EFFECT OF FINANCIAL TECHNOLOGY ADOPTION ON PERFORMANCE OF COMMERCIAL BANKS IN MERU COUNTY, KENYA

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A Thesis Submitted in the School of Business and Economics in Partial Fulfillment of the Requirements for the Conferment of Master of Science in Finance and Investment of Kenya Methodist University

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DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and has not been presented for the award of a degree orany other award in any other University.

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Recommendation

We confirm that the candidate carried out the work reported in this thesis under oursupervision.

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Sign…….....Date…….

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DEDICATION

To my wife Caroline Kawira, children Amaya and Alvin and Timothy Muthaura my friend for their support while undertaking my research.

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ABSTRACT

This study aimed to probe the effect of financial technology (Fintech) on the performance of Commercial banks in Meru, Kenya. Fintech had surfaced as a disruptive force in the financial industry, offering new ways of delivering financial services to customers. The study explored the extent to which commercial banks in Meru had embraced Fintech and the impact it had on their performance. By concentrating on lending, deposit mobilization, payments and customer acquisition of using fintech on commercial banks revenue streams in Meru County, Kenya. The study was anchored on three theories mainly: diffusion of innovation, technology acceptance model and theory of financial intermediation. The study adopted a mixed-styles approach, combining both quantitative and qualitative data. The study involved a check of commercial banks in Meru County, Kenya, to gather information on their use of Fintech as well as their financial performance. The study was anticipated to give perspective into the benefits and challenges of Fintech use in the commercial banking sector in Meru County, Kenya. The findings would be useful to commercial banks, policymakers, and other stakeholders in the financial industry in developing strategies to enhance financial performance and use of Fintech in the region. Results on regression study designated that there was a robust optimistic association (R=0.998, p-value of 0.000) between adoption of financial technology and financial performance of commercial banks. The findings further indicated that fintech payment, lending and deposit mobilization have significant influence on financial performance while fintech customer acquisition does not have a significant influence on financial performance of commercial banks. It is important to outline the need to adopt fintech payment to improve the efficiency of banking operations and to increase the accessibility and convenience of banking services for customers. Fintech lending need to be adopted by the commercial banks to increase the accessibility of credit for small and medium-sized enterprises (SMEs) and enable banks reach to a broader customer base, including underserved individuals or businesses. The study further recommends adoption of fintech deposit mobilization to create new business opportunities for banks and increase the efficiency of banking operations. Similarly adoptions of fintech customer acquisition enhance the convenience of banking services for customers and improve banks' ability to offer personalized financial products and services. The commercial banks in Meru County were the only ones included in this study. It is advised that more research be done that includes financial data from other Kenyan counties, as this could offer new perspectives. Additionally, the study failed to recognize and look into the influence of moderating factors on financial performance. The researcher suggests that future studies examine how modifiers affect the implementation of technology for finance and financial performance.

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LIST OF ABBREVIATIONS

MARKUPMS	Market Access Upgrade
MSMEs	Program Microsoft System Micro, Small- and Medium-Size Enterprises
NACOSTI	National Council of Science Technology and Innovation
NCLR	National Council for Law Reporting
SST	Socio-technical Systems Theory
ROE	Return on equity
ROI	Return on investment
PBT	Profit before tax
RTGS	Real time gross transfer
ETG	Electronic fund transfer
Fin-tech	Financial Technology
AER	African Economic Research Consortium
BBB	British Business Bank
BBB	British Business Bank
CAK	Communications Authority of Kenya
KCB	Kenya commercial bank
EF	Ecommerce Foundation
EC	European Commission
ED	Electronic Data
EU	European Union
FIFO	First in First out
ICT	Information Communication Technology

IT	Information Technology
ITC	International Trade Center
KeMU	Kenya Methodist University
KRA	AnalysisKenya Revenue Authority
KSHS	Kenyan Shillings
KNBS	Kenya National Bureau of Standards
LIFO	Last in First out

CHAPTER ONE`

INTRODUCTION

1.1 Background of the Study

Following the global financial crisis of 2008, the financial industry is going through unheard-of transformations, primarily because of technological advancements, modifications in consumer behavior, and regulatory changes. Industry confidence has increased as a result of the crisis, and regulators have enacted stricter regulations to stop the mistakes that caused the crisis from happening again. These strict regulatory requirements have further altered the role of technology in finance. Companies in the technology and telecommunications industries, including as Google, Samsung, Apple, Orange, and Safaricom, have joined the market to offer services that were previously supplied by commercial banks (Africinvest, 2016). These companies are exempt from these laws, therefore they are able to compete with commercial banks.

According to KPMG (2017), the term "fintech" refers to businesses that use technology to achieve a competitive advantage and bring about disruption within the financial industry. However, there is not one single definition of fintech that is acknowledged by everyone. In Leong and Sung (2022) attempted to define fintech by soliciting the opinions of 200 people, including students and business people. They found that people do not have a clear understanding of what FinTech is and that there is a high level of resistance to FinTech adoption/acceptance due to this lack of understanding. However, from the information collected, they define fintech as an interdisciplinary discipline combining finance, technology management and innovation management. They said that fintech makes financial processes more efficient through the use of technological solutions in innovative ways. These are companies that promise

excellence, exceptional customer-focused service, and demonstrate their ability to do it better than anyone else in the market. To date, fintech advancements in the use of digital technologies have disrupted banking services such as payments, lending, customer acquisition, deposit movement, insurance, financial advice, and more. (KPMG, 2017). Fintech is upending conventional company structures in banking, insurance, and asset management. Finance, peer-to-peer services, remittances, and trading platforms are key areas of growth in the banking industry, which accounts for the majority of fintech investment (PwC, 2016). Fintech supports the conventional role of the financial services industry by aiding existing fiscal establishments in achieving project new products and services while expanding into consumer segments previously unreachable by traditional financial services. This is accomplished by improving the client experience, increasing transparency, increasing compliance and safety, and offering aid and guidance (Blythin & Cooten, 2017).

