International Research Journal of Finance and Economics*. Vol. 5(5), pp 19-45.
- [32] Kothari C.R. (2003). Research Methodology: Methods and Techniques. New Delhi: Vishwa Prakashan.
- [33] Kempson E, Atkinson A. and Pilley D. (2004). Policy level response to financial exclusion in developed economies: lessons for developing countries.
- [34] Reports of Personal finance Research centre, University of Bristol
- [35] Mas, I. and Siedek, H. (2008). Banking Through Networks of Retail Agents. Focus Note – Consultative Group to Assist the Poor, No. 47, May, 2008.
- [36] Mbobua, J.K., Juma, S., and Musiega, D. (2013). Challenges of Implementing Agency Banking: A Survey of Selected Commercial Banks in Kakamega County. *The International Journal Of Engineering And Science*. Vol. 2(9) pp. 41-45.
- [37] Mishkin, F.S. and Eakins, S.G. (2009). *Financial Markets & Institutions*, 6th Edition. Prentice Hall.
- [38] Muzigiti, G. and Schmidt, O. (2013). Financial Inclusion. Retrieved on 26th April 2014 from <http://www.dandc.eu/en/article/financial-inclusion-poor-sub-saharan-africa-improving-thanks-formal-sector-banks-and>
- [39] Mwando, S. (2013). Contribution Of Agency Banking On Financial Performance Of Commercial Banks In Kenya. *Journal of Economics and Sustainable Development*, Vol. 4(20), pp 26-34.
- [40] Nganga, S. I. and Mwachofi, M. M. (2013). Technology Adoption and the Banking Agency in Rural Kenya. *Journal of Sociological Research*. Vol.4(1).
- [41] NSSF (2013). The National Social Security Fund Act, 2013.
- [42] Obamuyi, T. M. (2013). An Analysis of the Deposits and Lending Behaviours of Banks in Nigeria. *International Journal of Engineering and Management Sciences*. Vol. 4(1), pp 46-54.
- [43] Ongore, V.O. and Kusa, B.G. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. *International Journal of Economics and Financial Issues*. Vol. 3(1), pp.237-252
- [44] Rogers, E.M. (1995). Diffusion of Innovations, Free Press, New York.
- [45] Rogers, E.M. (2003). Diffusion of Innovations, Free Press, New York..
- [46] Ross, S.A., Westerfield, R.W., Jaffe, J. (2010). Corporate Finance, 9th Edition. McGraw-Hill Irwin.
- [47] Rudestam, K.E. and Newton, R.R. (1992). Surviving Your Dissertation. London, Sage.
- [48] Shashoo (2012). Development of Banking in Kenya. Kenyaplex. Retrieved on 24th April 2014 from <http://www.kenyaplex.com/resources/3366-development-of-banking-in-kenya.aspx>.
- [49] Sharma, A. and Kukreja, S. (2013). An Analytical Study: Relevance of Financial Inclusion For Developing Nations. *International Journal Of Engineering And Science*. Vol.2(6), Pp. 15-20.
- [50] Siedek, H. (2008). Extending Financial Services with Banking Agents. Focus Note – Consultative Group to Assist the Poor, April 2008.
- [51] Singh, Y.K. (2006). Fundamentals of Research Methodology and Statistics. New Age International (P) Limited.
- [52] Sohail, M.S. and Al-Jabri, I.M. (2012). Mobile Banking Adoption: Application of Diffusion of Innovation Theory. *Journal of Electronic Commerce Research*. Vol. 13(4), pp. 379-391.
- [53] Sohail, M.S. and Shanmugham, B. (2003). E-banking and Customer Preferences in Malaysia: An empirical investigation. *Information Sciences*. Vol. 150(3/4), pp. 207-217.
- [54] Srikanth, R. (2013). A Study on Financial Inclusion - Role of Indian Banks in Reaching Out to the Unbanked and Backward Areas. *International Journal of Applied Research and Studies*. Vol. 2(9) pp 1-20

- [55] Standard Chartered Bank (2013). Account Terms. Retrieved on 14th July 2014 from https://www.sc.com/bn/business-banking/terms-conditions/_pdf/Business-Banking-Terms-and-Conditions.pdf.
- [56] Stone, S.S.; Tarus, T.; Shikanga, M.; Biwott, B.; Ngetich, T.; Andale, T.; Cheriro, B. and Arusa, W. (2014). Global Health Action. The Association Between Insurance Status and In hospital Mortality on the Public Medical Wards of a Kenyan Referral Hospital. Retrieved on 16th July 2014 from <http://dx.doi.org/10.3402/gha.v7.23137>.
- [57] US Bank (2014). Your Deposit Account Agreement. Retrieved on 16th July 2014 from <https://www.usbank.com/pdf/Deposit-Account-Agreement.pdf>.
- [58] Veniard, C. (2010). How Agent Banking Changes the Economics of Small Accounts. Global Savings Forum. Retrieved on 5th May 2014 from <https://docs.gatesfoundation.org/Documents/agent-banking.pdf>.
- [59] Venkata, N.A and Priyank, M. (2013). Success Factors of Equity Bank's Agency Banking. Microsave Briefing Note #40. Retrieved on 9th July 2014 from http://www.microsave.net/files/pdf/1368100253_BN_140_Success_Factors_of_EB_Agency_Banking.pdf
- [60] Vutsengwa, R.M., and Ngugi, K. (2013). An Assessment Of The Challenges Facing Commercial Banks In Sustainability Of Agency Banking In Kenya: A Case Of Commercial Banks. *International Journal of Economics and Finance*. Vol. 1(2) Pp 613-620.
- [61] Zikmund, W.G., Babin, B.J., Carr, J.C., and Griffin, M. (2009). *Business Research Methods*, 8th edition. Cengage Learning.

