

# Mobile Banking and Financial Performance of Commercial Banks Listed At the Nairobi Securities Exchange

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## Abstract

**Background of study:** Commercial banks are now interested in transforming their operations to provide services 24 hours a day, seven days a week. Mobile banking networks are seen as the best choice for providing greater distinction from their rivals in order to achieve this. As a result, the purpose of this research was to examine the impact of mobile banking on the bank profitability of Kenya's publicly traded commercial banks. The specific objectives informed this research include; to determine the impact of mobile banking on the profitability of commercial banks at the Nairobi Stock Exchange (NSE). The Transaction Cost Theory was used in this study.

**Methodology:** The study used descriptive survey as the research design. Census survey was done on all the 12 commercial banks listed at NSE. Secondary data were obtained for the study from bulletins of the Central Bank of Kenya and financial statements of financial institutions for the years 2013 to 2020. Statistical package for the social sciences (SPSS) version 25 was used to analyze the data descriptive statistics such as maximum, minimum, mean, and standard deviation to outline sample characteristics and significant trends from the collected data. The associations between parameters were then estimated using a Simple linear regression model.

**Results:** The mobile channel accounts for 28.7% of the variances in commercial banks' financial performance in the NSE. Mobile banking (0.005) was found to have insignificant impact on the performance of banks' financial at ( $P\_value=0.290$ ,  $0.946>0.05$ ). The study recommends banks to invest in mobile banking to boost their financial performance.

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Date of Submission: 04-05-2022

Date of Acceptance: 19-05-2022

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## I. Background to the Study

The current business environment is experiencing rapid changes and is so dynamic due to the improvement in technology, increase in the awareness and customers' demands in the banking sector.<sup>1</sup> In the 21<sup>st</sup> century commercial banks have been faced with competitive and complex business environment especially due to the changing technologies and business climate that is unpredictable. Commercial banks have remained keen in adopting mobile banking for its services and products. Most banks have adopted information systems and as such the bank managers cannot ignore the role of information systems and its importance in the banking sector.<sup>2</sup>

The growth of the digital customer, combined with the high-cost infrastructure of physical banking locations, is causing branch returns to decline.<sup>3</sup> Branches continue to be a significant point of contact for both retail and small-business clients, playing an important role in complex product sales and relationship building. However, as people change how they bank, conventional branches' value proposition is being called into question. According to Witbooi, van Schalkwyk and Muller<sup>4</sup>, banks will improve return on investment and place

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<sup>1</sup> Chan, H. (2015). E-Commerce Fundamental and Applications. West Sussex: John Wiley and Sons Ltd.

<sup>2</sup> Pilarczyk, K. (2016). Importance of Management Information System in Banking Sector. *Annales Universitatis Mariae Curie-Skłodowska. Sectio H. Oeconomia*, 50(2), 69-80.

<sup>3</sup> PWC, 2012

<sup>4</sup> Witbooi, P. J., Van Schalkwyk, G. J., & Muller, G. E. (2011). An Optimal Investment Strategy in Bank Management. *Mathematical Methods in the Applied Sciences*, 34(13), 1606-1617

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themselves for the future by adapting their branch strategy to comply with changing market and economic realities.

Mobile banking, according to Kim, Zoo, Lee and Kang<sup>5</sup>, is a set of alternative distribution networks. It is a method of performing financial transactions without having to physically communicate with a bank. Mobile banking refers to non-traditional methods of processing banking transactions (Krainer, 2017). Branchless banking refers to mobile banking platforms as a distribution channel approach for providing financial services without the use of bank branches. Although branchless banking can be used to enhance a current bank branches by giving customers more options for accessing financial services, it can also be utilized as a stand-alone strategic approach that eliminates bank branches entirely.

Commercial banks have been enabled to penetrate and increase their market and financial services in financial markets by the use of mobile banking deprived of the physical bank occurrence.<sup>6</sup> The availability of mobile banking networks around the world has allowed banks to provide a diverse range of products and services, changing how they function and how they deliver services. Through internet banking, banks are able to offer services of good quality in good time with efficiency and convenience. As a result of the increased income, a mobile banking platform has gained more benefits. Mobile banking has led to reduce costs for the sector's participants. This has had an impact on the banks' risk profiles.<sup>7</sup>

### **Mobile Banking on Global Perspective**

Looking at the global adoption of mobile banking systems, many institutions have embraced these methods as a result of technological innovations and client demand. Several banks have been employing mobile banking since the early 1990s. According to Aladwani<sup>8</sup>, Assyria, Egypt, and Babylon were among the first to adopt alternate financial routes. In 1730, Tallymen offered to sell garments in order to receive weekly payments from the 18th through the 20th centuries. The debts owed by their clients were on one side of the stick, while the payments were on the other. Around the 1920s, a purchase now, pay for it later approach for consumers was introduced in the United States.