It may seem that financial technology companies are a relatively new concept; however, this is not the case as they have been around for some time and can be dated back to 1958, which was the year that the first message was sent over the Trans-Atlantic transmission line. Because to this connection, the time lag in communication between North America and Europe was reduced from ten days to only seventeen hours. Also, it aided in the expansion of the worldwide telex, strengthening the associated financial services. This is referred to as fintechs 1.0. (Leong & Sung, 2022). The Trans-Atlantic transmission cable and mainframe computers were among the enabling technologies of this age. This age gave rise to ATMs and SWIFT, two pieces of financial technology that are still in use today. The internet and the internet of things are related technologies in the fintechs 2.0 phase, and more and more data technologies

are anticipated to develop in the fintechs 3.0 phase.

The move from fintech 2.0 to fintech 3.0 is currently underway (Leong & Sung. 2022). In the USA, a new firm named Square Capital started as a provider of inexpensive payment device services enabling small businesses to accept cards payments in 2015. Taking advantage of its unique access to financial data and flows of the users it served, it developed a highly competitive suit for financial services and it was expected to lend $ 600 million by 2016 to small and medium enterprises. SoFi, a credit market place founded in 2011 to offer digital unsecured loans had issued more than USD$9 billion loans by 2016 and expanded to offering personal finance, billing, payments, insurance and even pensions, (Gayatri et al., 2019). In 2014 only 8% of the US population was using mobile payment services but this number was expected to rise to 65% by 2019 largely to be driven by Google wallet, Samsung pay and Apple pay. By taking advantage of their extensive customer base these global technology companies are entering payment and financial services sector in a more aggressive way, (Africinvest, 2016).

In 2017, there were 5,043 fintech overall business efficiency, divided into the financial markets, capital management, health coverage, and real estate sectors. Among the 2,001 total global fintechs, 2,001 are linked to banking and financial markets. Banking operations account for 7%, capital raising accounts for 12%, financial management accounts for 23%, deposit and lending accounts for 26%, and payments accounts for 33%. This indicates that, with 65% of all fintechs having fallen under the classification of finance and capital markets, the banking industry terms of banking activities, deposits, lending, and pay-outs the largest beneficiary of fintech investment. It's crucial to keep in mind that these are new businesses entering the banking industry and

stealing customers from the established financial institutions, not investments in banks. Fintechs have brought efficiency in the business operations and in the financial sector by greatly reducing the cost of intermediation and at the same time increasing access to financial services through creating alternatives to access the services. This efficiency has been linked to the ability of fintechs to reduce information asymmetry through application of technologies such big data analytics enabled by artificial intelligence. The traditional banking institutions have suffered greatly from information asymmetry and their legacy information systems are slow in integrating with the modern technology, (Vives, 2017). Taking advantage of this low pace of adopting to technology by conventional financial institutions, fintechs have disrupted the financial sector by offering the services in more creative and innovative ways (Africinvest, 2016).

Fintechs have been able to offer business to business, business to customer financial services without the intervention of traditional financial institutions thereby disinter mediating these institutions and negatively affecting their incomes. Fintechs directly serve lenders and borrowers with their client having the option of selecting who to lend to & borrow from and service packages to be offered/received from the selected partner, (Board, 2019). This has been facilitated by the use of digital platforms that have Improvement of the company's financial performance, thus cannibalizing the market of traditional banking institutions.

The new technologies used by fintech companies allow them to design highly efficient cost structures and therefore operate efficiently, giving them a competitive advantage over traditional banking institutions (Vives, 2017). Traditional banking institutions are also highly regulated and the cost of supervision is high, which prevents them from

modifying their operations to bring their levels of efficiency to those of fintech. The use of financial technology in banking has increased competition, which has led to increased adoption of new technologies by traditional banking institutions as well, which in turn has increased financial inclusion. Highly unsupervised populations, especially in Africa, combined with mobile phone penetration, provide opportunities for fintech companies and their business models to succeeding banking (Mutua, 2013).

Newcomers' technological advances have completely changed the business climate in the industry, opening up enormous prospects both inside and outside the sector. The combination of the post-crisis regulatory climate and technical advancements like smartphones, artificial intelligence, and big data has increased tremendously, even if new technologies like ATMs and e-commerce have long been a component of financial services. Research shows that the financial sector has undergone significant upheaval. These changes make it easier for Web begin to access the financial services industry as well as provide services and products directly to consumers and companies, even well financial institutions.

In reply to these trends, conventional banks are allocating more resources to innovation (National Economic Council [NEC], 2017). There is an uncertain business environment in the industry as a result of new entrants who are not subject to tight financial industry laws. As a result, the financial sector's function in the economy has been redefined from one of a provider of goods and services to one of a facilitator, changing the industry's importance from banking to banking. Industry-disrupting new businesses are frequently referred to as "Fintechs," or enterprises that concentrate on financial technology. These innovative businesses are addressing the market from

several organizational angles, including culture, working practices, problem-solving techniques, customer interaction, product creation, and modern leadership philosophies (PwC, 2017).

The financial assiduity is operating in a way that is being revolutionized by technology. The rapid development of technology is leading to the emergence of whole new business models. Some examples of these models are electronic currencies, smartphone banking, online investing, peer-to-peer lending, and innovative payment systems. Within the field of financial services, the impact of technology is assiduously encouraging the establishment of procedures and processes. All work presently done on digital interfaces was previously done with paper plutocrat, large computers, and mortal trade. With the global ubiquity of financial services, the disruption occasion for fintech firms is significant. Since the 1950s, when credit cards were first introduced, debit benefit cards were introduced in the 80s, and the 90s saw the rise of e- business and e-payments have gradually supplanted cash and cheques as the most common form of payment (Bank for international settlement [BIS], 2017).

Transactions conducted digitally rely on a wide array of middlemen to guarantee their legitimacy, facilitate their completion, and keep their data safe. Most of the time, large-scale and well-established payment networks are the ones in charge of coordinating these middlemen. In the past five years, a number of innovations have emerged that use connectivity and mobile bias to make payments easier and more valuable. Examples include automatic machine-to-machine payments and computerized holdalls. As these technologies mature, front-end processes will change to improve the experience for clients and traffickers while preserving the initial payment structure.

The current worth handover scheme, built on automated clearinghouses and central banks, has made it simpler for visitors to transfer value across geographies, but there are still many issues that need to be resolved before rapid-fire and reasonably priced value transfer across nations is possible. Traditional value transfer systems are given appealing options by decentralized currencies and mobile plutocrats since they streamline the intermediary procedures (Wang, 2018).