Appendices

Appendix I Data Collection Instrument

Secondary Data Collection Sheet					
Variable					
	FI	CD	PRSBC	PB	BAE
1.EQUITY	X	X	X	X	X
2.KCB	X	X	X	X	X
3.TRANSNATIONAL	X	X	X	X	X
4.CO-OP	X	X	X	X	X
5.FAMILY	X	X	X	X	X
6.FIRST COMMUNITY	X	X	X	X	X
7.CITIBANK	X	X	X	X	X
8.DIAMOND TRUST	X	X	X	X	X
9.CHASE BANK	X	X	X	X	X
10.NIC BANK	X	X	X	X	X
11. HFCK	X	X	X	X	X
12. CONSOLIDATED BANK	X	X	X	X	X
13. ECO BANK	X	X	X	X	X

Appendix II List of Commercial Banks in Kenya

- 1) Equity Bank Ltd
- 2) Kenya Commercial Bank Ltd
- 3) Barclays Bank of Kenya Ltd
- 4) Standard Chartered Bank (K) Ltd
- 5) Cooperative Bank of Kenya Ltd
- 6) Citibank N.A.
- 7) I&M Bank Ltd
- 8) CFC Stanbic Bank Ltd
- 9) Diamond Trust Bank Ltd
- 10) NIC Bank Ltd
- 11) Commercial Bank of Africa Ltd
- 12) Imperial Bank Ltd
- 13) Baroda Bank Ltd
- 14) Chase Bank Ltd
- 15) Prime Bank Ltd
- 16) National Bank of Kenya Ltd
- 17) Family Bank Ltd
- 18) Bank of Africa (K) Ltd
- 19) Bank of India
- 20) African Banking Corporation Ltd
- 21) Victoria Commercial Bank Ltd

- 22) Habib Bank Ltd
- 23) Habib A.G. Zurich
- 24) Gulf African Bank (K) Ltd
- 25) Guaranty Trust Bank (Formerly Fina Bank Ltd)
- 26) Trans-National Bank Ltd
- 27) K-Rep Bank Ltd
- 28) First Community Bank Ltd
- 29) Guardian Bank Ltd
- 30) Giro Commercial Bank Ltd
- 31) Consolidated Bank of Kenya Ltd
- 32) Oriental Commercial Bank Ltd
- 33) Development Bank of Kenya Ltd
- 34) Fidelity Commercial Bank Ltd
- 35) Paramount Universal Bank Ltd
- 36) Credit Bank Ltd
- 37) Jamii Bora Bank Ltd
- 38) Middle East Bank (K) Ltd
- 39) Charterhouse Bank Ltd
- 40) Dubai Bank Ltd (29.89)
- 41) UBA Bank (K) Ltd
- 42) Equatorial Commercial Bank Ltd
- 43) Ecobank Kenya Ltd
- 44) Housing Finance Co. of Kenya Ltd

Appendix III

List of Commercial Banks that have adopted agency banking

- 1) Equity Bank
- 2) Kenya Commercial Bank
- 3) Transnational Bank
- 4) Co-operative Bank
- 5) Family Bank
- 6) First Community Bank
- 7) Citibank
- 8) Diamond Trust Bank
- 9) Chase Bank
- 10) NIC Bank
- 11) Housing Finance Co. of Kenya Ltd
- 12) Consolidated Bank
- 13) Eco Bank

Appendix IV:

Agency banking transactions between years 2010 – 2014

<i>Type, Number and Values of transactions undertaken through Agency Banking</i>		
<i>Type of Transactions</i>	<i>Number of Transactions</i>	<i>Value of transactions -Ksh. Million</i>
	<i>Cumulative (2010 to 2014)</i>	<i>Cumulative (2010 to 2014)</i>
Account Balance enquiries	18,127,972	-
Cash Deposits	60,629,074	503,682.3
Cash Withdrawals	56,705,290	241,173.2
Collection of account opening application forms	1,433,271	-
Collection of debit and credit card application forms	115,550	-
Collection of debit and credit cards	57,724	-
Collection of loan application forms	398	-
Mini statement requests	137,892	-
Payment of Bills	566,988	4,064.4
Payment of Retirement and Social Benefits	969,988	3,482.7
Transfer of Funds	5,994	69.8
Total	138,750,141	752,472.4

Source: Central Bank of Kenya