

**THE RELATIONSHIP BETWEEN FINTECHS AND FINANCIAL PERFORMANCE  
OF COMMERCIAL BANKS IN KENYA**

**KARIUKI JOSEPH KARINA**

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## DECLARATION

I declare that this research project is my original document and has not been submitted for a degree in any higher learning institution or university.

Signature: String Date: .....

**Kariuki Joseph Karina**

**D61/34618/2019**

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

Signature: Winnie Date: **November 25, 2022**

**Dr. Winnie Nyamute**

**Department of Finance and Accounting**

**University of Nairobi**

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## **LIST OF ABBREVIATIONS**

<b>ANOVA</b>	Analysis of Variance
<b>CBK</b>	Central Bank of Kenya
<b>FINTECH</b>	Financial and Technology
<b>GAAP</b>	Generally Accepted Accounting Principles
<b>IFC</b>	International Finance Corporation
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KWS</b>	Kenya Wall Street
<b>MFI</b>	Micro –Finance Institution
<b>SME</b>	Small and Medium Enterprises
<b>SPSS</b>	Statistical Package for Social Sciences
<b>TAT</b>	Technology Acceptance Theory
<b>VIF</b>	Value Inflation Fact

## ABSTRACT

Fintechs are a part of an emerging sector that uses technology to offer financial services to deliver extremely improved financial services. Kenya has witnessed an increase in the utilization of Fintechs from 26.7% in 2006 to 83.7% in 2021 (KWS, 2022). The upsurge has enhanced financial innovations and inclusion within the country, enabling affordable and accessible financial services through mobile and digital platforms. The study sought to investigate the relationship between fintechs and financial performance of commercial banks in Kenya. A descriptive research methodology was adopted. Target population was the entire forty commercial banks in Kenya. Secondary sources of data were employed for; return on assets, value of mobile transactions, number of mobile transactions, and number of agents through quarterly unit period. Secondary data was collected from March 2012 to December 2021 from quarterly financial reporting. Correlation analysis and multiple linear regression method utilizing ordinary least square regression estimate was used to investigate the relationship between fintechs and financial performance of commercial banks in Kenya. Multicollinearity indicated all the variables were suitable for the study. . The correlation test indicated all the variables were correlated and statistically significant. The findings also indicated that, the value of mobile transactions was statistically significant ( $P < 0.05$ ). The study's inference is that the value of mobile transactions significantly influences the performance of commercial banks in Kenya. The study recommends that through regulating commercial banks (CBK), the government of Kenya should review and redesign mobile transactions security policies that protect the customers, banks, and fintechs, thus enhancing profitability. Further commercial banks should develop a good link with fintechs companies to attract and retain clients and CBK and commercial banks managers should continuously review and redesign their credit policy to mitigate liquidity and asset quality risks thus enhancing return on investment.



## CHAPTER ONE: INTRODUCTION

### 1.1 Background of the Study

Fintechs are a part of an emerging sector in finance that uses technology to deliver many improved financial services (Karsha & Abufara, 2020). These firms tailor their products to customer attraction through efficiency, automation, and accessibility on top of being user-friendly. Fintechs uses new applications and processes to deliver complementary financial services to the end-user (Akanbi et al., 2022). They operate and compete in the same space with traditional economic delivery methods offered by brick-and-mortar commercial banks.

Technology acceptance, financial intermediation, and institutional and innovation diffusion theories will guide the study. Technology acceptance theory's notion is that for people to accept the use of technology, they must demonstrate an intention to embrace it (Al-Mamary et al., 2016). Financial intermediation's focus is information asymmetric and the agency theory (Greenbaum &Thakor, 2007). Institutional theory is about the perception and necessity of considering informal aspects of coordination and official and typical structures and undertakings (Salamova, 2021). Innovation and diffusion are concerned with expounding how over time, a notion or product gains momentum amongst distinct populations or a social system (Larmorte, 2019).

In Europe, Fintechs are specifically the mechanism for supplying financial services in the banking industry to lower costs, reduce queueing lines in the banking halls and reduce paper works (IFC, 2017). In their study, Utami and Stanggang (2021) argued that Fintech adoption strongly affected the performance of SMEs in Indonesia. Fintechs enabled transactions to be performed with a lot of ease by SMEs, leading to easy access to capital funding and payments, enhancing growth.

Goswami, Sharma, and Chouhan (2022) noted that constructing social influence impacts behavioral intention to use manger technology in India's rural sector and enhances financial inclusivity. Fintech, if utilized effectively, may transform the banking sector by being effective and efficient in offering financial solutions (Onuorah, Oboro &Ofanson, 2022).

In Kenya, a supercharge of fintech that offers financial services such as money lending and transfers increased from 26.7% in 2006 to 83.7% in 2021 (KWS, 2022). It has enhanced

economic development and inclusion within and outside the country with affordable and accessible financial services through mobile and digital platforms. However, no study has focused on the relationship between fintech and the performance of commercial banks.

### **1.1.1 Fintechs**

The term Fintech is a consolidation of finance and technology, (Karsha & Abufara, 2020). According to Gray and Leibrock (2017) Fintech is the use of technology or innovations to provide financial services through means such as internet and cell phones. Koch and Siering (2017) posit fintech is the utilizing of technology to develop innovative financial products and services that satisfy customer's needs enhancing a competitive edge. Fintechs are technological inventions that shapes financial products and services.

Fintechs are essential because they enable organizations and people; to access credit, transfer and save funds through the use of the internet and mobile phones. Fintechs have been broadly accepted and applied in retail oriented, capital markets and financial infrastructure, (Jelagat & Jagongo, 2020). In Europe, the Fintechs are generally applied as a mechanism for provision of financial services in banking industry as a form of lowering cost ,reducing queueing lines in the banking halls and reduction of paper works ,(IFC,2017). Kenya has experienced supercharge of fintechs that offer financials services such as money loaning and money transfers from 26.7% in 2006 to 83.7% in 2021, (KWS, 2022). This has enhanced financial development and inclusion within and outside the country with affordable and accessible financial services through mobile and digital platforms.

According Utami and Stanggang (2021) bill payment or payment checking, enhances the effectiveness of fintech. A good approach that quantifies, fintechs accomplishment, is the number of transactions, (Onuorah, Oboro, & Anson, 2022). In addition measures such as software and hardware enables the outflow and inflow of funds.Kiiru (2018) posit that registered mobile payment account users is the best factor to quantify the effectiveness of fintechs on how they influence performance. Increase in number of registered mobile payment and agents indicates a positive increase in money transfers and acceptability of fintechs.

Jelagat, et al, (2020) on the other hand argues that lending and payment technology and investment innovations are the enablers of success of fintechs. An effective fintech enables easy access to lending and payment process. Behavioral changes and economic dynamics

enhance effectiveness of fintechs through; peer-to-peer lending practices, equity crowdfunding practices, crowd lending platforms, and credit and factor scoring, (Gitonga and Kariuki, 2021).

Kirigo, Kalui and Gathii (2021) note P2P transfers, registered mobile money accounts and total active agents enable easy access of funds. Therefore, the study seeks to measure Fintechs using value of mobile transactions, number of mobile transactions and agents on the financial performance.

### **1.1.2 Financial Performance**

Performance is a multi-dimensional construct with various measurable parameters, such as financial and market performance, human power, client satisfaction, and firm performance (Enad & Gerinda, 2022). Financial performance is the organization's ability to attain its goals by using resources efficiently and effectively through its daily operations (Gathara, 2019). The financial performance involves analysis of the financial statements, comprising a balance sheet, income statements, statement of retained earnings, and cash flow statement (Bhandari, 2018). Therefore, economic performance is considered a tool that quantifies a company's profitability or growth and development after utilizing intangible and tangible resources.

Financial performance helps check an organization's profitability through Liquidity, solvency, efficiency, and valuation. Other key performance indicators are earning Capital adequacy, asset quality, rating, Liquidity, and sensitivity to market risk. Financial profitability is also measured using return on assets, return on sales, and earnings before interest and tax. The benefit of using these parameters is their availability since it's a requirement for companies to provide annual financial reports (Muhammad & Surachman, 2018).

ThiKim, Duverny, and Thanh (2020) posit that the total assets turnover ratio and growth in sales are the best metrics for an organization's performance. Other ratios are; Liquidity, debt, and equity ratios; they are essential in analyzing the current and future status of the financial performance of an organization. Myskova and Hajek (2017) contend that return on equity, return on assets, and return on sales are suitable for quantifying an organization's profitability. However, return on equity is criticized because it doesn't consider the risk factor.

In another study, Dalayeen (2017) noted Liquidity, debt, and equity ratios as pertinent in analyzing the current and future status of the financial performance of an organization. Financial performance is made up of horizontal and vertical analysis of the financial statements

of a company. It includes cost recovery rate, returns on assets, returns on fixed assets, return on net worth, and net surplus ratio (Bhandari, 2018).

A liquidity position is the best approach for reflecting a firm's ability to finance its day-to-day operations. Financial stability ratios are a debt to net worth; this enhances an organization's financial stability (Bhunja, Gautam & Mukhuti, 2011). Nyambura (2021) noted capital structure positively influences the financial performance of an organization. Leverage, Liquidity, and owners' equity impact financial performance (Gathara, 2019).