Before the advent of modern technology, banking was primarily conducted in physical branches. To access or manage their funds, customers had to visit their local bank, posing a significant challenge for those who found it difficult to do so. This made processes like borrowing and repaying loans a daunting task. However, the landscape of banking has dramatically shifted due to the rise of internet banking. Now, numerous financial transactions, such as fund transfers, setting up direct deposits, loan applications, and check cashing can be done easily with a few clicks or taps on a device.

Mobile banking has notably enhanced the convenience and security of managing our finances. Yet, the surge in popularity of online banking has led to the emergence of purely digital banks. This development has significantly disrupted the conventional banking sector, compelling brick-and-mortar banks to stay abreast with the rapidly advancing technological demands to retain their customers. This shift has indeed marked a significant change in the banking industry, reducing the prevalence of physical branches as highlighted in the 2017 BIS report.

The vast majority of adults in Post Africa are unbanked, with over 340 million persons not that had a bank account. Currency fluctuations and a lack of product lines for

savings, insurance, credit, and payment transactions are stifling Africa's banking sector. Fintechs play an important role in the region, and in many cases, fintech companies seem to in regions in which conventional banks are non-profitable and access to financial services activities do not exist. This disparity is the foundation for the general public's favorable perception of Fintechs, as well as existing financial institutions that can collaborate with emerging Fintechs to expand market coverage.

Didenko (2017) study highlights Kenya and South Africa as notable forces in their regions, not just for financial inclusivity, where most adults have access to bank or mobile money accounts, but also as significant fintech hotspots. Kenya boasts one of the biggest success stories in fintech history. Until recently, Nairobi and Johannesburg were the sole representatives from Africa in the global catalogue of fintech hubs, joined lately by Lagos.

Nairobi, in particular, enjoys a reputation as the prime fintech hub of Africa, attracting numerous budding fintech companies to establish or expand their presence there. The launch of M-Pesa, a mobile money service in 2007, marked a significant advancement in financial intermediation by delivering financial services to a major portion of the adult population in the country (Didenko, 2017).

The M-Pesa platform has a major effect on the economy as a whole. Almost 70% of adults in the country have mobile money accounts, and the number of transactions is greater than 40% of the GDP (Communications Authority [CAK], 2017). According to the Authority's most recent figures, M-Pesa has over 22.7 million subscriptions out of a total of 28 million and 428 million transactions out of a total of over 537 million, making it the market leader in mobile money transfers. Mobile lending and saving have become more commonplace thanks to cooperation between Safaricom and CBA

bank. In 2015, M-Shwari disbursed almost 25 million loans or two loans for every three Kenyans. This served as a crystal-clear example of how financial technology may be applied to banking services, particularly serving the unbanked people (Africinvest, 2016).

Over 30 fintech startups are already operating in Kenya thanks to the M-Pesa-created innovation environment and the inadequate and discriminatory policies of the official banking sector. Open business and regulatory environments, an entrepreneurial society, a robust internet infrastructure, and a mobile telecommunications infrastructure are further important variables. The emergence of fintechs in the nation impacted aspects of competition in the banking sector at the same time, where competition originated outside the sector. With M-pesa, the new entrant attacked the core business of the established commercial banks, including lending, payments, and deposits, by siphoning off sizable deposits from the traditional banking system. This significantly hampered commercial banks' ability to act as a middleman and the method for generating loans, which is dependent on deposits held by banks. Banks responded in a variety of ways, such as the release of applications for mobile banking and collaborative partnerships with telecom companies to provide banking apps (Africinvest, 2016).

The history of the banking industry in Kenya goes back to the time before colonization. The pioneering banks initially focused on supporting global trade along the Europe-South Africa-India axis. Later, they expanded their offerings and fields of business to other trade sectors in order to seize opportunities brought about by the burgeoning economy from the developing farming settler community and other pioneering traders. They mostly operated in large towns and offered deposit and credit services. Following

independence, they migrated into the interior of the nation as new metropolitan areas sprang up as a result of the growing economy (Central Bank of Kenya [CBK], 2022). The financial sector in Kenya demonstrates persistent growth, indicative of the nation's progress towards economic development. The industry has witnessed a significant shift from traditional manual operations to a fully automated environment. Despite facing a host of economic challenges, the sector remains dynamic and plays an integral role in the economy.

The industry comprises 44 commercial banks regulated by the Central Bank of Kenya, the principal overseer of the banking sector. Out of these, 31 banks are locally owned, while foreign entities own the rest. The sector also includes three government-owned local banks, 27 financial institutions, and a mortgage finance company called Housing Finance. These entities operate numerous branches, agencies, and offices throughout the country.

Moreover, the sector also encompasses over 200 licensed SACCOs with deposit-taking capabilities, 14 money remittance providers, and three regulated credit bureaus (Central Bank of Kenya [CBK], 2018).

As per the 2017 Annual Bank Supervision Report by the Central Bank of Kenya, eight major banks dominate the sector, as demonstrated by their market shares: Kenya Commercial Bank (14.4%), Co-operative Bank (9.93%), Equity Bank (9.85%), Diamond Trust Bank (6.72%), Barclays Bank (6.57%), Commercial Bank of Africa (6.05%), and Stanbic Bank (5.62%). Yet, the sector has seen the emergence and growth of smaller banks in recent years. Over 10 of these banks have expanded into the East Africa Community and Central Africa owing to the growth of the sector.

The advent of mobile money, coupled with its integration with conventional banking

systems, has considerably increased the proportion of Kenyans with access to digital financial services. This has resulted in a surge in financial inclusivity in the country. The sector has also embraced technology in its operations (CBK, 2018).

Financial performance refers to a company's ability to achieve its set financial goals or objectives, such as profitability. It acts as a measure of how well an organization has accomplished or surpassed its financial targets, reflecting the extent of its financial success (Al-Matari et al., 2022).

The quantitative and qualitative methods used to describe and define performance are called performance measures. Performance is characterized as the outputs, final results, and accomplishments—positive and negative—resulting from firm activity. Performance measurement is the practice of evaluating progress to ascertain what has actually been accomplished in comparison to set performance baselines (Mujuka. 2018). Performance is typically evaluated in relation to key strategic practices in terms of results that vary over a spectrum of financial metrics, including profit before taxes (PBT), return on assets (ROA), return on equity (ROE), return on investments (ROI), return on equity (ROE), and turnover (Guest et al., 2013).