For most people in the UK, mobile banking means accessing cash 24 hours a day. Guru<sup>9</sup> stated that the U.S studies discovered that the Internet helps promote banking information, offers mobile banking products and services, and improves customer relationships. However, transactions are initiated via card, number, Internet, and telephone, preventing the sale of certain services required by customers, promoting good banking, and increasing customer loyalty.<sup>10</sup>

The European Union (EU) has also been involved in the use of electricity bills since 2000. For example, France, UK and Germany have implemented more modern banking than many other countries in the region.<sup>11</sup> Mobile payment services are time spent integrating a list of financial services that can make cell phone use easier. The three financial services that are equipped with cell phones include money transfers, mobile payments and mobile banking. Barclays in the UK has electronic equipment that allows customers in any part of the country to send and receive money using their cell phone.<sup>12</sup> The Chinese banking industry is not generally well understood since it had enjoyed a strong government protection from foreign competitors over a long period of time. Although banking in China has experienced a significant growth in the past several years, it is still regarded in its early stage of development compared to the adoption and utilization rate in the developed nations.<sup>13</sup>

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5 Kim, M., Zoo, H., Lee, H., & Kang, J. (2018). *Mobile Financial Services, Financial Inclusion, and Development: A Systematic Review of Academic Literature. The Electronic Journal of Information Systems in Developing Countries*, 84(5), 23-67.

6 *ibid*

7 Berger, A. N., & Sedunov, J. (2017). *Bank liquidity creation and real economic output. Journal of Banking & Finance*, 81, 1-19.

8 Aladwani, A. (2011). *Online Banking: A Field Study of Drivers, Development Challenges, and Expectations, International Journal of Information Management*, 21(4), 213-225.

9 Guru, B., Kathireson, S., Murugesu, T., & Ramasamy, S. (2015). *Application of the Transportation Algorithm for Selecting Bank Merger Partners. Journal of Internet Banking and Commerce*, 20(2).

10 Saffu, K. (2018). *Strategic Value and Electronic Commerce Adoption among Small and Medium-Sized Enterprises in A Transitional Economy. Journal of Business & Industrial Marketing*, 23(6), 396-404.

11 Shy, O., & Tarkka, J. (2002). *The market for electronic cash cards. Journal of Money, Credit and Banking*, 299-314.

12 Yaklef, A. (2001). *Does the internet compete with or complement bricks-and-mortar bank branches?. International Journal of Retail & Distribution Management*, 29(6), 272-281.

13 Woodford, M. (2016). *Monetary Policy in a World without Money. International Finance*, 3(2), 229-260.

### **Mobile Banking on Regional Perspective**

African Banks have consistently moved with the changes in order to keep up with the fast-paced commercial climate. Banks have evolved from traditional operation approaches to new tactics in order to optimize their earnings while keeping their activities afloat in order to satisfy the demands of modern business and client desires. In order to stay up with the developments in the banking industry, banks have adopted technology.<sup>14</sup> Since the adoption of mobile banking systems in order to reduce operating costs and optimize the services they provide, there has been a rise in the use of 24/7 banking services, enabling clients to take advantage of the flexibility and entitlement that such avenues provide. Moreover, consumers' expectations have shifted, with the majority of them seeking ease and the accessibility of simple means for obtaining loans, as well as immediate deposits and awareness of their user's status.<sup>15</sup>

For instant, In Africa, South Africa, Ghana and Nigeria, Egypt and Kenya are the most successful countries when it comes to mobile banking. These countries accept electricity bills in cash. Currency values are stored on the device and used to pay and adjust transaction fees. There are various ways to store electronic money, such as cards, devices, and even servers. For example, prepaid cards, e-wallets containing the Kenya MPESA system, or e-shops such as PayPal. Therefore, the cost of electricity has become the main term for more specific financial products and electronic services.<sup>16</sup> In Rwanda, banks and financial institutions are investing heavily in technology to enhance their plans to ensure the delivery of new electronic financial services. Some of these small e-commerce companies' e-banking services have enabled small businesses to take advantage of technology at a low cost.

### **Mobile Banking at Local Perspective**

Kenyan banks employ a mix of contemporary and traditional banking methods. Mobile banking was only recently introduced in Kenya, yet adoption has been rapid.<sup>17</sup> Previously, mobile phones were primarily used to send, receive, and make calls. Banks, on the other hand, are presently using mobile phones to provide financial services to its consumers, including access to personal banking accounts, money withdrawals, and deposits. It is expected to provide users with mobile wallet systems in the country. In 2007, the introduction of smart smartphones in the mobile business gave rise to mobile money services. Kenya's M-PESA is an electronic banking system that allows clients to access financial services using their cell phones. All Kenyan banks have adopted this technology, making it the fastest-growing financial network in the country. Furthermore, Kenyan banks have adopted agent banking, in which existing organizations are hired to provide banking services to consumers on a local level. Kenya Commercial Bank [KCB] and Kenya Cooperative Bank, for instance, have embraced Kenya Commercial Bank mtaani and Coop kwa jirani. Equity agents are the name given to equity banks' agency banking. Mobile banking tactics have shown to be effective and other institutions have been using them, necessitating the need to determine their impact on performance.<sup>18</sup> Mobile banking has been successfully welcomed and deployed in Kenya, with practically every bank adopting the technology.<sup>19</sup>

Recent assessments in Kenya such as one by Nyangosi<sup>20</sup> reveal that there has been a steady rise in mobile funds transfer, credit card and direct bill payments. The statistics show that there are close to four (4) million customers holding conventional accounts in financial institutions and eleven (11) million electronic bank users.<sup>21</sup> E-banking has grown in popularity as the mobile users have increased and the system has become more user-friendly. Consumers can now use their smartphones to pay for items and services, as well as pay their bills using electronic system using secure banking platform.