### **1.1.3 Fintech and Financial Performance**

Fintechs are a part of an emerging sector in finance that uses technology to deliver many improved financial services (Karsha & Abufara, 2020). In Kenya, there has been an upsurge in using fintech to increase access to financial services, which has enhanced inclusion in the country through mobile and digital infrastructure. These have become a critical economic drivers that have increased competition among financial players, informing the development of new financial innovations to attract more clients.

Chhaidari, Abdelhedi, and Abdelfikafi (2022) found fintech strongly influences financial performance in selected European banks. In their study, Utami and Stanggang (2021) argued that Fintechs adoption strongly affected the performance of SMEs. Fintechs enabled transactions to be performed with a lot of ease by SMEs, leading to easy access to capital funding and payments, enhancing growth. However, literacy issues on acceptance and use of fintech are a challenge to the users.

Kiiru (2018) posit uptake of mobile payments through the use of fintech influences the performance of the banking sector. However, Kirigo, Kalui, and Gathii (2021) found that digital financial services offered by fintech do not influence the performance of commercial banks; instead, an improvement in customer deposits enhances performance. The study's concern is to investigate relationship between fintech firms and financial performance of commercial banks in Kenya.

### **1.1.4 Commercial Banks in Kenya**

According to the Central Bank of Kenya, there are 40 licensed commercial banks in Kenya and two micro-finance institutions (CBK, 2017). CBK regulates commercial banks through prudential guidelines. Commercial banks offer intermediary services to citizens in the Kenyan economy. The supercharge of fintech that provides financial services such as money lending

and transfers increased from 26.7% in 2006 to 83.7% in 2021 (KWS, 2022). It has enhanced economic development and financial inclusivity within and outside the country.

The upsurge of fintech has intensified competition for commercial banks, who are still practicing the traditional method of financial intermediary. Affordable and accessible financial services through mobile and digital platforms shape commercial banks' operations (CBK, 2019).

However, despite the upsurge of intensifying competition, many disruptions in the banking sector have been experienced, such as; cultural shift, regulatory compliance, redesigning business models, security issues and an increase in expectations. By embracing fintech regulatory and prudential reporting is enhanced (BIS, 2018).

In Kenya, regulatory law became an operation this year. The law gives CBK the powers to license and oversee the previous unregulated digital credit lenders on high costs, unethical debt collection practices, and abuse of personal information (Kodzilla, 2021). This law has forced commercial banks to redesign; their culture and business models to comply with the law. Further, it has forced commercial banks to develop innovations that attract more clients and ensure they adhere to the laws.

## **1.2 Research Problem**

Fintechs are a part of an emerging sector that uses technology to offer financial services to deliver extremely improved financial services. Kenya has witnessed an increase in the utilization of Fintechs from 26.7% in 2006 to 83.7% in 2021 (KWS, 2022). The upsurge has enhanced financial innovations and inclusion within the country, enabling affordable and accessible financial services through mobile and digital platforms. Embracing fintech has facilitated financial institutions in reducing on expenses, diversifying revenue flows, and improving clients' experiences (CBK, 2021).

According to Stanggang (2021), using fintech increased assets and sales and enhanced the performance of SMEs. Further, Onuorah, Oboro, and Ofanson (2022) linked the increase in the volume of transactions to the bank's profitability. Kiilu (2017) found mobile uptake notably influenced financial performance of banks. However, there is a lack of insight into the value of mobile transactions, number of mobile transactions, agents, asset quality and return on assets and financial performance of commercial banks.

Various studies have been conducted on fintech and performance globally and locally; Haddad and Hornuf (2021) investigated the impact of Fintech startups on financial institutions' performance. The focus was on fintech startups. Subanidja et al. (2022) investigated leveraging financial technology entities into sustainable bank performance through competitive advantage, focusing on leveraging fintech. Akanbi et al. (2022) focused on the impact of fintech usage on Nigeria's financial and non-financial performance of small and medium-scale enterprises, the focus was on SMEs .Onuorah, Oboro, and Ofanson (2022) examined Fintech operations and the bank's profitability.

Locally Gitonga and Kariuki (2021) investigated fintech investment financing mechanisms and the performance of investment firms in Kenya. The focus was on investment firms. Jelagat and Jagongo (2020) studied financial technology and customer control over financial data in deposit-taking savings and credit cooperatives. The focus was deposit-taking savings and credit cooperatives. Okodo (2019) examined fintech collaboration and commercial banks in Kenya. The focus was on collaboration. Kiilu (2017) examined the effects of fintech firms on the financial performance of the banking sector in Kenya. The focus was on the effects of fintech firms on performance. All the studies focused on fintech startups, small and medium enterprises, bank operations, investment firms, financial data in deposit-taking savings and credit cooperatives, collaboration, and the effects of fintech firms. There is a lack of consensus on the relationship between fintech and the financial performance of commercial banks in Kenya. A research gap exists in exploring the relationship between fintech and the financial performance of commercial banks. Therefore the study sought to answer the question, what is the relationship between fintech and the financial performance of commercial banks in Kenya?

### **1.3 Research Objective**

To investigate the relationship between fintechs and financial performance of commercial banks in Kenya.

### **1.4 Value of the Study**

The study findings may benefit the commercial bank's management, fintech companies, regulator CBK and scholars. The study findings are essential in providing invaluable knowledge of the theories; technology acceptance, financial intermediation, and institutional and innovation diffusion to commercial banks, fintech companies, and the regulator CBK in policy development.

The findings from the study may inform commercial bank managers of the importance of reviewing and realigning an organization's systems in tandem with fintech. It involves linking some of its activities to fintech to enhance utilizing its technologies to hold and expand its market share firmly. The commercial banks may be enabled to design mechanisms that mitigate any risk that may arise. It can, also aid the commercial banks in evaluating and understanding the challenges involved in technology acceptance and innovation diffusion theories regarding customer satisfaction, market share and expansion of their services.

The findings may be beneficial to Fintechs in understanding the aspects of financial intermediation and institutional theories. It enables the firms to understand the roles of intermediation and how to manage and run an organization through coordinating activities and typical decision-making structures.

The Central Bank of Kenya's regulator can use the result, to design good policies that regulate Fintechs. Thus reducing risks such as fraud, for instance, stealing of a person's identity, and others such as default risks. Other policies include levelling the playing field in all commercial banks, from Tier 1, Tier 2, and Tier 3. Also it may aid the regulator in understanding financial intermediary and institution theories in coordinating activities and typical decision-making structures.

The findings are helpful to all scholars who may carry out similar studies on the research phenomena using other secondary data. The study used panel data and ordinary least squares regression for analysis. It can also enable the scholars to understand the link between the theories and the study variables.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This part focuses on literature review, discusses the theories that are important to the study; the financial intermediation theory, the institutional theory and the theory of innovation. Also the section includes empirical review, summary of literature and the conceptual framework.

#### **2.2 Theoretical Review**

This section discusses conjectures that are pertinent to the study relationship between fintechs and performance of commercial banks in Kenya. They are; technology acceptance theory, financial intermediation theory, institutional theory and innovation theory.

##### **2.2.1 Technology Acceptance Theory**

The theory proponents were Davis, Bagozzi, and Warshaw (1989). They argued that for people to accept the use of technology, users must appreciate or take practicing it. The effectiveness of the technology is realizable if it is received and understood as easy to use. In understanding technology, people or persons can learn and apply it in their daily operations. The emphasis of technology acceptance theory is the recognition of easiness of using the technology and how precisely it is used (Al-Mamary et al., 2016). TAT is about the acceptance and usefulness of the technology.

Critics of this theory argue that TAT intention was for individual use, not institutional use (Ajibade, 2018). According to Laugasson et al. (2016) TAT model is an open source policy that includes free software technology that does not offer any incentive to the user. Meaning that the discernment concerning ease of use and degree of usefulness is inconsequential as technology is replicable with different free and open–source technology. Another argument is that the TAT model doesn't furnish a complete precursor to the mobile user or how it induces social preconditions that accelerate behaviors, Napitupulu, 2017; Torres & Gerhart, 2017).

This theory is essential for this study because it emphasizes the need for fintech, commercial banks, and customers to accept technology. TAT is rated to be helpful and easy to utilize new technology. Usefulness implies people believe tasks undertaken and performed using technology information systems improve clients' experience or satisfaction.



### **2.2.2 Financial Intermediation Theory**

Gurley and Show propositioned the theory in 1960. The basis for financial intermediation theory is information asymmetric and the agency theory. The idea is concerned; factors such as the high cost of transactions, scarcity of data when required, and mechanism for regulations must be considered (Greenbaum &Thakor, 2007).

Intermediation occurs when there are imperfect markets, the idea is to take advantage of what is not a perfect, unwanted, or temporary situation. And an ideal market is where there is a free flow of information or heavenly; however, on earth, there is no perfect market (Zaernjuk, 2014). Advances in technology have enhanced cost efficiency and efficiency of scale. Technology has also lowered the barriers to financial entry, significantly reshaping liquidity and bank assets (Molnar, 2018).

This theory is pertinent to the study because it explains the relationship between banks, customers, and fintech. The emphasis is on reducing transaction costs, providing information, and clearly outlining the regulations and policies to minimize risks. Technological dynamics have enhanced the ease of fund transfers that have increased the accessibility of capital financing and secure money transfers.