A financial metric known as ROE measures a company's profit in relation to the total equity contributed by its shareholders or as shown on the balance sheet. High ROE indicates that the company is capable of internally generating cash and has a superior profitability position, which is what stockholders strive for in return for their investment. According to Kharawish (2011), ROE is defined as net income after taxes divided by total equity capital, making it a measure of the rate of return on the stockholders' investment. From a bank's standpoint, ROE is a measurement of how well management uses invested capital from investors. ROA, a ratio of income to

assets, can also be used to determine a bank's profitability. The ratio gauges the management's capacity to make income using the resources made available to them by the organization. It is a gauge of how well assets are used to generate income. High ROA, in Wen's opinion (2010) indicates that a corporation is using its resources more effectively.

The financial performance of a bank is signified by a consolidated figure that provides an overview of the bank's total financial health. This figure, however, can be dissected into individual components to assess the performance of different segments within the bank. The breakdown in this context is performed based on the revenue generated by various departments and sectors within the bank.

The financial performance of each sector influences the overall financial standing of the bank. However, it's important to note that not all sectors contribute equally. Certain sectors carry more weight and have a greater impact on the bank's financial performance than others.

In commercial banks, the primary sources of income are typically derived from different areas. These include interest and fees from loans and advances, transaction fees for payment operations, deposits mobilization, and acquiring new customers. Each of these areas contributes to the bank's overall income and ultimately to its financial performance.

1.2 Statement of the Problem

The digital revolution, sparked by technological advancements, has touched all industries, and banking is no exception. Among the different regions of the world, Kenya stands out as a hotbed for innovation in the fintech space, bolstered by the proliferation of mobile technology and a favourable regulatory environment. The

incursion of giants in tech and telecom such as Google, Apple, Safaricom, and Orange has further driven this disruption, introducing novel business models and practices that threaten to upend traditional banking methods.

The defining characteristic of these fintech companies is their ability to leverage a wealth of user data to design services tailored to meet the unique needs of each customer. This edge in data utilization sets them apart from conventional banks, which typically lack such data-driven insights. This paradigm shift has compelled the Kenyan banking industry to adapt to the changing landscape and adopt novel business models themselves.

Among the different research conducted on the topic, Desai (2015) study notably assessed the impact of fintech businesses on Kenya's banking sector's financial performance. The study suggested that fintech companies had a positive and significant impact on the sector's performance. However, it primarily focused on mobile payments, leaving out other banking operations that could potentially be influenced by fintech.

A subsequent study by Kemboi (2018) examined the effects of fintech on the financial performance of Kenyan commercial banks, focusing on mobile banking, online banking, and agent banking. It was found that fintech had a substantial positive influence on the financial performance of these institutions. This research, however, lacked specificity in its examination of fintech's impact on different aspects of banking, choosing instead to adopt a more holistic view.

While these studies have been instrumental in providing critical insights, there is a clear gap in research related to how fintech influences specific facets of banking operations. Aspects such as lending, risk management, customer service, and financial

planning are all crucial components of the banking ecosystem that require a more nuanced exploration of fintech's impact.

Continuing this examination, Okello (2016) study investigated the effects of ATMs, agent banking, and mobile banking on the Kenyan banking industry. Okello found that retail electronic payments, a service made possible by fintech, positively influenced the financial performance of Kenyan commercial banks.

Similarly, a study conducted by Ngumi (2014) considered the impact of banking innovation on the financial health of commercial banks in Kenya. Factors such as ATMs, debit and credit cards, internet banking, electronic funds transfers, and POS terminals were taken into account. It was found that these innovations had a significant impact on the performance of the Kenya Commercial Bank, boosting its revenue, return on assets, profitability, and customer deposits.

Such studies reiterate the crucial role that fintech innovations play in enhancing the economic performance of banks. They also emphasize the need for traditional banking institutions to adapt and incorporate these technological advancements to stay competitive in the rapidly evolving financial landscape.

However, there is a notable distinction between the approach taken by these researchers and the actual changes occurring in the fintech space. While the former is focused on evolving internal processes, the latter is more about a revolution originating from external sources that are targeting the same market niche as commercial banks.

The researchers acknowledge the limitations in their studies' technology coverage and recommend that further research be conducted on more technological innovations in banking. This gap presents an opportunity to delve deeper into understanding how Kenyan commercial banks' response to fintech affects their financial performance.

This study seeks to explore the impact of fintech on four distinct revenue streams of commercial banks: interest income, fee-based income, trading income, and other income. Previous research in the country has either focused on one area or generally addressed the impact of fintech on these areas of activity. Consequently, the industry lacks comprehensive knowledge on how fintech influences its financial performance from the perspective of these different revenue sources.

This was the first study to make an effort to ascertain how each component of fintech would affect the overall financial performance of Kenyan commercial banks. It did it in the context of the banking industry's fintech age navigating strategy.

The study employed a mixed-method approach, integrating qualitative and quantitative techniques, to comprehend these effects. It took into account a wide range of information, including financial statements from banks, reports from the central bank, reports on fintech, and surveys. The intention was to present a nuanced picture of how fintech has affected many parts of banking operations and how it has influenced Kenya's banking sector's financial performance. By offering insights that could direct commercial banks' strategies as they adjust to the constantly shifting financial landscape molded by technology, the study aimed to add to the body of knowledge already available on the influence of fintech on banking. It also planned to contribute to the field of study in this area. If the insights are used, authorities may be able to create policies that encourage innovation while maintaining the financial sector's stability and resilience.

1.3 Main Objective of the Study.

The overall objective of the study was to assess the influence of financial technology adoption on the financial performance of Commercial Banks in Meru County, Kenya.

1.4 Specific objectives

i. The study was guided by the following specific objectives:

ii. To evaluate the effect of adoption of fintech payments on financial performance of commercial banks in Meru County, Kenya.

iii. To analyze the effect of adoption of fintech lending on the financial performance of commercial banks in Meru County, Kenya.

iv. To determine the effect of adoption of fintech deposit mobilization on the financial performance of commercial banks in Meru County, Kenya.

v. To evaluate the effect of adoption of fintech customer acquisition on the financial performance of commercial banks in Meru County, Kenya.