The growth of mobile banking channel in the country has brought about tremendous changes in financial institutions. Most importantly the efficiency and convenience offered to customers by the e-banking channel. Notably, customer' s preferences and needs are the guide for the product development in the

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<sup>14</sup> San Jose, L., Ituralde, T., & Maseda, A. (2009). *The influence of information communications*, vol. 26, no. 2. Retrieved October, 1(2019), 1-3.

<sup>15</sup> Kohali, C. R. (2016). *Research Methodology: Methods & Techniques* (3). New Delhi: New Age International (P) Ltd.

<sup>16</sup> Saleh M. (2014). *Six Puzzles in Electronic Money and Banking IMF Working Paper*. IMF Institute, 19(7),23-39.

<sup>17</sup> Chebii, M. (2013). *Kenya Commercial Bank and SME banking alternative channels*

<sup>18</sup> Liu, A. T., & Mithika, M. K. (2009). *Mobile Banking– The Key to Building Credit Historyfor the Poor. Kenya Case study: Linking Mobile Banking and Mobile PaymentPlatforms to Credit Bureaus,(USAID) United States Agency for InternationalDevelopment*. Retrievedfrom.

<sup>19</sup> Mukhongo, H. O. O., Maokomba, C. & Musiega, D. (2014). *The Effect of Alternative Banking Channels on Profitability of Cooperative Bank of Kenya. The International Journal of Engineering and Science*, 3(3), 29-34.

<sup>20</sup> Nyangosi, R., & Arora, J. S. (2011). *Emergence of Information Technology in the Kenyan Banking Sector: An Empirical Study. International Journal of Electronic Finance*, 3(2), 6-12.

<sup>21</sup> CBK, 2017

institutions and thus cannot be ignored.<sup>22</sup> Nevertheless, even if mobile banking channel has had so many benefits to both the customers and the financial institutions, it has its good share of shortcomings. To start with, the security via the internet is a bigger challenge that the users have to deal with. The banks are required to develop and adopt secure systems which will provide maximum security for the customers' accounts. It's important to evaluate e-banking developments in terms of the risks and costs associated with the platforms.

### **Commercial Banks Listed at NSE**

According to the CBK<sup>23</sup>, Kenya has forty-three commercial banks. There is also one mortgage finance firm, eight international bank agent offices, twelve microfinance banks, 79 foreign exchange bureaus, seventeen remittance providers, and three credit comparison bureaus in the market. There has been a notable growth in Kenyan banks in the last five years leading to expansion of banking businesses to neighboring countries. The banking industry has also witnessed massive automation in the delivery of services as it moves away from the traditional banking in its effort to supply the complex needs of their customers as well as place itself strategically to deal with the effects of globalization.

According to central bank of Kenya<sup>24</sup>, there is an increase in use of national payment system. Real-time gross transaction systems, Kenyan electronic transaction platform, and the East African payment method have all enhanced their effectiveness<sup>25</sup>. Competition has increased between both local and international banks. This has benefited both consumers and suppliers of the bank products with the consumers benefiting the most. The key challenges confronting the management of this sector in Kenya is high competition, loan cost topping by CBK, new constitution, worldwide emergency of preparation of stores and exchange diminishment and decrease in intrigue edges. The key challenges facing the banking industry in Kenya is high competition, interest rate, reduced trade and reducing interest margins. Out of the 43 banks, the number of listed banks is only 12 which are made up of Absa Bank Kenya, CFC bank, I&M bank, DTB., Housing Finance Group, KCB Group, Equity Group Holdings, NIC Bank, Bank of Kigali, Standard Chartered Bank and Cooperative Bank.<sup>26</sup>

### **Statement of the Problem**

Kenya's and other countries' economies rely heavily on the banking industry.<sup>27</sup> ICT developments, shifting societal trends, competitiveness, and globalization, on the other hand, have prompted the banking sector to maintaining transformation. Commercial banks' profitability has been influenced by rising operating costs.<sup>28</sup> Commercial banks, which are profit-driven, have welcomed mobile banking channel as a means of reducing operational expenses. Mobile banking networks are seen as the best choice for providing greater distinction from their rivals in order to achieve this. As a result, the advent of new technology, systems, markets, and competitor banks puts pressure on every commercial bank to use whatever skills and platforms are required to improve their financial efficiency, stay competitive, and gain a competitive advantage.<sup>29</sup> However, mobile banking experience challenges such as consistent system intervening and network problems, transactions problems, security issues, and a lack of client confidence have all hampered the implementation of mobile banking channel.<sup>30</sup> This raise worries about the performance impact of mobile banking channel. According to Wisdom<sup>31</sup>, despite the fact that many banks have incorporated mobile banking methods, traditional banking halls seem to have a large number of consumers. According to Okun<sup>32</sup>, some banks, such as Equity, have doubled their over-the-counter cash withdrawal fees. This demonstrates that, despite the availability of alternate