### **2.2.3 Institutional Theory**

Institution theory is a continuation and extension of the intellectual revolution that began in the 1960s. It is grounded on institution's management and decision making (Cunhab et al., 2017).Institution theory's primary focus is the necessity of considering informal aspects of coordinating as well as official and ordinary structures and undertakings (Salamova, 2021). Organizational frameworks are vital because they determine how decisions and tasks embarked on. It is paramount to accept that every organization has different dynamic terms or characteristics; for instance, values, culture, norms, and elucidations. The organization is a social construction, implying they have shared beliefs transferable amongst the persons over time (Soderstrum & Melin, 2019).

The theory is relevant to the study because it explains the aspect of an organization as an institution with values, culture, norms, and interpretations. Further, it discusses how coordination and decision-making drive the performance of an organization. The institutional theory relates to Fintechs and commercial banks, how they are structured, their values, norms,

beliefs, and their interpretation. And the most crucial part is the linkage between the companies and banks in financial services.

#### **2.2.4 Innovation Diffusion Theory**

E.M Rogers introduced innovation diffusion theory in 1962. It's derived from communication in expounding how a notion or product gains momentum over time amongst specific populations or a social system. The outcome of diffusion is that all the people or a portion of the social system embrace a new idea, behavior, and invention (Dearing & Cox, 2018).

Embracing new ideas, behavior, and inventions or products does not happen overnight; it is a process where some people are early ideas, behavior, and product adopters while others are not (Larmorte, 2019). The aspect of adopting a new idea, behavior, or product is realizable depending on how the adopter perceives it. For instance, if the adopter believes that adopting the new concept, behavior, and development is advantageous, then early adoption is necessary. Adopters' notion of embracing new ideas is rejected when they think they are not gaining an advantage (Bakkabulindi, 2014).

Critics of this theory posit that there are no clear indicators of categorizing adopters in terms of the rate at which they adopt the technology. Further, it does not consider a person's resources or social support when adopting new ideas.

The theory is pertinent to the study because it elaborates on the dynamics of accepting and adopting new ideas. People assume ideas and inventions differently in the social system, and their circumstances or social status force others. People with resources are; regarded as the first to adapt to innovation, while those with few or no resources follow afterward. Diffusion innovation theory explains the factors associated with FinTech, commercial banks, and customers face when a new idea is launched in the market. The social system is at play when embracing new ideas.

#### **2.3 Determinant of Financial Performance**

This section illustrates the determinants of financial performance. The empirical focus is on authors who have studied the variables concerning financial performance both globally and locally

### **2.3.1 Fintechs**

Fintechs are a part of an emerging sector in finance that uses technology to deliver many improved financial services (Karsha & Abufara, 2020). Fintechs affect the financial performance through the; value of mobile transactions, number of mobile transaction and number of agent . Onuorah, et al (2022) notes increase in the volume of transactions increases profitability. Kiiru (2018) found uptake of mobile payment influenced financial performance.

### **2.3.2 Return on Assets**

The total asset base is the underlying value of assets comprising the foundation for evaluating a firm, loan, or derivative security. An organization's real asset is the book value, the loan is the security an organization may use as collateral, and the derivative is the underlying asset.

The best measure of the profitability of an organization is the total asset base. By using the assets ratio, the firm can determine its returns. Taljera et al. (2021) noted liquidity and return on assets significantly impel bank's profitability. Further Akinola (2022) noted total asset affects return on investment of financial institutions. Return on assets is the division of net income against average total assets.

### **2.3.2 Liquidity**

The term liquidity concerns how quickly turning assets to cash may be undertaken. Liquidity is measured using the ratios; current ratio, acid test ratio, and cash ratio (Mawih, 2014), Mwaniki and Omagwa (2017) found asset structure influences financial performance. Further, they note that organizations should increase the allocation of resources towards long-term investments and funds by utilizing resources; property, plants, and equipment to enhance productivity.

Mucheru and Shakula (2017) argue that holding liquidity decisions, cash management, non-core investment, and loan repayment to constant zero influences the financial performance of commercial banks. They further found that holding more liquid assets than total assets leads to lower returns. Nyambura (2021) found liquidity has the highest contribution to change in the financial performance of deposit-taking MFI.

### **2.3.3 Asset Quality**

The term asset quality refers to the process of evaluating the bank's assets to check for credit risk levels and asset quality. Asset quality influences the operation of firms. Cheruiyot (2017)

found asset quality positively affects profitability of commercial banks. In addition Nzoka (2015) found asset quality has negative link to financial performance. Nyokabi (2017) realized that asset quality is paramount in measuring the financial performance of financial institutions..

## **2.4 Empirical Studies**

In this section, studies are reviewed globally, regional, and locally on the study phenomena relationship between fintech firms and the performance of commercial banks. Utami and Stanggang (2021) examined FinTech implementation's effect on SMEs' performance. The adoption of descriptive methodology enabled the viability of the study. Data was collected using an online questionnaire and analyzed using ordinary least square regression. The findings revealed that FinTech adoption significantly influenced the performance of SMEs. The study focused on SMEs in Indonesia. The survey used; capital funding, bill payment or payment checking, simplifying the market process and increase in sales and total assets. The result postulates rich literature that can infer analysis. However, the study focuses on the relationship between fintech firms and the performance of commercial banks in Kenya using panel data.

Haddad and Hornuf (2021) investigated the impact of FinTech startups on financial institutions' performance; from 2005 -2018. Financial institution from 87 countries were selected. Analysis used a Z- score, and the result revealed a positive relationship between fintech startup formation and current institution performance. The conclusion provides rich literature that can infer the study phenomena.

Chhaidar et al. (2022) explored effect of financial technology on European banks' profitability. A fully modified ordinary least square was employed to estimate a model of 23 European banks from 2010 to 2019. Further, the periods were subdivided into two from 2010 to 2014 and 2015 to 2019. The findings indicated that bank size affected the relationship between digital investments and profitability. The outcome provides rich literature that is essential to infer the study phenomena.

Subanidja et al. (2022) investigated leveraging financial technology entities into maintainable bank performance through competitive advantage. Mixed qualitative and quantitative methodology and questionnaires enabled the study to collect data. The result revealed that the existence of fintech is a dominant factor in achieving performance. Collaboration with fintech firms is essential, more so banks managing a business on the basis of prospective experience. The study used customer benefits, business domain, business partner and competitive

strategies. The findings postulate rich literature; however, the study focuses on the relationship between fintech and the performance of commercial banks in Kenya.

Frederica et al. (2021) assessed the effect of fintech and bank collaboration on banking performance in Indonesia by implementing regulations. The study employed quantitative methodology and questionnaires. The results disclosed no proof of the effect of fintech and bank corroboration on banking profitability. The findings postulate rich literature; however, the study focuses on the relationship between fintech and the performance of commercial banks in Kenya.

Goswami, Sharma, and Chouhan (2022) investigated the impact of financial technology on financial inclusion in Rural India. Exploratory and conclusive methodology and a structured questionnaire were adopted. The outcome indicated that factors in constructing the social influence impact behavioral intention to use manger technology in India's rural sector. The study focused on fintech on financial inclusion; however, the focus is on the relationship between fintech and the performance of commercial banks in Kenya.

Onuorah, Oboro, and Ofanson (2022) examined Fintech operations and the bank's profitability. The focus was secondary data for 11 years from 2010 to 2020. Analysis was through using the panel least square method. The outcome indicated that the introduction of fintech boosted the profitability of banks in Nigeria. Profitability was experienced through increase in the volume of transactions. The result postulates a rich literature and may infer the study; however, the study's focus is the relationship between fintech and the performance of commercial banks in Kenya.

Akanbi et al. (2022) focused on the impact of fintech usage on Nigeria financial and non-financial performance of small and medium-scale enterprises. A descriptive research design and questionnaire were used to collect data. Data were analyzed using one-way ANOVA. The outcome was a noteworthy fintech usage link to SME customer satisfaction, customer retention, turnover, and profitability. The study's focus was on SMEs and not commercial banks.

Gitonga and Kariuki (2021) investigated fintech investment financing mechanisms and the performance of investment firms in Kenya. Descriptive and explanatory research methodology and questionnaires were used to collect data. The findings revealed fintech peer-to-peer lending practices, equity crowdfunding practices, crowd lending platforms, and credit and factor

scoring fintech services influence the performance of investment firms. The focus was investment firms not commercial banks.

Jelagat and Jagongo (2020) studied financial technology and customer control over financial Data in Deposit taking savings and credit co-operatives in Baringo County. A simple randomized ex-post facto design and structured questionnaires were utilized for data collection. The outcome revealed; lending, payment and investment technology affect customer control. Focus was on deposit taking savings and credit co-operatives.

Okodo (2019) evaluated fintech collaboration and commercial banks in Kenya. Cross-sectional survey methodology and secondary data from 2009-2018 were for analysis. Outcome revealed an increase in corroboration between fintech and commercial banks.

Kiilu (2018) examined the effects of fintech firms on the financial performance of the banking sector in Kenya. A causal research design and 30 secondary data quarters from 2010-2017 were employed. The result revealed that uptake of mobile payments influenced financial performance.