1.5 Research hypothesis

H_{01}: Adoption of fintech payment has no effect on financial performance of commercial banks in Meru County, Kenya.

H_{02}: Adoption of fintech lending has no effect on financial performance of commercial banks in Meru County, Kenya.

H_{03}: Adoption of fintech deposit mobilization has no effect on financial performance of commercial banks in Meru County, Kenya.

H_{04}: Adoption of fintech customer acquisition has no effect on financial performance of commercial banks in Meru County, Kenya.

1.6 Significance of the Study

This study was of importance to the commercial banks' policy makers in identifying their product portfolios mostly impacted by fintech and thereby coming up with strategic and competitive policies that sought to optimize the potential of fintech technologies. This would, in turn, enhance their financial performance by preventing the loss of their customers to new fintech start-ups.

In that digital era, the understanding gleaned from these studies was particularly beneficial to the executives and decision-makers in commercial banks. These insights helped them discern how best to respond to their customers' needs, which were constantly evolving due to technological advancements. Customers at that time expected immediate, seamless, and secure transactions, along with personalized services, something fintech companies had capitalized on. Thus, traditional banks needed to be agile in their strategic approach, often requiring them to restructure their business models in line with these developments.

The studies also highlighted the need for continuous innovation in product and service offerings. Fintech solutions like mobile banking, online banking, and digital payments showed significant positive impacts on a bank's financial performance, demonstrating the importance of staying ahead or at least keeping pace with the technology curve.

From an operational standpoint, the integration of fintech allowed for more streamlined and cost-effective processes. This included everything from customer service to risk assessment and management. Banks that could effectively leverage technology were likely to see improvements in efficiency, productivity, and ultimately, profitability.

On a broader level, this study underscored the transformative impact of fintech on the entire banking industry. This presented potential areas of exploration for future researchers. For instance, research could delve into the specific strategies employed by successful banks in integrating fintech, the influence of regulation on fintech adoption, or the impact of fintech on financial inclusion, especially in developing economies.

Finally, the collective knowledge gained from this research works contributed substantially to the existing literature concerning the financial challenges and opportunities created by the rise of fintech. This, in turn, could help inform policy-making and regulation, ensuring that the financial sector continued to serve its essential function in the economy while staying adaptive and resilient in the face of rapid technological change.

1.7 Scope of the Study

The study concentrated on commercial banks in Meru County, Kenya. The county is a regional economic hub and most of the neighboring county depends on her in various economic activities making it a strategic point of operation by many commercial banks in the country. Therefore, the study sought to illustrate how financial technology adoption can assist these commercial to optimize the regional customer base more efficiently. Primary information was obtained from members of staff manning various commercial bank branches operating in Meru County.

1.8 Limitations of the Study

Banking information is a bit sensitive and due to fear of disclosing their strategies bank staff may be reluctant to respond to the questionnaire presented to them. This would

be mitigated by distributing questionnaires to all the branches for various banks in the county. The data collection instrument also targeted the managerial staff of the branches that were to have access to the relevant information. Also to increase the response rate the respondents were assured that the information provided was only used for academic purposes only. The respondents were assured of confidentiality and that the researcher was not to disclose neither the identity of the respondent nor of the branch/bank that provided any particular response. This was achieved by assigning identification codes to respondents and branches/banks as opposed to using their true identities in the final report of the research.

1.9 Assumptions of the Study

It was assumed by the study that the fintech technologies were being practiced to a significant extent within the commercial banks in Meru County. The researcher also assumed that there would be sincere responses to the questionnaire from the respondents. Therefore, the findings of the study were assumed to have strategic value for banks within and without Meru County and could be replicated even in other parts of the country.

1.10 Definition of Operational Terms

Financial technology "Fintech"- the technique is used to continue providing economic services and goods to customers (Schueffel, 2016).

Performance of commercial banks- defined as the main driver of profitability generated from their operations (Halalmeh, 2021).

Fintech payments Fintech describes the characteristics of fintech companies and lists the many industry categories that make up the fintech market (Dorfleitner et al., 2017).

Fintech customer acquisition - the procedure for gaining new clients for a firm or turning leads into clients (Dhar, 2017).

Fintech lending- the use of financial technology, such as APIs, in order to assist lenders in making quicker, more knowledgeable loan choices (Berg, 2022).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides an overview of academic work on the financial performance of fintechs and commercial banks. These sections provides an overview of current knowledge on financial performance of fintech and commercial banks by identifying theories on fintech and financial performance, methods used to study the field, and identifying existing research gaps. Therefore, this section reviews the theory by presenting the theoretical framework, conceptual framework and empirical literature of the study.

2.2 Theoretical Review

A theoretical framework, as defined by Grant and Osanloo (2014) is a critical backbone of any research endeavor. It serves as a guide or blueprint that outlines the existing theories in a field of study which underpin the research hypotheses. A theoretical framework comprises theoretical principles, concepts, structures, and theoretical principles, all of which serve to provide a structure that helps researchers philosophically, analytically, epistemologically, and methodologically define their research.

Furthermore, Ravitch and Carl (2016) elucidate that a theoretical framework allows researchers to locate and contextualize formal theory within their research. This provides guidance in choosing study design, formulating the data analysis plan, and interpreting the data. By providing a lens through which to view a particular phenomenon, the theoretical framework also assists in predicting, explaining, and enhancing understanding about that phenomenon, while contributing to the overall

body of knowledge about it.

The purpose of a theoretical framework is to illustrate the way in which a researcher understands, from theoretical perspectives, the relationships among the different variables considered in the study.

The significance of a theoretical framework cannot be overstated in any academic study. It's a foundational component that helps shape and define the research, providing a necessary structure from which the study can build upon. It’s like the skeleton of a research study upon which the flesh of analysis, arguments, and conclusions can be built.

A theoretical framework serves several key functions within a research study. Firstly, it identifies the theories that underpin the study. This is important as it locates the research within the existing body of knowledge. It allows the researcher to build upon the work of others, situating their own research within the wider scholarly conversation on the topic. By identifying and engaging with these existing theories, the researcher is able to position their work in relation to others and make a unique contribution to the field.

Secondly, a theoretical framework guides the collection and analysis of data. With a clear theoretical framework, a researcher is better able to formulate research questions and hypotheses that will guide the data collection process. The theories that underpin the framework also provide tools for the researcher to analyze the data, helping them make sense of their findings.