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<sup>22</sup> Groot, A. E., Bolt, J. S., Jat, H. S., Jat, M. L., Kumar, M., Agarwal, T., & Blok, V. (2019). Business models of SMEs as a mechanism for scaling climate smart technologies: The case of Punjab, India. *Journal of Cleaner Production*, 210, 1109-1119.

<sup>23</sup> CBK (2019)

<sup>24</sup> central bank of Kenya (2019)

<sup>25</sup> Ibid

<sup>26</sup> Nairobi securities exchange, 2020

<sup>27</sup> Drigă, I. (2014). Online banking in the Romanian banking system. *Annals of the University of Petroșani. Economics*, 14, 85-92.

<sup>28</sup> Loonam, M., & O'loughlin, D. (2008). Exploring e-service quality: a study of Irish online banking. *Marketing Intelligence & Planning*.

<sup>29</sup> Park, K. H., & Weber, W. L. (2002). A Note of Efficiency and Productivity Growth in the Korean Banking Industry, 1992-2002. *Journal of Banking and Finance*, 30(8), 2371-2386.

<sup>30</sup> Maungu-MBA, O. D. (2015). *An investigation of the influence of alternative financial delivery channels on the performance of commercial banks in Kenya*.

<sup>31</sup> Wisdom, K. (2012) *The Impact of Electronic Banking on Service Delivery to Customers of Ghana Commercial Bank Limited. A Study of Ghana Commercial Bank Ltd, Ho Poly Technic Branch, Ph.D. Thesis, Institute of Distance Learning, Kwame Nkrumah University of Science and Technology*

<sup>32</sup> Okun, D. M. (2012). *The effect of level of deposits on financial performance of Commercial Banks in Kenya (Doctoral dissertation)*.

banking outlets, customers prefer to seek services from bank branches. Nevertheless, clients remain to flock to banks despite the availability of mobiles banking systems, casting doubt on the impact of mobile banking systems on financial outcomes. The effect of mobile banking on the financial performance of banks remains unclear and this study seeks to analyze the effect of mobile banking on the performance of commercial banks listed at the NSE.

### **General Objective**

To establish the effect of mobile banking on financial performance of listed commercial banks at NSE in Kenya.

### **Hypothesis of the Study**

H<sub>01</sub>: Mobile banking has no statistical significance on financial performance of listed commercial banks at NSE in Kenya.

## **II. Literature Review**

### **Theoretical Review**

Coase (1937) proposed that transaction costs are the driving force behind governance system. The expense incurred by a consumer as a result of purchasing goods or services from a market instead of getting them delivered by the organization is known as transaction cost. The transaction cost hypothesis states that the cost of transferring commodities or services is the focus of attention in a transaction. According to this viewpoint, transaction costs typically rise when operations are unpredictable and frequent. Williamson developed and operationalized this concept further. The Transaction Cost Theory, according to Williamson<sup>33</sup>, concentrates on the expenses of processing the transaction through one organization instead of another.

The Theory of transaction cost Innovation, initiated by Niehans<sup>34</sup>, argues that the main determinant of financial innovation is the reduction in transaction costs, and in fact the financial innovation is the effect of technological advancement that reduces transaction costs. Reducing transaction costs can lead to increased costs and improved financial services. Being financial innovative means to reduce transaction costs. The theory of transaction cost is also relevant in this context. For example, Internet-connected Internet (IT) technology provides better collaboration, management, and data usage, which can reduce transaction costs for a company.

Mobile Internet connectivity allows access to the local database of companies and other related data sources, further reducing transaction costs. As a result, lowering labor costs through mobile banking can have an impact on bank profits. Commons was the first to promote the creation that transactions are an element of economic theory (1931). Human influence, not the transaction of objects in the market structure, according to Commons, is the basis for engagement, not human conduct. Labor laws, collective action that provides the basis for the transition from a mindset that is essentially a commodity to an idea that is actually a transaction, and a transition from a traditional school of thought to an institutional school of economic thought. However, it was Coase<sup>35</sup> who first introduced adopted it to come up with economic rules and the times when economic tasks were to be done in an organization.

The transaction cost theory is related to an ongoing investigation into the effect of e-banking on the financial performance of Kenya's publicly traded commercial banks, and one of the reasons for the technology's adoption in banks is to minimize transactions costs for the benefit of bank customers and banks. Reduced transaction costs are expected to improve bank profits. The theory of transaction cost is also relevant in that Internet-connected Internet (IT) technology provides better collaboration, management, and data usage, which can reduce transaction costs for a company. Mobile Internet connectivity allows access to the database of companies and other related data sources, further reducing transaction costs. Our theory is relevant to this study since it proposes that corporations build mobile bank services solely to lower transaction costs for themselves and their customers, so encouraging more interactions and lowering costs to boost profitability and thus efficiency.