## **2.5 Summary of Research Review**

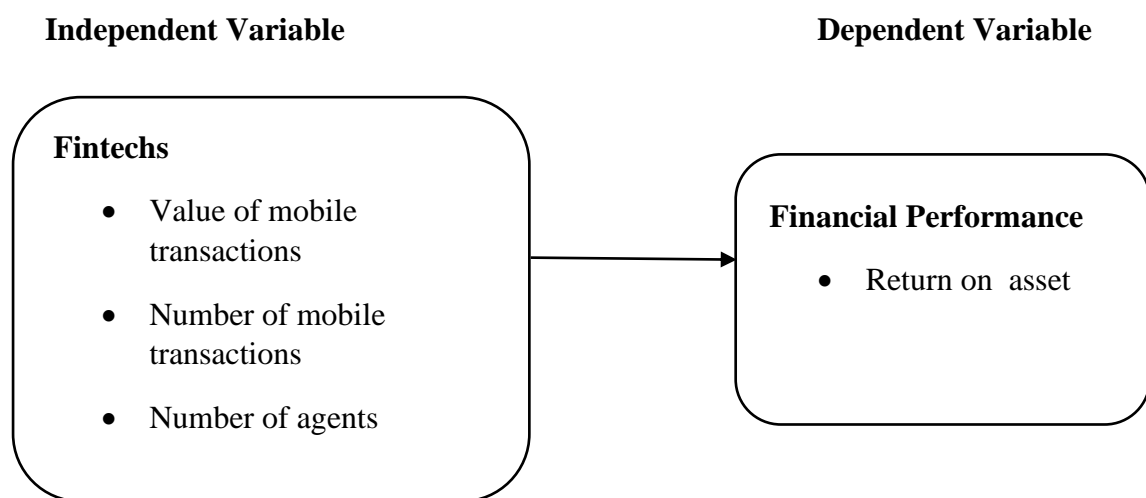
The section reviewed theories important to the study, technology acceptance, financial intermediation, institutional and innovation, and diffusion theory. Studies were reviewed on fintech on financial performance. Globally, Haddad and Hornuf (2021) investigated the impact of FinTech startups on financial institutions' performance. Subanidja et al. (2022) investigated leveraging financial technology entities into sustainable bank performance through competitive advantage. Akanbi et al. (2022) focused on the impact of fintech usage on Nigeria's financial and non-financial performance of small and medium-scale enterprises. Onuorah, Oboro, and Ofanson (2022) examined Fintech operations and the bank's profitability. The focus was fintech startups, leveraging financial technology, small and medium enterprises, and bank operations.

Locally Gitonga and Kariuki (2021) investigated fintech investment financing mechanisms and the performance of investment firms in Kenya. Okodo (2019) examined fintech collaboration and commercial banks in Kenya. Kiilu (2017) examined the effects of fintech firms on the financial performance of the banking sector in Kenya. The studies focused on investment firms, collaboration, and the effects of fintech firms. . There is lack of consensus on the relationship between fintech and financial performance of commercial banks in Kenya.

A research gap exists in exploring the relationship between fintech and the financial performance of commercial banks.

## 2.6 Conceptual Framework

This is a diagrammatical presentation of the variables and how they relate. The independent variable is fintech (value of mobile transactions and number of mobile transactions, age of mobile users), and the dependent variable is financial performance. Financial performance is measured using return on assets and liquidity and asset quality are control variables.



Source: Researcher (2022)

*Figure 2.1: Conceptual Model*

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section illustrates the blueprint that was used in the study, the population of the study focused on, sample size, data collection and data analysis process. Also the section describes the analytical techniques that were used.

#### **3.2 Research Design**

A research design is the plan and structure of investigation to obtain answers to research questions (Cooper & Schindler, 2014). It is a plan that guides the researcher in conducting a study. A descriptive research methodology was adopted by the survey. It sought to answer questions such as who, what, where, and who concerning the study phenomena. The methodology is appropriate for the study because it describes the person, situation, or event as it exists (Orodho, 2002). Also, it is crucial for the study because it obtains information regarding the present status or conditions of study phenomena and describes what exists per objective of the survey or proves or disproves of the study hypothesis.

#### **3.3 Population**

The study targeted the entire population of the forty commercial banks. Sources for secondary data were; the Central Bank of Kenya and the KNBS. It focused on data regarding return on assets; value of mobile transactions, number of mobile transactions, and number of agents, from March 2012 to December 2021. It is a cross-sectional longitudinal study, and data was retrieved quarterly or four times a year when banks release their audited financial statements. The target population is presented in Appendix: I.

#### **3.4 Sample**

The sampling frame is 40 commercial banks licensed by CBK. A census approach was adopted in the study for data collection from the respondents. The census approach was selected because it gives all the items or individuals equal opportunity in the study. All 40 commercial banks were suitable for the study.



### 3.5 Data Collection

Secondary data was collected from December 2012 to December 2021 from annual financial reporting. The study accessed cross-sectional data from commercial bank's quarterly reports from; (KNBS) and (CBK) inclusion, banking sector reports, credit survey reports and national mobile payment system statistics. The study accessed; value of mobile transactions, number of mobile transactions and number of agents from national payment system statistics. In addition, return on assets was retrieved from development on banking sector reports. The data was extracted using a data collection matrix as presented in appendix 2:

### 3.6 Data Analysis

Panel ordinary least regression model was employed in the study. Data was analyzed using SPSS version 23. The study used descriptive statistics to infer the study through frequency, mean, and standard deviation. Panel regression model investigated the relationship between fintechs and financial performance of commercial banks in Kenya.

#### 3.6.1 Panel ordinary least regression model

The ordinary least square regression model is as follows;

$$Y_{it} = \alpha + \beta_1 \ln X_{1it} + \beta_2 \ln X_{2it} + \beta_3 \ln X_{3it} + \beta_4 \ln X_{4it} + \beta_5 \ln X_{5it} + \varepsilon$$

$Y_{it}$  = Financial performance measured by return on asset

$\alpha$  = Constant term

$X_1$  = In log value of mobile transactions of commercial bank i at time t

$X_2$  = In log number of mobile transactions of commercial bank i at time t

$X_3$  = In log number of agents of commercial bank i at time t

$\varepsilon$  = Error term or other predictors

t = Annual report from December 2012 to December 2021

### **3.6.2 Diagnostic Test**

The study applied the linear regression assumptions and used the model specification's multicollinearity test, normality test, and heteroscedasticity.

#### **Multi collinearity**

It is the linear nature of the independent or predictor variables. It happens when independent variables have a linear association. The study used the variance inflation factor (VIF) to test for multicollinearity.

#### **Normality Test**

Normality test – Assumes a normal distribution of residuals around the mean. The study used Shapiro-Wilk to test for normality. If the probability level where ( $P < 0.05$ ), we reject the null hypothesis, and accept the alternative hypothesis vice versa.

#### **Hausman Test**

The study used the Hausman test to establish the method between a fixed effect and a random effect. If the Hausman test null hypothesis or probability level ( $P > 0.05$ ), the study may select a random effect. Then proceed with the Lagrange Multiplier test to determine whether a selection of a random or common effect. The study may select a fixed effect if the Hausman test receives an alternative hypothesis or probability level ( $P < 0.05$ ).

### **3.6.3 Test for significance**

The study used ANOVA through the F- test for the model fit of the data. When the probability level where ( $P < 0.05$ ), we accept and assume the presence of a significance level and when ( $P > 0.05$ ), the assumption is no significance.

## CHAPTER FOUR

### DATA ANALYSIS RESULTS AND DISCUSSION

#### 4.1 Introduction

This section discusses the analysis and presentation guided by the study objective investigating the relationship between fintechs and the financial performance of commercial banks in Kenya. It includes descriptive statistics, multicollinearity, normality test, Huisman test, and regression analysis. The study used secondary data from 2012 to 2021 that involved quarterly reports. A total of 40 quarterly reports were edited and compiled for analysis and were retrieved from CBK banking sector quarterly reports. Quarterly data for; ROA, the value of mobile transactions, number of mobile transactions and number of agents, were retrieved from development banking sector reports and credit survey reports.

#### 4.2. Descriptive Statistics

A descriptive statistics gives a summary of the frequency, minimum statistics, maximum statistics, mean, median, standard deviation, skewness and kurtosis. The findings are portrayed in Table 4.1;

**Table 4.1: Descriptive Statistics**

	<b>Return on assets</b>	<b>Value of mobile transactions (Billions)</b>	<b>Number of mobile transactions (Millions)</b>	<b>Number of agents (Millions)</b>
N	393	393	393	393
Mean	0.0137	1.6922	1.2739	0.8374
Median	0.0160	0.0000	0.000	0.0000
Std. Deviation	.43997	.48058	.74123	.47385
Skewness	-3.691	0.488	0.903	1.364
Std. Error of Skewness	0.123	0.123	0.123	0.123
Kurtosis	3.479	-1.571	-0.700	0.531
Std. Error of Kurtosis	0.246	0.246	0.246	0.246
Minimum	-0.32	0.000	0.000	0.000
Maximum	0.10	6.85	5.72	4.62

As shown in Table 4.1, ROA's highest and lowest number is (0.10, -0.32). The mean (0.013) and standard deviation (0.44) imply that the results are spread out. Threshold for Skewness (-0.8 to +0.8) and kurtosis (-3.0 to +3.0), the findings indicate (SK= -3.691, K= 3.479) this

implies that the distribution is highly skewed and too peaked. In addition, the highest and lowest value of mobile transactions is (6.85 and 0.00) with (M= 1.69 and SD = 0.48), which implies results are spread out. Skewness is (0.48), and Kurtosis (-1.57) means the value of mobile transactions is moderately skewed.