The third function of a theoretical framework is to provide a lens for interpreting the findings of the study. Theories offer different perspectives, and the choice of theoretical framework can greatly influence how the data is interpreted. In this way,

the theoretical framework shapes the conclusions of the study.

Furthermore, the theoretical framework contributes to the validity of the research study. By drawing on established theories, the researcher demonstrates their understanding of the existing literature and shows how their work contributes to the wider field. This helps establish the credibility of the study and increases its potential impact.

Lastly, the theoretical framework informs the methodology of the research. The choices a researcher makes about their research design, data collection, and data analysis methods are guided by the theoretical framework. Different theories may suggest different methods, and the chosen framework will therefore shape the research process.

In essence, a theoretical framework plays a pivotal role in guiding the entire research process. It provides a coherent structure that allows the researcher to explore their research question in a systematic and organized manner. It ensures that the research is grounded in established theories and provides a clear lens through which the researcher can interpret their findings.

When developing a theoretical framework, researchers should consider the theories that are most relevant to their research question. They should critically engage with these theories, understanding their strengths and weaknesses, and consider how they can be applied to their study. They should also think about how these theories relate to each other and how they can be integrated into a cohesive framework.

The development of a robust theoretical framework is a challenging but essential task. It requires a deep understanding of the existing literature and the ability to critically apply theoretical concepts to one's own research. However, the effort put into

developing a solid theoretical framework will pay off, resulting in a high-quality, rigorous, and impactful research study.

In conclusion, a theoretical framework is an essential component of any research endeavor. It serves as a roadmap for the study, guiding data collection, analysis, and interpretation. It links the research to the wider field of knowledge, ensuring that the study makes a valuable contribution to its discipline. Without a strong theoretical framework, a research study risks being ungrounded and disconnected from the larger scholarly conversation. Therefore, developing a well-thought-out theoretical framework is a vital first step in any research project.

2.2.1 Diffusion of Innovation Theory

The idea of the diffusion of innovations was first presented by Everett Rogers in the year 1962. This theory investigates how innovation spreads within an organization. An S-curve is used as a metaphor for the invention process in this hypothesis. This hypothesis was subsequently elaborated upon by Schumpeter (1934) who described the long wave theory of economic growth. In the context of this discussion, an industry grows as a consequence of a transition from one business cycle to another. This indicates that economic progress is achieved via the processes of creative destruction, in which novel techniques or products do not come from the past, but rather demolish it.

According to Bower and Christensen (1995), the incapacity of incumbent enterprises to adapt to shifting markets or advances in technology is one of the most important patterns that has been recognized. According to the findings of this research, the incumbents that are being threatened by the rise of fintech are the conventional

financial institutions or banks. Christensen et al. (2015) referred to "low-end footholds or new-market footholds" as the genesis of disruptive technologies. When major firms ignore innovations that better respond to certain of their customers' requirements in order to cling too firmly to their already profitable high-margin clients, this may become problematic.

Foster (1986) makes a distinction between incremental advances and disruptive innovations. Puschmann (2017) uses this notion to explain how fintech might disrupt conventional financial institutions. The banking industry is one of the many that is undergoing a fundamental redefinition as a result of disruptive developments. They make it possible for users to supplant traditional technologies and procedures, which in turn enables users to make advantage of cutting-edge tools and techniques. This may hasten the process by which old methods become irrelevant or even cause some steps of operations or processes to be skipped entirely.

Disruptive technologies in the financial technology industry, such as blockchain, artificial intelligence, and machine learning, are having a significant impact on the conventional banking institutions. This is not only an incremental improvement; rather, it is a redefinition of the way in which financial services are provided, and it often outperforms traditional approaches in terms of both efficiency and efficacy.

The introduction of mobile and internet banking, for instance, has rendered traditional bank branch visits obsolete, so radically altering the manner in which people get access to and take care of their financial affairs. Access to credit has been democratized thanks to the proliferation of peer-to-peer lending platforms, which provide alternatives to conventional bank loans. In a similar vein, robo-advisors have disrupted the traditional model of financial advising services by providing investors with automated, algorithm-

driven investment recommendations for a fraction of the cost.

In regions that have a financial infrastructure that is not yet fully built, disruptive innovations have made it possible to skip phases in the development of conventional financial systems. By avoiding the conventional banking system, mobile money services such as M-Pesa in Kenya have provided millions of unbanked or underbanked people with access to a wider range of financial services. Because of their speed, simplicity, accessibility, and cost-effectiveness, these inventions have quickly gained widespread acceptance and have had a substantial influence.

Existing banks and financial institutions have been entrusted with the responsibility of accepting these changes, adapting their business models, and innovating in order to maintain their relevance in this quickly shifting world. According to Muthiora (2015), the improvements that have been made in Kenya's wireless ecosystem have made it possible for the country's banking industry to leapfrog in a significant portion of its operations. According to Aron (2017), mobile money systems such as Mpesa have had a significant influence since the current technology that is used has excelled many conventional banking services. This has resulted in a reduction of obstacles such as the high expenses that are involved with operating in traditional banking.

However, one criticism that might be leveled against the idea of the diffusion of innovation is that it does not adequately take into consideration the significant part that the socioeconomic context plays in the adoption of sophisticated technologies such as fintech. According to Lyytinen and Damsgaard (2001), the importance of emerging technologies like fintech is not located in the understandability of existing groups, companies, or industries. The preexisting culture of a society, its economic structure, and the extent to which it continues to fund infrastructure and services like the

educational system and government regulations are the factors that affect the spread, acceptability, and importance of new technology.

This report highlights how innovations in fintech are challenging conventional banking, hence offering new possibilities for players in the financial transaction process that are both well-capitalized and undercapitalized. Customers of commercial banks now have access to a different kind of financial transaction as a result of the proliferation of new technologies. As a consequence, the conventional financial dominance of commercial banks is going to see a severe upheaval as a result of this. This has the potential to cause a disruption in the number of consumers as well as the adequate cash that the firm maintains. As a result, the equity ratio has been included into the study of the theory as a variable.