### **Empirical Literature Review**

Mobile banking refers to the use of mobile phones, including smart phones, to conduct security screening, financial operations, payments, letters of credit, and other financial transactions (PDAs). Mobile banking provides millions of people with solutions that are not excluded from financial systems in emerging markets with cell phone capabilities. You can make basic financial services easier by reducing the time and

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<sup>33</sup> Williamson, O. E. (1989). *Transaction cost economics. Handbook of industrial organization*, 1, 135-182.

<sup>34</sup> Niehans, K. (2006). *Effect of Internet Banking On the Financial Performance of Commercial Bank in Kenya. International Journal of Scientific and Research Publication*, 5(5), 1-8.

<sup>35</sup> Coase, Ronald H. (1960), ' *The Problem of Social Cost* ', 3 *Journal of Law and Economics*, 1-44.

distance to the nearest bank branch and minimizing banking and transaction problems. Mobile banking enables financial institutions to expand their banking services to new customers and thereby expand their market.<sup>36</sup>

Much research has been done on the impact of mobile banking and commercial banking services. Ching<sup>37</sup> explores the implications of mobile banking in Malaysia from an empirical perspective. This study aims to expand the Technical Admissions (TAM) to explore mobile banking in Malaysia. Specifically, the aim of this research is to understand usability, ease of use, understanding of social norms, risk aversion, innovation skills, and the purpose of mobile banking behavior. Is to explore the relationship between benefits relative to. Based on the results of this study, the factors that influence the behavior of mobile phone users who receive banking services in Malaysia are considered useful, easy to use, relative, willing to take risks, and individuals. Malaysia. Social norms, on the other hand, are the only items found in this study that have no value in the study.

Al-Jabri<sup>38</sup> examines the use of mobile banking by considering the use of innovation theory. The study seeks to explore some of the technical aspects and how this affects mobile banking in developing countries such as Saudi Arabia. This study uses the spread of innovation as a basic theory to determine the factors that can influence the support and use of mobile banking. The study is led by six statements: Similar benefits that have a positive impact on mobile banking, the solution is effective for mobile banking support, their ability to have a positive impact on mobile banking support, monitoring that has a positive impact on mobile banking support, possible testing that has a positive effect on mobile banking support and the risks are expected to affect mobile banking support. The findings show that banks in Saudi Arabia need to offer mobile banking services tailored to the needs of current users, past experiences, lifestyle, and beliefs to meet customer needs. By better supporting mobile banking services and providing a range of services, customers will increase their acceptance of mobile banking services as they benefit. Therefore, the focus of the bank should be on understanding customer behavior and designing reliable banking systems that meet their needs and provide useful and quality services. Furthermore, banks must give attention to factors like financial information and mobile usage, which highlight the convenience and effectiveness of mobile banking services over other banking platforms. Banks must provide explicit protection to their clients in order to lessen the danger they feel and to address their complaints quickly and effectively.

Using important lessons learnt in chosen nations in Sub-Saharan Africa, Tchouassi<sup>39</sup> intended to see if smartphones truly help to increase services because they provide financial services. The goal of the project was to look into how cell phones can be utilized to deliver banking services to the poor and disadvantaged who do not have access to traditional banking. Poor, vulnerable, and low-income families in Sub-Saharan Africa (SSA) frequently lack access to banking services and incur high costs for conducting fundamental banking services, according to research. Mobile has provided banks with a good opportunity to provide financial services. In addition to new technological and economic developments, new and legal processes were needed to make these services available.

Donner and Tellez<sup>40</sup> conducted research on mobile banking and economic development in an effort to link support, impact and benefits in Ghana. The study found that the banking / payment system is a developing country by providing ways of reducing the costs of moving from one place to another and bringing more users into the financial system. Learning, to truly appreciate its importance, requires a lot of study using different methods and ideas about the concept before effectively answering adoption and impact questions.

Kithaka<sup>41</sup> also assessed the impact of mobile banking on financial transactions by commercial banks in Kenya. In this case, a partial comparative study was accepted. It provides everyone with the opportunity, how and what to do as a mobile banking event at a Kenyan commercial bank. The survey used a census technique that examines all Kenyan commercial banks that offer mobile banking. According to the study's findings, there are characteristics in Kenya's mobile banking system that influence commercial banks' profitability. These include mobile banking's annual revenue, the number of users, capital structure, asset quality, financial sector, and operating efficiency. They had a huge effect on the performance. The study found that the intercept was

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<sup>36</sup> Lee. (2017). *Personality determinants of need for interaction with a retail employee and its impact on self-Service Technology (SST) usage intentions. Journal of Research in Interactive Marketing, 11(3), 214-231. doi: 10.1108/JRIM-04-2016-0036*