Further, the findings indicate the number of mobile transactions has a maximum statistic (5.72), and minimum statistic (0.00), and (M=1.27 and SD= 0.74), meaning the results are spread out. Skewness is (0.903), and the Kurtosis is (-0.70); it is clearly moderately skewed. Also, findings indicate that number of agents has a maximum statistic of (4.62) and a minimum statistic of (0.00), and (M= 0.83 and SD = 0.47), meaning the result is spread out. The Skewness is (1.36), and the Kurtosis (0.53) implying highly skewed. The conclusion is that three variables typically are moderately and highly skewed.

### 4.3 Diagnostic Test

#### Multicollinearity

The purpose of multicollinearity test is to check if there is linear association among the variables understudy. The outcome in shown Table 4.2;

**Table 4.2: Multi -Collinearity**

Model	Collinearity	
	Statistics	
	Tolerance	VIF
Constant		
Value of mobile transactions	0.340	2.943
Number of mobile transactions	0.436	2.293
Number of agents	0.400	2.502

The findings show that all the variables have (VIF < 5). Therefore it meets the required threshold of a variable, with a VIF significant less than five, implying the dropping of the independent variable from the model which has VIF more than five. It means that all the independent variables are included in the model.

### Normality Test

The study tested for normality with Shapiro-Wilk. The null hypothesis is rejected, the alternative hypothesis is accepted, and vice versa if ( $P < 0.05$ ), is met. The result is displayed in Table 4.3;

**Table 4.3: Normality Test**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Return on asset	.223	393	.000	.724	393	.000
Value of mobile transactions	.382	393	.000	.716	393	.000
Number of mobile transactions	.405	393	.000	.698	393	.000
Number of agents	.396	393	.300	.670	393	.000

The study used Shapiro-Wilk to test for normality, and the test displays all the variables are statistically significant ( $P < 0.05$ ). The threshold for testing Shapiro-Wilk is that if the ( $P < 0.05$ ), we reject the null hypothesis, and if the ( $P > 0.05$ ), we accept the alternative hypothesis. Regarding the findings, the conclusion is that we accept the null hypothesis. The data is normally distributed.

### Hausman Test

The study used the Hausman test to establish the method between a fixed effect and a random effect. Table 4.4 displays the results;

**Table 4.4: Random- Effects**

Item	
Wald Chi2(4)	19.44
Prob > F	0.0002
Corr (u,i,xb) assumed	0.00

Fixed effect and random effect comparison

	Fixed Effect	Random	Var{Diff}	S.E
Value of Mobile transactions	-0.0500668	-0.0498776	-0.001892	
Number of mobile transactions	0.0031781	0.0140649	-0.0108868	0.0023
Number of Agents	0.0062736	0.0160206	-0.009747	0.0069921

The study selected fixed effect because the Hausman test receives an alternative hypothesis or probability level ( $P < 0.05$ ). It means that ordinary least square regression method was used.

#### 4.4 Correlation Test

**Table 4.5: Correlation Test**

		Return on assets	Value of transacti ons	Number of mobile transactions	Number of agents	Liquidity	Asset quality
Return on assets	Pearson Correlation Sig. (2- tailed)	1					
Value of transactions	Pearson Correlation Sig. (2- tailed)	.265**	1				
Number of mobile transactions	Pearson Correlation Sig. (2- tailed)	.169**	.773**	1			
Number of agents	Pearson Correlation Sig. (2- tailed)	.159**	.765**	.650**	1		
	N	393	393	393	393	393	393

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

Table 4.5, indicates that return on assets has 1% correlation followed by value of mobile transactions( $r=0.265$ ), number of mobile transaction ( $r=0.169$ ) and number of agents ( $r = 0.159$ ), implying the variables are statistically significant. Multicollinearity happens if the phenomena have an exact or perfect association with predictor variables. The result may lead to erroneous inferences concerning the association between the product variable and the predictor variable. It implies the three are statistically significant variables and are retained.

#### 4.4 Regression Analysis

A regression analysis was done to test the association among the variables (value of mobile transactions, number of mobile transactions, number of agents, liquidity, asset quality, and return on assets. Table 4.6, Table 4.7 and Table 4.8 exhibit the model summary, Anova, and model coefficients;

**Table 4.6: Model Summary**

Model	R	R Square	Adjusted R Square	Root MSE	Durbin-Watson
1	.5823 <sup>a</sup>	.339	.3192	.04435	1.396

Predictors: Number of mobile transactions and Dependent Variable: ROA

The model summary, as indicated in Table 4.6, shows R = 58.23% and R<sup>2</sup> = 33.9 %. It means that the performance of commercial banks is explained by 33.9 % of the variable in the study. In comparison, 66.1% is unexplained by other factors that affect the performance of commercial banks and are not included in the model.

In testing for autocorrelation, the study used Durbin Watson. As shown in Table 4.6, the findings indicate that Durbin Watson has a value of (1.396). The rule of thumb states that a range of 1.5 to 2.5 are relatively standard, and values outside the range may be alarming (Turner et al., 2021). The findings show that the value is inside the range, meaning that the panel data has a serial autocorrelation.

**Table 4.7: Analysis of Variance**

Mode		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.015	3	0.005	2.955	.032 <sup>b</sup>
	Residual	0.659	389	0.002		
	Total	0.674	392			

Dependent variable: ROA, Predictor: Number of mobile transactions

A model is fit for the study when ( $P < 0.05$ ), we accept and assume the presence of a significance level, and when ( $P > 0.05$ ), the assumption is the absence of a significance level. As shown in Table 4.7; the calculated ( $F = df 392, 2.955$ ), significant at ( $P < 0.05$ ). It means that the model is statistical significance in predicting how fintechs influence the performance of commercial banks in Kenya.

**Table 4.8: Model Coefficients**

	Coefficient	Standard.Error	t	P >  t	95% Confidence Interval	
Constant	0.2009981	0.0400342	5.02	0.000	0.1213994	0.2805968
Value of mobile Transactions	-0.0500668	0.0073978	-6.77	0.000	-0.0647756	-0.035358
Number of mobile Transactions	0.0031781	0.0117915	0.27	0.788	-0.0202667	0.0266229
Name of Agents	0.02009981	0.0400342	0.56	0.576	-0.0159492	0.0284964

a .Dependent variable: ROA

As indicated in Table 4.8, a confidence level of ( $P < 0.05$ ) is interpreted as the presence of significance and values with ( $P > 0.05$ ); the assumption is no significance. The findings indicate that the value of mobile transactions, was statistically significant ( $P < 0.05$ ).

The estimated equation is as follows;

$$Y = 0.201 - 0.05X_1$$

A unit decrease in the value of mobile transactions (-0.05) with other factors held constant at (0.201) negatively influences the performance of commercial banks in Kenya.

#### 4.5 Interpretation and Discussion of the Findings

The subject of the paper was, investigation of the relationship between fintechs and the financial performance of commercial banks in Kenya. The focus was examining the strength and direction of the independent variables on the dependent variable. Descriptive statistics in Table 4.1; discloses that all the variables are negatively skewed. It is evidenced by the mean and standard deviation that shows results are spread out when the standard deviations are more considerable than the mean and when the standard deviations are close to the mean. In addition, Skewness and Kurtosis shows moderately and highly skewed. and lies within the range. It is evidenced in the research data attached in appendix III, which indicates that mobile transactions has increased among commercial banks and clients. It implies that the banks have enabled intermediary financial theory to lower barriers to financial entry, significantly reshaping liquidity and bank assets (Molnar, 2018). The clients have embraced innovation and diffusion theory, as noted (Dearing & Cox, 2018). It implies that fintech investment in financial mechanisms has enhanced the performance of banks (Kiilu, 2018).

The multicollinearity test revealed that all the variables are included in the model. Further it is shown in the collinearity test, all the variables are positively correlated. The model summary,



as in Table 4.6, means that the performance of commercial banks is explained by 33.9% of the variables in the study, 66.1% are unexplained by other factors that are not included in the model. Further, Table 4.7 Anova; reveals that the model's accuracy in prediction of how fintechs influence the performance of commercial banks in Kenya, is significant.

The model coefficient reveals that, the value of mobile transactions was statistically significant ( $P < 0.05$ ). The conclusion is that, a unit decrease in the value of mobile transactions (-0.05) with other factors held constant at (0.201) negatively influences the performance of commercial banks in Kenya. The findings concur with Onuorah, Oboro, and Ofanson (2022), who noted that introducing fintech firms boosted banks' profitability. In addition, the findings concur with Subanidja et al. (2022), Haddad et al. (2021), and Chhaidar et al. (2022) existence of fintechs is a major contributor to the success of commercial banks. It enhances the increase in the number of mobile transactions leading to an increase in return on assets.

## CHAPTER FIVE

### SUMMARY CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This part contains the paper summary, and conclusion per the objective, investigating the connection between fintechs and the financial performance of commercial banks in Kenya. Also, limitations and additional ideas for research regarding the purpose.

#### 5.2 Summary

The paper's main aim was to investigate the relationship between fintechs and the financial performance of commercial banks in Kenya. Quarterly data was collected from March 2012 to December 2021 on ROA, the value of mobile transactions, the number of mobile transactions and the number of agents.