In conclusion, the theory of the diffusion of innovations offers a complete framework for understanding how breakthroughs in the field of fintech are transforming the banking sector. In order to maintain their relevance in the face of accelerating technological change, banks and other conventional financial institutions will need to consistently adapt to new circumstances and pursue innovative strategies. These shifts, although posing substantial problems, also provide banks with unrivaled opportunity to enhance their existing offerings and develop new ways to add value for their clientele.

2.3 Technology Acceptance Model

The Technology Acceptance Model (TAM), proposed by Davis (1989) establishes a link between user acceptance of new technologies and their perceived usefulness (PU) and ease of use (PEU). Since Davis first introduced the model in his doctoral thesis, it

has been extensively utilized in research due to its efficacy in predicting user intentions.

According to TAM, PU and PEU are two key constructs used to determine users' behavioral intentions towards using a specific technology. Davis contends that PU and PEU are fundamental components in elucidating and forecasting the acceptance and adoption of specific technologies.

The main goal of TAM, as the authors indicate, is to highlight the consistency with which external factors impact individuals' internal intentions, beliefs, and attitudes towards technology acceptance. In this model, external factors have a moderating effect on the key constructs of PEU and PU, shaping internal users' opinions about technology adoption and acceptance.

Within the context of technology acceptance, a variety of issues could affect the decision of when and how to employ telecommunications. These include the perceived usefulness and ease of use of a particular technology (Davis, 1989). Legris et al. (2003) concurred that TAM is a viable theoretical model that can aid in generating predictions about and elucidations for computer user behavior.

The TAM theory has been recognized as one of the most reliable and applied theories, according to 31 publications, which comprise 16% of the 188 papers reviewed. However, the model isn't without its limitations. A significant flaw in TAM is the assumption that user behavior is quantifiable. In reality, empirical studies can't precisely measure user behavior due to various subjective factors, including existing organizational norms and practices that significantly influence the behavior of potential users (Sabi, 2014).

Understanding these influences and the interplay between PU, PEU, and user behavior is crucial when considering fintech adoption in Kenyan commercial banks, as customer size is a factor that impacts the financial performance of these organizations.

Furthermore, the TAM framework recognizes that users are typically rational and that they wish to enhance their performance in the most effective way possible. This means that if a technological innovation is perceived to improve performance and is easy to use, users are more likely to accept and use it. This implies that financial technologies need to be designed and marketed with user performance and ease of use in mind.

While the PU and PEU constructs form the core of TAM, Davis later expanded the model to include additional factors that could affect user acceptance of technology. For instance, the TAM2 model incorporates cognitively utilitarian processes (job significance, output quality, outcome demonstrability, and perceived simplicity of use) and processes of social influence (subjective standards, voluntariness, and image) to provide a more comprehensive explanation of technology acceptance. Similar to this, the TAM3 model takes into account system attributes (such as functionality and dependability) as predictors of perceived simplicity of use.

Despite its limitations, TAM provides a robust theoretical foundation for understanding the adoption of financial technologies in Kenyan commercial banks and beyond. By focusing on perceived usefulness and ease of use, the model highlights the critical factors that can either facilitate or hinder technology adoption. Furthermore, the model's focus on the moderating role of external factors underscores the importance of understanding the broader socio-cultural and organizational context in which technology adoption occurs.

In conclusion, the Technology Acceptance Model offers a comprehensive framework for studying and predicting the acceptance and use of fintech innovations. While the model acknowledges the central role of perceived usefulness and ease of use, it also allows for the consideration of other influencing factors. As fintech continues to evolve and impact the banking sector, models like TAM will remain crucial tools for researchers and practitioners alike, providing insights into the dynamics of technology adoption and guiding the development of strategies for promoting the effective use of these innovations.

2.4 Theory of Financial Intermediation

According to the technology adoption theory, factors influence the decision of when and how to employ technology. These problems include a certain technology's perceived use and ease (Davis, 1989). Legris et al. (2003) state that they concur that TAM is a theoretical framework that can be used to describe and forecast the behavior of abacus clients. According to 31 publications, or 16% of the 188 papers he analyzed, Sabi (2014) argued that the TAM theory was the strategy that was both the most predictable and applicable. The fundamental presumption that behavior is measurably is falsified, which is one of the theory's limitations.

In fact, empirical surveys cannot accurately assess client behavior. Indeed, a variety of subjective elements, including current organizational norms and behaviors, influence the behavior of potential customers (Sabi, 2014). The hypothesis is pertinent to this study since it identifies customer size as a crucial determinant of the fintech association's financial performance in Kenyan commercial banks. Gurley and Shaw's work laid the groundwork for the concept of financial intermediation that emerged in

the 1960s (1960). Its foundations include agency theory and information asymmetry theory.

Financial intermediaries have problems such as high transaction costs, insufficient and timely access to information and methods of monitoring the financial sector. The key to this theory is the asymmetry of prior information, which leads to adverse selection and moral hazard. The asymmetry can also be ex post, requiring institutions to apply certain verification techniques, such as auditing and eventual execution of debtors. Financial intermediaries are organizations that offer financial services for business transactions between market participants, such as banks and insurance firms. A middleman is required because there isn't a perfect and full market, as stated by Arrow-Debreu in his traditional resource allocation model, according to the financial intermediation theory. Financial intermediaries try to mitigate market imperfections and higher transaction costs caused by the asymmetric distribution of information among market players. Financial intermediaries add value by facilitating the cost-generating financial dawning movement by filling in information gaps. To encourage more market involvement, financial intermediaries also vary assets' maturities, liquidity, denominations, and risks. Information asymmetries lead to market imperfections that entail some form of specific transaction costs.

This is a cost that financial intermediaries try to mitigate, at least in part. Banks are thus described as coalitions of depositors whose common objective is to save against the risk of illiquidity. Financial intermediaries translate the needs of borrowers into the wants of depositors by creating credit and using credit facilities through deposits received from depositors. By centralizing the process, financial intermediaries reduce the ratifying costs that borrowers and lenders incur when

operating in a decentralized process. Furthermore, financial intermediaries are involved in the processes of providing liquidity, providing information and trading assets on behalf of various market participants to curtail market imperfections. Fintech has revolutionized the financial industry, including the intermediary role played by banks in the banking sector.

However, contrary to the opinion expressed by many that fintechs do away with the role of middleman, this is not the case, as they also act as that middleman, but with fewer middlemen. They step in more effectively by pricing their products competitively, providing a superior user experience, and offerings that step in without completely eliminating them. Thus, the principles of financial intermediation theory will help to understand how incumbents use financial technology to improve their mediation.