<sup>37</sup> Ching M. C. Chuan, A. T., Sim, J. J. Kam, H. and Tan, B. (2011) *Factors Affecting Malaysian Mobile Banking Adoption: An Empirical Analysis, International Journal of Network and Mobile Technologies, Vol 2 / Issue 3*

<sup>38</sup> Al-Jabir, I. M. (2012). *Mobile banking adoption: application of diffusion of innovation theory, Journal of Electronic Commerce Research, VOL 13, NO 4, 2012*

<sup>39</sup> Tchouassi, G. (2012). *Can mobile phones really work to extend banking services to the unbanked? Empirical lessons from selected Sub-Saharan Africa countries. International Journal of Developing Societies, 1(2), 70-81.*

<sup>40</sup> Donner, J., & Tellez, C. (2008). *Mobile banking and economic development: linking, adoption, impact, and use. Asian J. Commun., 18 (4), 318– 332*

<sup>41</sup> Kithaka, E. D. W. I. N. (2014). *The effect of mobile banking on financial performance of commercial banks in Kenya (Doctoral dissertation, University of Nairobi).*

1.076 over the years. The index of the six independent variables analyzed (annual turnover of mobile banking, number of mobile banking users, wealth ratio, asset value, banking system, and quality of management) reaches 75.1% of Kenya's commercial banking activity, represented by the equation  $R^2$  (0.751).

Muisyo, Alala & Musiega<sup>42</sup> also assessed the impact of mobile money services on Kenyan banks. The study focused on commercial banks operating in Kakamega District. In this study, several mobile payment service providers have introduced a large number of mobile payment subscribers as a way to achieve success through diversity, maintaining customer loyalty, and increasing market share in the last few years to increase their profits and improve their financial position. The spread of this service in developing countries has aroused a lot of interest among economic stakeholders. These services include Personal Mobile Transfer (PTP) (MMT), collection services, customer loans, and access to many banking services such as balances, account information, and send money from cell phone to bank a/c. This provides opportunities and challenges for the banking industry.

Kathuo, Rotich, and Anyango<sup>43</sup> looked into the effect of mobile banking on Kenya's financial institutions. According to research, the number of mobile banking services has increased significantly in the five years since M-launch. Bank's. As a result of the study's findings, banks have begun to use M-banking services to boost their customer service and, as a result, their financial success. Many mobile banking products are available at banks with orders such as "Accounts / Electronic Money Transfers," "Payment," and "Bank Reports," according to the findings. These mobile banking services provide specialized products to ensure that banking services run smoothly.

### Conceptual Framework

The interplay of the study's primary variables is depicted in the conceptual context. The link between the study's predicted and predictor variables is exemplified by the conceptual framework. The predictor factor in this study is mobile banking, while the outcome variable is the profitability of Kenya's publicly traded commercial banks.

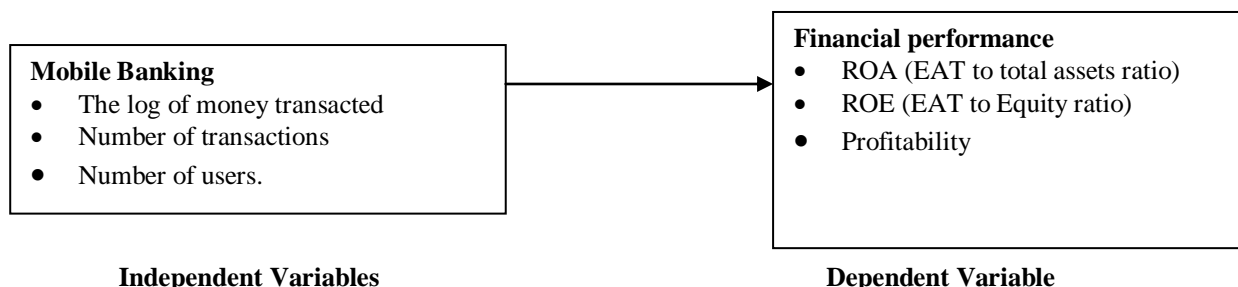


Figure 2.1: Conceptual Framework

### III. Methodology

The research was conducted using an explanatory survey approach. The main reason for choosing a descriptive research design approach is to provide a knowledge base when nothing is known about event or situation information, data distribution, or a description of important characteristics that helped refinement of the research problem, formulation of the hypothesis, or design of data collection and analysis procedure. Descriptive studies portray the variables by answering who, what and how questions. This design helped in evaluating the effect of mobile banking channel on financial performance of listed commercial banks in Kenya.

#### Target Population

The targeted audience is a universal set of all participants of the study; an actual or theoretical group of individuals, events, or objects that an investigator seeks to generalize the finding. The study population to whom the investigators can adapt their findings is known as the available population. This population is a subset of the target population and is also known as the study population. The study focused on 12 commercial banks listed at Nairobi Securities Exchange. The choice of these banks is because they are required by law to publish their books of accounts hence data is readily available for researcher. Furthermore, the published information is more reliable than the information collected from other unpublished sources. The companies listed in Nairobi Securities Exchange are also regulated by the Capital Markets Authority.