Descriptive statistics disclosed that the variables moderately and highly skewed, follows a normal distribution. However, the multicollinearity test revealed that all the variables are suitable for the model. Further, the result showed that the, value of mobile transactions was statistically significant and influenced the performance of commercial banks in Kenya. A unit decrease in the number of mobile transactions with other factors held constant enhances performance or profitability.

#### 5.3 Conclusion

The paper's inference is that the value of mobile transactions significantly impacts the performance of commercial banks in Kenya. Managing asset quality and liquidity effectively enhances the performance of commercial banks, thus reducing risks. An upsurge of clients demanding using fintech companies locally and internationally has increased value of mobile transactions, intensifying stiff competition in the banking sector to develop innovations translating to performance improvement (Kiilu, 2018).

#### 5.4. Recommendations

Product and service Innovations are the keys to enhancing improved financial performance in the commercial banking sector in Kenya. Through regulating commercial banks (CBK), the government of Kenya should review and redesign mobile transaction security policies that protect the customers, banks, and fintech, thus enhancing profitability.

In addition, the paper urges the commercial banks to develop a good link with fintech companies to attract and retain clients and enhance return on investment. The paper also suggests that CBK and commercial bank managers continuously review and redesign their credit policy to mitigate liquidity and asset quality risks.

### **5.5 Limitations of the study**

The focus was 40 commercial banks in Kenya, and the study was limited to 40 quarters from March 2012 to December 2021. However, it is not definite that if the same data is used beyond 2021 may lead to the same result. Secondary data was utilized for analysis; however, it wasn't readily available, and it took some time to get it. Delays by CBK to release the data was also an imminent setback.

Getting information from each commercial banks was not possible due to data protection policy from each bank and time. More so banks that are not listed at NSE were reluctant in information disclosure. The study relied on using CBK banking sector report data, however not all information was available.

In addition, part of the data could not be accessed easily; for example, accessing information for value of mobile transactions and number of mobile transactions for each bank was difficult to get. It caused some delays because the data needed to be edited before analysis. Lastly there was lack of information for Fintech companies offering money lending services that is reliable from CBK, even after enactment of Fintech regulation act .No analysis was factored for money lending services fintechs and profitability.

### **5.6 Recommendations for Further Research**

The paper's verdicts advances rich knowledge, investigating the relationship between fintechs and the financial performance of commercial banks in Kenya. It provides a positive or negative criticism of existing theories concerning the relationship between fintechs and the financial performance of commercial banks in Kenya. It gives scholars rich empirical literature they can use in making inferences when conducting future studies.

The paper focused on investigating the connection between fintechs and the financial performance of commercial banks in Kenya, using secondary data from March 2012 to December 2021. A similar study should be carried out using more extended periods, and it might be an insight if the findings are the same. Also, the same analysis should be carried out on other financial institutions such as deposit-taking Sacco's.

Since the study used secondary data, the study recommends that further studies be done using primary data. It may provide insight if the results are replicated. Another suggestion is that studies may be carried out investigating the relationship between fintechs companies and the performance of companies in different sectors of the economy, such as retail chain stores and the petroleum and energy sectors, through analytical models such as cluster analysis. Lastly, similar studies should be carried out within East African commercial banks using longitudinal data for a period of twenty years using asset quality.

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## APPENDICES

### Appendix I: Licensed Commercial Banks in Kenya

<b>Licensed Commercial Banks in Kenya</b>			
1.	Kenya Commercial Bank	22.	Guardian Bank
2.	Equity Bank	23.	Trans-National Bank
3.	Cooperative Bank of Kenya	24.	Eco Bank
4.	Standard Chartered Bank	25.	First Community Bank
5.	I&M Bank	26.	Oriental Commercial Bank
6.	ABSA Kenya	27.	Gulf Africa
7.	NCBA Bank Kenya plc	28.	Sidian Bank
8.	Diamond Trust Bank	29.	Consolidated Bank
10.	Stanbic Bank Kenya	31.	HFC Ltd
11.	Citi Bank	32.	Jamii Bora Bank
12.	Bank of Baroda	33.	ABC Bank
13.	Bank of India	34.	UBA Bank Kenya Limited
14.	Prime Bank	35.	Paramount Universal
15.	Family Bank	36.	Mayfair Bank Ltd
16.	SBM Bank Kenya Ltd	37.	DIB Bank Kenya Ltd
17.	Development Bank	38.	National Bank Kenya Ltd k
18.	Victoria Commercial Bank Ltd	39.	Bank of Africa
19.	Guaranty Trust Bank Ltd	40.	Spire Bank ltd
20.	Habib A.G Zurich Bank	41.	
21.	Credit Bank	42.	



### Appendix III: Research Data

<b>Commercial Banks</b>	<b>Year</b>	<b>ROA</b> {%}	<b>Value of Mobile Transactions</b> {Billions}	<b>Number of Mobile Transactions</b> {Millions}	<b>Number of Agents</b>
Kenya Commercial Bank	2012	5.2	44,850	9618	4629
Equity Bank	2012	7.4	12,265	17953	6524
Cooperative Bank of Kenya	2012	4.8	15,146	6712	4099
Standard Chartered Bank	2012	5.9	0	0	0
I&M Bank	2012	5.2	4,197	970	99
ABSA Kenya	2012	7	0	0	0
NCBA Bank Kenya plc	2012	4	6,588	1185	0
Diamond Trust Bank	2012	4.9	2,789	0	0
Stanbic Bank Kenya	2012	3.5	7,760	1062	243
Citi Bank	2012	10.4	1,995	467	0
Bank of Baroda	2012	3.6	8,069	0	120
Bank of India	2012	2.4	0	0	0
Prime Bank	2012	2.7	0	0	0
Family Bank	2012	2.7	0	0	0
SBM Bank Kenya Ltd	2012	0	1,380	700	301
Development Bank	2012	0.8	0	0	0
Victoria Commercial Bank Ltd	2012	4.8	0	0	0
Guaranty Trust Bank Ltd	2012	0	0	0	0
Habib A.G Zurich Bank	2012	6.5	0	0	0
Credit Bank	2012	1.3	0	0	0
Guardian Bank	2012	1.9	0	0	0
Eco Bank	2012	-4.8	0	0	0
Gulf Africa	2012	2.8	0	0	0

First Community Bank	2012	2.9	0	0	0
ABC Bank	2012	2.9	2,065	400	6
UBA Bank Kenya Limited	2012	-13.6	2,222	352	0
Paramount Universal	2012	1.2	0	0	0
Sidian Bank	2012	0	0	0	0
Oriental Commercial Bank	2012	1.8	0	0	0
Middle East Bank	2012	0.8	0	0	0
HFC Limited	2012	2.2	0	0	0
Trans-National Bank	2012	3.7	0	440164	0
Mayfair Bank Ltd	2012	0	0	0	0
Spire Bank ltd	2012	0	0	0	0
Consolidated Bank	2012	1	0	0	0
DIB Bank Kenya Ltd	2012	0	4,400	359	29
National Bank Kenya Ltd	2012	1.7	0	0	0
Jamii Bora Bank	2012	1.5	4,304	933	0
Bank of Africa	2012	1.3	4,561	412	0
Imperial Bank Ltd	2012	5.5	0	0	0
Kenya Commercial Bank	2013	5.5	52763	9618	6410
Equity Bank	2013	7.7	96112	17953	8149
Cooperative Bank of Kenya	2013	4.7	35572	6712	7099
Standard Chartered Bank	2013	6	0	0	0
I&M Bank	2013	5.5	4197	970	99
ABSA Kenya	2013	5.8	0	0	0
NCBA Bank Kenya plc	2013	3.6	6588	1185	0
Diamond Trust Bank	2013	4.9	1032.462	0	0
Stanbic Bank Kenya	2013	4.1	5827	1062	460
Citi Bank	2013	7	1995	467	0
Bank of Baroda	2013	4.8	13862.98	0	144

Bank of India	2013	4.1	0	0	0
Prime Bank	2013	3.8	0	0	0
Family Bank	2013	4	0	0	0
SBM Bank Kenya Ltd	2013	0	7705.31	700	705
Development Bank	2013	1.8	0	0	0
Victoria Commercial Bank Ltd	2013	4.3	0	0	0
Guaranty Trust Bank Ltd	2013	1.6	0	0	0
Habib A.G Zurich Bank	2013	4.3	0	0	0
Credit Bank	2013	1	0	0	0
Guardian Bank	2013	3	0	0	0
Eco Bank	2013	-3.3	0	0	0
Gulf Africa	2013	2.7	5582.21	0	11
First Community Bank	2013	1.8	0	0	0
ABC Bank	2013	2.9	2065	400	73
UBA Bank Kenya Limited	2013	-7.5	2222	352	0
Paramount Universal	2013	1.2	0	0	0
Sidian Bank	2013	0	0	0	0
Oriental Commercial Bank	2013	2.5	0	0	0
Middle East Bank	2013	1.4	0	0	0
HFC Limited	2013	0	0	0	0
Trans-National Bank	2013	2.3	0	440164	0
Mayfair Bank LtD	2013	0	0	0	3
Spire Bank ltd	2013	0	0	0	0
Consolidated Bank	2013	-0.8	0	0	0
DIB Bank Kenya Ltd	2013	0	2001	359	28
National Bank Kenya Ltd	2013	1.9	0	0	0
Jamii Bora Bank	2013	1.3	4304	933	3
Bank of Africa	2013	2	4561	412	0

Imperial Bank Ltd	2013	5.8	0	0	0
Kenya Commercial Bank	2104	5.93	77034	13080	9745
Equity Bank	2104	7.26	140324	24416	13675
Cooperative Bank of Kenya	2104	4.43	53935	1612	8765
Standard Chartered Bank	2104	6.42	0	0	3
I&M Bank	2104	5.64	7750	1319	98
ABSA Kenya	2104	5.44	0	0	0
NCBA Bank Kenya plc	2104	2.7	9301	9301	0
Diamond Trust Bank	2104	4.47	1445.452	0	0
Stanbic Bank Kenya	2104	4.31	8008	1445	304
Citi Bank	2104	5.22	2913	587	1
Bank of Baroda	2104	4.35	12805.9	0	144
Bank of India	2104	3.74	0	0	0
Prime Bank	2104	4.18	0	0	0
Family Bank	2104	4.24	0	0	0
SBM Bank Kenya Ltd	2104	0	2136.296	952	1833
Development Bank	2104	1.88	0	0	0
Victoria Commercial Bank Ltd	2104	3.68	0	0	0
Guaranty Trust Bank Ltd	2104	2.08	0	0	0
Habib A.G Zurich Bank	2104	5.29	0	0	0
Credit Bank	2104	-1.02	0	0	0
Guardian Bank	2104	2.59	0	0	0
Eco Bank	2104	-1.09	0	0	0
Gulf Africa	2104	3.11	4679.95	0	11
First Community Bank	2104	0.67	0	0	0
ABC Bank	2104	1.49	3891	544	315
UBA Bank Kenya Limited	2104	-6.97	1443.141	479	79
Paramount Universal	2104	1.32	0	0	0



Sidian Bank	2104	0	0	0	0
Oriental Commercial Bank	2104	1.07	3121.587	0	8
Middle East Bank	2104	1.28	0	0	0
HFC Limited	2104	0	0	0	0
Trans-National Bank	2104	1.86	0	440164	0
Mayfair Bank Ltd	2104	0	0	0	11
Spire Bank ltd	2104	0	0	0	0
Consolidated Bank	2104	-1.82	0	0	0
DIB Bank Kenya Ltd	2104	0	1893.152	489	16
National Bank Kenya Ltd	2104	1.9	0	0	0
Jamii Bora Bank	2104	0.73	1605.308	1269	410
Bank of Africa	2104	0.33	6759	611	0
Imperial Bank Ltd	2104	4.75	0	0	0
Kenya Commercial Bank	2015	5.01	101685	18182	11948
Equity Bank	2015	6.56	185228	33939	13767
Cooperative Bank of Kenya	2015	4.14	68554	12689	8335
Standard Chartered Bank	2015	3.83	0	0	0
I&M Bank	2015	5.66	9439	1834	102
ABSA Kenya	2015	5.01	0	0	0
NCBA Bank Kenya plc	2015	3.14	12698	2241	181
Diamond Trust Bank	2015	3.69	1390.766	0	0
Stanbic Bank Kenya	2015	3.56	11230	2009	317
Citi Bank	2015	6.33	3845	816	0
Bank of Baroda	2015	3.65	12659.27	0	123
Bank of India	2015	3.49	0	0	0
Prime Bank	2015	3.99	0	0	0
Family Bank	2015	3.55	0	0	0
SBM Bank Kenya Ltd	2015	0	5541.593	1323	1536

Development Bank	2015	1.05	0		0
Victoria Commercial Bank Ltd	2015	3.38	0		0
Guaranty Trust Bank Ltd	2015	1.86	0	0	0
Habib A.G Zurich Bank	2015	3.53	0	0	0
Credit Bank	2015	-1.74	0	0	0
Guardian Bank	2015	2.25	0	0	0
Eco Bank	2015	0.18	0	0	0
Gulf Africa	2015	4.42	0	0	11
First Community Bank	2015	0.07	0	0	0
ABC Bank	2015	1.61	5637	756	315
UBA Bank Kenya Limited	2015	-3.91	3545.207	666	79
Paramount Universal	2015	1.6	0	0	0
Sidian Bank	2015	2.72	0	0	0
Oriental Commercial Bank	2015	0.49	1597.36	0	68
Middle East Bank	2015	0.75	0	0	0
HFC Limited	2015	0	0	0	0
Trans-National Bank	2015	2.39	0	440164	0
Mayfair Bank Ltd	2015	0	0	0	8
Spire Bank ltd	2015	0	0	0	0
Consolidated Bank	2015	0.35	0	0	0
DIB Bank Kenya Ltd	2015	0	2870.563	578	16
National Bank Kenya Ltd	2015	-1.34	0	0	
Jamii Bora Bank	2015	0.22	2744.264	1987	410
Bank of Africa	2015	-2.07	8790	857	0
Kenya Commercial Bank	2016	5.64	170830	22891	12883
Equity Bank	2016	6	15291	44799	25428
Cooperative Bank of Kenya	2016	5.15	114250	16749	8856
Standard Chartered Bank	2016	5.1	0	0	0

I&M Bank	2016	5.27	17857	2420	102
ABSA Kenya	2016	4.02	0	0	0
NCBA Bank Kenya plc	2016	3.6	24627	2958	181
Diamond Trust Bank	2016	3.69	1268.728	0	
Stanbic Bank Kenya	2016	3.56	19264	2182	671
Citi Bank	2016	5.84	6460	1392	0
Bank of Baroda	2016	4.67	23358.59	0	123
Bank of India	2016	4.57	0	0	0
Prime Bank	2016	3.57	0	0	0
Family Bank	2016	0.91	0	0	0
SBM Bank Kenya Ltd	2016	0	13930.37	1926	3690
Development Bank	2016	0.58	0	0	0
Victoria Commercial Bank Ltd	2016	3.55	0	0	0
Guaranty Trust Bank Ltd	2016	2.23	0	0	0
Habib A.G Zurich Bank	2016	3.7	0	0	0
Credit Bank	2016	1.3	0	0	0
Guardian Bank	2016	2.05	0	0	0
Eco Bank	2016	-6.13	0	0	0
Gulf Africa	2016	2.78	2200	0	11
First Community Bank	2016	-0.28	0	0	0
ABC Bank	2016	0.99	8420	987	0
UBA Bank Kenya Limited	2016	0.89	3508.202	880	79
Paramount Universal	2016	1.11	0	0	0
Sidian Bank	2016	0.3	0	0	0
Oriental Commercial Bank	2016	0.36	2672.136	0	91
Middle East Bank	2016	-1.93	0	0	0
HFC Limited	2016	2.12	0	0	0
Trans-National Bank	2016	1.53	0	440164	0

Mayfair Bank Ltd	2016	0	0	0	5
Spire Bank Ltd	2016	-7.01	0	0	0
Consolidated Bank	2016	-1.99	0	0	0
DIB Bank Kenya Ltd	2016	0	1138.445	891	16
National Bank Kenya Ltd	2016	0.14	0	0	0
Jamii Bora Bank	2016	-3.12	2092.455	2731	410
Bank of Africa	2016	-0.03	14767	1089	0
Kenya Commercial Bank	2017	4.94	271781	33120	14466
Equity Bank	2017	5.68	485448	66573	28663
Cooperative Bank of Kenya	2017	4.31	177810	22779	11207
Standard Chartered Bank	2017	3.34	0	0	0
I&M Bank	2017	4.09	21071	3381	102
ABSA Kenya	2017	3.68	0	0	0
NCBA Bank Kenya plc	2017	3.13	29146	4052	181
Diamond Trust Bank	2017	3.05	26352.16	0	0
Stanbic Bank Kenya	2017	2.34	28452	3431	1167
Citi Bank	2017	6.49	8592	1118	0
Bank of Baroda	2017	5.26	19779.98	0	123
Bank of India	2017	4.72	0	0	0
Prime Bank	2017	2.59	0	0	0
Family Bank	2017	-1.99	0	0	0
SBM Bank Kenya Ltd	2017	-3.07	29702.32	982	3275
Development Bank	2017	0.35	0	0	0
Victoria Commercial Bank Ltd	2017	3.27	0	0	0
Guaranty Trust Bank Ltd	2017	0.87	0	0	0
Habib A.G Zurich Bank	2017	2.19	0	0	0
Credit Bank	2017	1.24	0	0	0
Guardian Bank	2017	1.44	0	0	0

Eco Bank	2017	-2.68	0	0	0
Gulf Africa	2017	0.81	2200	0	11
First Community Bank	2017	1.25	0	0	0
ABC Bank	2017	0.82	9966	1257	0
UBA Bank Kenya Limited	2017	0.21	7923.225	981	79
Paramount Universal	2017	1.01	0	0	0
Sidian Bank	2017	-3.28	0	0	0
Oriental Commercial Bank	2017	1.1	1109.998	0	157
Middle East Bank	2017	-0.81	0	0	0
HFC Limited	2017	0.63	0	0	0
Trans-National Bank	2017	0.52	0	440164	0
Mayfair Bank LtD	2017	-8.38	0	0	5
Spire Bank ltd	2017	-4.14	0	0	0
Consolidated Bank	2017	-3.26	0	0	0
DIB Bank Kenya Ltd	2017	-32.15	7035428	981	16
National Bank Kenya Ltd	2017	0.67	0	0	0
Jamii Bora Bank	2017	-5.93	12201.91	2375	410
Bank of Africa	2017	0.06	11814	1325	0
Kenya Commercial Bank	2018	5	92000	33120	9950
Equity Bank	2018	5.6	378900	66573	29723
Cooperative Bank of Kenya	2018	4.3	177810	22779	12266
Standard Chartered Bank	2018	4	0	0	0
I&M Bank	2018	3.8	21071	3381	102
ABSA Kenya	2018	3.2	0	0	0
NCBA Bank Kenya plc	2018	3.4	29146	4052	181
Diamond Trust Bank	2018	3.3	26352.16	0	0
Stanbic Bank Kenya	2018	3.1	28452	3431	
Citi Bank	2018	6.6	8592	1118	0