<sup>42</sup> Muisyo, J. M., Alala, O., & Musiega, D. (2014). *The Effects of Mobile Money Services on the Performance of the Banking Institutions: A Case of Kakamega Town. Transactions*, 4(16), 4-60

<sup>43</sup> Kathuo, S., Rotich, G., & Anyango, W. (2015). *Effect of Mobile Banking on the Financial Performance of Banking Institutions in Kenya. The Strategic Journal of Business and Change Management*, 2(98), 1440-1457.

**Census Method**

Sampling is done to some elements of a population so that conclusions about the entire population can be drawn. The ultimate test of a sample design is how well it represents the characteristics of the population.<sup>44</sup> A census was done on all the 12 commercial banks listed at NSE. These include Barclays bank Ltd.; CFC bank Ltd., I &M bank Ltd., Diamond Trust Bank Ltd., HF Group Ltd., KCB Group Ltd., National bank of Kenya Ltd., NIC Bank Ltd., Standard Chartered Bank Ltd., BK Group PLC, Cooperative Bank Ltd., and Equity Group Holdings Ltd. This survey was appropriate because the total population is small and easily accessible. One of the greatest advantages of a census is that all banks have the same opportunity to participate. According to Mugenda and Mugenda<sup>45</sup> a census is appropriate when the elements of a population are less than one hundred. In this case all the elements of the population participate in the study.

**Data Collection**

The study relied on secondary data, which included a mix of public and unpublished sources. The secondary data is important since it contains the study's logical structure. Secondary data were collected for the study from bulletins of the Central Bank of Kenya and financial statements of financial institutions for the years 2013 to 2020. An 8-year period helped achieve an adequate representation since it covers a considerable time especially at this time when institutions are automating their operations. Data on financial performance such as earnings and financial ratios were obtained from the audited financial statements while data on mobile banking channel were obtained from the various CBK periodic reports.

**Data Processing and Analysis**

The data was cleaned, sorted and checked for completeness and consistency after collection. Statistical package for the social sciences (SPSS) version 25 was used to analyze the data descriptive statistics such as maximum, minimum, mean, and standard deviation to outline sample characteristics and significant trends from the collected data. A Simple linear regression model was then being employed to estimate the relationships between the variables.

**Analytical Model**

Quantitative data was also be analyzed using Simple Linear Regression Model. The general form of the Simple Linear Regression Model is;

$$Y = \beta_0 + \beta_1 X + \epsilon \dots \dots \dots \text{Equation 3.1}$$

Where,

Y: Represents the Dependent variable (Financial Performance) expressed as a linear combination of independent variables X

X: Represents Mobile Banking

$\beta_0$ : The regression constant  $\beta$  represent coefficients of variables X,  $\epsilon$ : Error term

Linear regression analysis was used to estimate the coefficients of a linear equation and the independent variables that best predict the value of the dependent variable. From this model, test of significance at 5% significant level was conducted on the various variables of this study using correlation coefficient (R), F-test and ANOVA table in order to check the significant of the data analyzed.

**IV. Results**

The study accessed various variables in this study. This section presents a description of the various variables considered in this study. These include; mobile banking and performance of bank. The average financial performance for commercial banks was 7.735 million with a minimum of Kshs.-1.70 million and highest income of Kshs. 25.20 million. The standard deviation of 6.944 suggests that there was high variability on the profitability of the banks. A total of 48.06 million mobile banking transactions were recorded, with 779 being the highest number with a standard deviation of 127.133, indicating a high variation in the number of transactions. With a mean of 0.7997 million banking customers and a standard deviation of 1.172, the greatest number of users was 5.32 million, indicating a high variation in the number of mobile banking customers.

**Table 1: Descriptive Statistics**

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Financial performance	96	-1.70	25.20	7.735	6.945

<sup>44</sup> Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

<sup>45</sup> Mugenda, O.M & Mugenda, A.G. (2003). *Research Methods: Quantitative and research*.



Mobile banking					
Transactions	88	0.00	779.00	48.06	127.134
Users	96	0.00	5.32	0.7997	1.172

### Mobile Banking and Financial Performance

The study analyzed relationship between mobile banking and financial performance of commercial bank Listed at NSE in Kenya. It was observed that increased electronic banking had strong and positive correlation with financial Performance of commercial bank Listed at NSE in Kenya, which is denoted by  $r=0.527$ . The correlation coefficient value suggests that correlation between number of mobile banking transaction and the financial performance of Commercial banks listed at NSE in Kenya was significant at  $\alpha=0.05$  among Commercial banks listed at NSE in Kenya. This implies that the numbers of mobile banking transitions significantly influenced financial performance of commercial bank Listed at NSE in Kenya. Therefore, an increase in mobile banking by one unit would lead to increase of performance by 0.527.