Bank of Baroda	2018	4.2	19779.98	0	
Bank of India	2018	3.9	0	0	0
Prime Bank	2018	2.1	0	0	0
Family Bank	2018	0.6	0	0	0
SBM Bank Kenya Ltd	2018	1.4	29702.32	982	0
Development Bank	2018	1.1	0	0	0
Victoria Commercial Bank Ltd	2018	1.7	0	0	0
Guaranty Trust Bank Ltd	2018	0.9	0	0	0
Habib A.G Zurich Bank	2018	1.7	0	0	0
Credit Bank	2018	1.9	0	0	0
Guardian Bank	2018	2.2	0	0	0
Eco Bank	2018	0.3	0	0	0
Gulf Africa	2018	0.9	2200	0	0
First Community Bank	2018	-1.6	0	0	0
ABC Bank	2018	0.6	9966	1257	0
UBA Bank Kenya Limited	2018	0.2	8592	981	79
Paramount Universal	2018	1.5	0	0	0
Sidian Bank	2018	-2.2	0	0	0
Oriental Commercial Bank	2018	1	0	0	0
Middle East Bank	2018	0	0	0	0
HFC Limited	2018	-0.7	0	0	0
Trans-National Bank	2018	-1	0	440164	0
Mayfair Bank Ltd	2018	-3.9	0	0	5
Spire Bank Ltd	2018	-3.3	0	0	0
Consolidated Bank	2018	-2.7	0	0	0
DIB Bank Kenya Ltd	2018	-16.6	6291	981	16
National Bank Kenya Ltd	2018	0.5	0	0	0
Jamii Bora Bank	2018	-3.8	18258	2375	410

Bank of Africa	2018	0.4	11814	1325	0
Kenya Commercial Bank	2019	3	33800	33120	14332
Equity Bank	2019	4.9	378900	135000	33341
Cooperative Bank of Kenya	2019	5.1	177810	22779	14651
Standard Chartered Bank	2019	4.5	0	0	0
I&M Bank	2019	4.2	21071	3381	92
ABSA Kenya	2019	4.7	0	0	0
NCBA Bank Kenya plc	2019	3.2	29146	4052	165
Diamond Trust Bank	2019	2	26352.16	0	0
Stanbic Bank Kenya	2019	3.2	28452	3431	1145
Citi Bank	2019	2.8	8592	1118	0
Bank of Baroda	2019	5.8	19779.98	0	110
Bank of India	2019	3.8	0	0	0
Prime Bank	2019	4.5	0	0	0
Family Bank	2019	2.3	0	0	0
SBM Bank Kenya Ltd	2019	1.7	29702.32	982	2512
Development Bank	2019	1.6	0		0
Victoria Commercial Bank Ltd	2019	7.4	0		0
Guaranty Trust Bank Ltd	2019	1.9	0	0	0
Habib A.G Zurich Bank	2019	1.7	0	0	0
Credit Bank	2019	1.6	0	0	0
Guardian Bank	2019	1.4	0	0	0
Eco Bank	2019	1.5	0	0	0
Gulf Africa	2019	0.3	2200	0	11
First Community Bank	2019	0.6	0	0	0
ABC Bank	2019	1	9966	1257	300
UBA Bank Kenya Limited	2019	0.7	8592	981	80
Paramount Universal	2019	0.8	0	0	0

Sidian Bank	2019	0.2	0	0	0
Oriental Commercial Bank	2019	0.5	0	0	148
Middle East Bank	2019	0.7	0	0	0
HFC Limited	2019	0	0	0	0
Trans-National Bank	2019	-0.6	0	440164	0
Mayfair Bank Ltd	2019	-4.2	0	0	6
Spire Bank ltd	2019	-6.6	0	0	0
Consolidated Bank	2019	-4.4	0	0	0
DIB Bank Kenya Ltd	2019	-8.8	6291	981	17
National Bank Kenya Ltd	2019	-0.7	0	0	0
Jamii Bora Bank	2019	-13.3	18258	2375	410
Bank of Africa	2019	-6.7	11814	1325	0
Kenya Commercial Bank	2020	3.11	33,800	33120	12724
Equity Bank	2020	2.13	378,900	522000	39951
Cooperative Bank of Kenya	2020	3.41	177,810	22779	14583
Standard Chartered Bank	2020	2.15	0	0	0
I&M Bank	2020	3.63	21,071	3381	104
ABSA Kenya	2020	2.2	0	0	0
NCBA Bank Kenya plc	2020	1.96	29,146	4052	178
Diamond Trust Bank	2020	1.26	26,352	0	0
Stanbic Bank Kenya	2020	1.96	28,452	3431	1243
Citi Bank	2020	5.15	8,592	1118	0
Bank of Baroda	2020	3.48	19,780	0	128
Bank of India	2020	3.64	0	0	0
Prime Bank	2020	1.59	0	0	0
Family Bank	2020	1.46	0	0	0
SBM Bank Kenya Ltd	2020	0.78	29,702	982	2676
Development Bank	2020	0.11	0	0	0



Victoria Commercial Bank Ltd	2020	1.27	0	0	0
Guaranty Trust Bank Ltd	2020	1.58	0	0	0
Habib A.G Zurich Bank	2020	1.66	0	0	0
Credit Bank	2020	0.04	0	0	0
Guardian Bank	2020	0.45	0	0	0
Eco Bank	2020	0.01	0	0	0
Gulf Africa	2020	1.49	2,200	0	18
First Community Bank	2020	1.09	0	0	0
ABC Bank	2020	0.45	9,966	1257	357
UBA Bank Kenya Limited	2020	0.3	8,592	981	92
Paramount Universal	2020	0.85	0	0	0
Sidian Bank	2020	0.31	0	0	0
Oriental Commercial Bank	2020	0.33	0	0	158
Middle East Bank	2020	0.95	0	0	0
HFC Limited	2020	-1.77	0	0	0
Trans-National Bank	2020	0	0	440164	0
Mayfair Bank Ltd	2020	-2.76	0	0	16
Spire Bank ltd	2020	-24.59	0	0	0
Consolidated Bank	2020	-2.03	0	0	0
DIB Bank Kenya Ltd	2020	-5.22	6,291	981	22
National Bank Kenya Ltd	2020	0.25	0	0	0
Jamii Bora Bank	2020	0	18,258	2375	466
Bank of Africa	2020	-1.51	11,814	1325	0
Kenya Commercial Bank	2021	4.9	33,800	33120	14001
Equity Bank	2021	4.7	378,900	522000	42000
Cooperative Bank of Kenya	2021	3.9	177,810	22779	15072
Standard Chartered Bank	2021	3.6	0	0	0

I&M Bank	2021	3.4	21,071	3381	128
ABSA Kenya	2021	3.4	0	0	0
NCBA Bank Kenya plc	2021	3.1	29,146	4052	268
Diamond Trust Bank	2021	1.4	26,352	0	0
Stanbic Bank Kenya	2021	3	28,452	194,812	1343
Citi Bank	2021	4.5	8,592	1118	0
Bank of Baroda	2021	3.7	19,780	0	243
Bank of India	2021	4	0	0	0
Prime Bank	2021	2.3	0	0	0
Family Bank	2021	2.8	0	0	0
SBM Bank Kenya Ltd	2021	0.3	29,702	982	3953
Development Bank	2021	4	0	0	0
Victoria Commercial Bank Ltd	2021	1.2	0	0	0
Guaranty Trust Bank Ltd	2021	2.6	0	0	0
Habib A.G Zurich Bank	2021	1.9	0	0	0
Credit Bank	2021	0.8	0	0	0
Guardian Bank	2021	0.8	0	0	0
Eco Bank	2021	0.6	0	0	0
Gulf Africa	2021	1.8	2,200	0	28
First Community Bank	2021	2.4	0	0	0
ABC Bank	2021	0.3	9,966	1257	396
UBA Bank Kenya Limited	2021	-10.2	8,592	981	195
Paramount Universal	2021	1.2	0	0	0
Sidian Bank	2021	1.7	0	0	0
Oriental Commercial Bank	2021	0.5	0	0	198
Middle East Bank	2021	1.3	0	0	0
HFC Limited	2021	-1.3	0	0	0
Trans-National Bank	2021	0	0	440164	0

Mayfair Bank Ltd	2021	0.6	0	0	19
Spire Bank ltd	2021	-30.2	0	0	0
Consolidated Bank	2021	-2	0	0	0
DIB Bank Kenya Ltd	2021	-4.4	6,291	981	29
National Bank Kenya Ltd	2021	0.9	0	0	0
Jamii Bora Bank	2021	0	18,258	2375	498
Bank of Africa	2021	0.7	11,814	1325	0