**Table 4.2: Association between Mobile Banking and Financial Performance**

		Performance (Financial)	Mobile banking
Performance (Financial)	Pearson Correlation	1	.527**
	Sig. (2-tailed)		.000
	N	96	90
Mobile banking	Pearson Correlation	.527**	1
	Sig. (2-tailed)	.000	
	N	90	90

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

The correlation coefficient of 0.527 suggests that there is a moderate relationship between the financial performance of a bank and mobile banking. These findings are consistent with Mohamed<sup>46</sup> who found mobile had a strong association with financial performance of a bank. Another study by Bonface and Ambrose<sup>47</sup> found a weak association between the mobile banking and financial performance of commercial banks in Kenya. The findings are also consistent with a study conducted by Bagudu, Mohd Khan and Roslan<sup>48</sup> which found a positive and significant association between mobile banking and financial performance of commercial banks in Nigeria.

### Regression Analysis

Regression is a statistical technique to determine the linear relationship between two or more variables. The R square in a regression output shows how well the values fit the data. Regression analysis is an analysis that shows how variation in one variable predicts the variation in another. The study found mobile banking channel explains 28.7% of the variations in financial performance of commercial bank listed at NSE in Kenya.

**Table 4.3: Effects of Mobile Banking on the Financial Performance**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.536 <sup>a</sup>	.287	.279	5.89858

a. Predictors: (Constant), mobile banking

The importance of mobile banking systems in estimating the bank profitability listed on the NSE is seen in Table 4.4. Mobile banking factors strongly predict the profitability of commercial banks listed at (NSE) with an  $F(1, 88) = 35.066$ ,  $P\text{-value} = 0.000 < 0.05$ . Therefore, we conclude that the simple regressions is a best fit for analyzing the contribution of mobile banking on the financial performance of commercial banks listed at NSE

<sup>46</sup> Mohamed, H. (2019). Effect of Mobile Banking On the Financial Performance of Commercial Banks in Kenya (Doctoral dissertation, United States International University-Africa).

<sup>47</sup> Bonface, R. M., & Ambrose, J. (2015). Mobile Banking and Financial Performance of Commercial Banks in Kenya. *International Journal of Finance and Current Business Studies*, 4(12), 16-31

<sup>48</sup> Bagudu, H. D., Mohd Khan, S. J., & Roslan, A. H. (2017). The effect of mobile banking on the performance of commercial banks in Nigeria. *International Research Journal of Management, IT & Social Sciences*, 4(2), 71-76.

**Table 4.4: Significance of Mobile Banking on the Financial Performance**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1220.057	1	1220.057	35.066	.000 <sup>b</sup>
	Residual	3027.009	87	34.793		
	Total	4247.066	88			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), Mobile Banking

The NSE in Kenya estimated the participants' aggregate scores for mobile banking and the profitability of commercial banks listed at NSE.

**Table 4.5: Effect of Mobile Banking on the Financial Performance**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.585	.668		9.858	.000
	Mobile Banking	.029	.005	.536	5.922	.000

a. Dependent Variable: Financial performance

The regression model is given by the following equation;

$$Y = \alpha + \beta X + \epsilon \dots \dots \dots \text{Equation 4.1}$$

$$\text{Performance} = 6.585 + 0.029X.$$

These findings imply that commercial banks performance would increase by 6.585 units when mobile banking methods are not there. The findings also imply that when mobile banking increase by one unit performance will increase by 0.029. The contribution of mobile banking on the performance of bank was found to be significance. Mobile banking makes it easier to send money to a recipient promptly. They also came to the conclusion that mobile banking allows for easy tracking of lenders and monitoring, that mobile banking enables to ensure quick transfers of funds because it saves time, that mobile banking allows for easy bill payment and tries to avoid cash payments, and that mobile banking bill payment influence the effectiveness of banks in the area.

### V. Conclusion of the Study

The study came to conclusions about mobile banking in relation to the profitability of Kenya's listed commercial banks on the Nairobi Stock Exchange (NSE). According to the findings, mobile banking had no substantial impact on the financial performance of Kenya's listed commercial banks on the Nairobi Stock Exchange (NSE). It could have been influenced by the study banks' uneven rollout of mobile banking. When compared to industry peers, the Equity and Kenya Commercial Bank had a high number of mobile banking users.

### Recommendation of the Study

We suggest that mobile banking methods have an influence on the profitability of commercial banks listed on the NSE based on the study's findings. Commercial banks should strengthen their mobile banking practices, according to the report, in order to improve bank transactions. The majority of the banks investigated did not have a large number of transactions, which could have resulted in a minor impact to the bank's profitability. The report also advises commercial banks to enhance their investments in agent banking in order to improve the profitability of commercial banks on the Nairobi Stock Exchange (NSE). There is a need to enhance the reliability of mobile banking, ensuring a more user-friendly mobile transaction and customer centric platforms will to promote ease of use. For instance, use of free deposit to savings account using mobile banking as well as free or lower withdrawal fees when using mobile banking.

### Suggestions for Further Research

The study was based on the secondary data using cross-sectional study design. Further study can be adapted to analysis effect of mobile banking channels on the financial banking in Kenya. The study recommends more study to be done focusing on mobile banking for specific category of banks.

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