2.5 Empirical Literature Review

Fintech advance financial inclusion, especially in developing countries. According to a study by Karthika et al. (2022) the introduction of fintech boosts the inclusion of financial services, giving banks the opportunity to acquire new customers, increase customer deposits and service commerce financial payments and loans. Fintech innovations allow banks to recruit customers via mobile phones, enabling banks to acquire new customers without incurring the recruitment costs associated with traditional banking processes. Huparikar and Shinde (2022) support these findings by stating that acquiring new banking customers using traditional methods is a difficult task. Fintech makes it easier to recruit new customers remotely by helping banks advertise, provide new customer registration forms, receive and process new customer registrations without face-to-face.

Acquiring and retaining satisfied customers is a strategy that banks use to improve their performance. According to Murinde et al. (2022), Safiullah and Paramati (2022) and Vives (2017), FinTech innovations enable banks to attract new customers, provide improved and convenient banking services and maintain a cohort of satisfied customers. These innovations promote healthy relationships between bank employees and customers through online belvedere. In addition, they improve information sharing and communication, thereby strengthening client-bank relationships. Fintech innovations allow banks to attract high-end customers. The characteristics of bank customers are the main determinants of their influence on bank performance. Fintech enables banks to attract tech-savvy customers who have high demand for various banking services. These customers increase the volume and scope of banking activities, thereby improving the performance of the bank. Banks use technological innovations to ensure customer satisfaction and loyalty. Financial institutions achieve this strategic goal by providing banking services that exceed customer expectations and ensure customer protection.

A study by Safiullah and Paramati (2022) reveals that major banks are leveraging fintech innovations to protect their customers by offering innovative and competitive banking products and services. Additionally, they claim that banks are using fintech to improve banking services to attract and retain existing and new customers. Similarly, Vives (2017) argues that fintech enables banks to provide non-discriminatory banking services to banks and non-banks, as strong as tech-savvy and non-tech-savvy services, by offering a variety of fintech innovations to customers across different backgrounds country. According to Murinde et al. (2022), show that fintech enables banks to provide digital solutions that meet customer needs, thereby enabling banking

institutions to improve their performance.

According to the findings of a research conducted by Anifa et al. (2022) advances in fintech have had a major influence not just on payment processing but also on other financial services. The purpose of the study is to develop an understanding of the significance of innovations in financial technology, notably peer-to-peer lending and payment systems, in the banking industry. Research by Safiullah and Paramati (2022) supports these findings by highlighting the role of fintech in developing mobile deposit and peer-to-peer lending. Unlike Anifa et al. (2022) focuses on adoption of fintech by banking financial institutions, and analysis by Safiullah & Paramati (2022) focuses on fintech as a challenger to banking financial association The consideration by Vives (2017) scrutinized the influence of fintech on the banking sector, in particular examining how the adoption of fintech by new fintech entrants and traditional banks affects the payment of banking services, loan and investment portfolios and the asset management, among others.

According to Vives (2017), fintech contributed 35% to the 55% increase in banking performance between 2007 and 2015. Fintechs provide convenient online platforms to provide banking services for their services. These services include borrowing, loan processing and disbursement. Similarly, Anifa et al. (2022) stated that technological innovations provide convenient and secure alternative payment systems. They also claim that fintech has increased competition in banking. The adoption rate of fintech among incumbents determines the impact of fintech on banking performance. This rate depends on the establishment of a regulatory framework to gain the confidence of bank customers and financial markets in general. In addition to gaining customer and market

trust, research by Huparikar and Shinde (2022) asserts that customer satisfaction with the use of FinTechs in banking determines the speed at which banks adopt financial technologies. FinTech, and thus determines the impact of FinTech on the performance of commercial banks. The introduction of fintech has impacted customers' financial decisions, including opening and managing bank accounts, remote payments and deposits, and virtual loan application.

A study by Karthika et al. (2022) shows that digital technological advance allows customers to access banking services remotely, thereby improving bank performance. It also promotes financial literacy, security of financial transactions and inclusion related to financial and banking services. Additionally, fintech eliminates the tedious paperwork associated with traditional banking and financial services. These factors improve customers' ability and confidence to make virtual financial decisions.

Previous research by Lee and Shin (2018) found that fintech facilitates customers' investment decisions. Financial innovations allow investors to access online banks to apply for and process loans, thereby improving customers' investment decisions. Commercial banks are gradually embracing fintech to help create alternative financial products. Alternative banking products and services include online customer recruitment, virtual payment platforms, deposits and transfers, and loan applications and processing. A study by Hornuf et al. (2021) find that adopting fintech innovations enables banks to develop new banking products and services and develop digital strategies to gain comparative advantage. Consumer fintech startups face insurmountable challenges and competition from incumbents. Hornuf et al. (2021) claim that the gradual adoption of fintech has led to the successful introduction of new

banking products and services.

However, Safiullah and Paramati (2022) state that the introduction of new fintech-related banking products and services will harm the banking industry as banks cannot perform effective risk-benefit analysis. Therefore, it is critical to consider whether FinTech will improve bank performance relative to the cost of acquiring and maintaining FinTech systems. Fintech facilitates new banking services such as international payments, financial transfers and remittances, loans and open banking. The improvement in the global banking sector has affected the performance and profitability of banks in different parts of the world.

According to a study by Murinde et al. (2022), fintech improves different traditional banking operations, thereby increasing the profitability of banks.

They argue that fintech provides platforms to improve payment services between bank customers or payments to e-commerce providers. Navaretti et al. (2018) argue that fintech enables banks to reach a large customer base and meet growing demand for financial services. Banks established at the core of the financial system have used fintech to improve their financial and banking services, such as processing loans, acquiring new customers, and facilitating payments and money transfers (Murinde et al., 2022).

Therefore, the global banking industry has used fintech to improve banking services to improve performance. Studies by Wu et al. (2023), Safiullah and Paramati (2022) and Navaretti et al. (2018) find that fintech companies have disrupted established banks. Navaretti et al. (2018) argue that fintech innovations provide investors with the means to create virtual financial institutions that provide convenient financial services similar to banks. These fintech companies facilitate fierce competition with traditional

banking companies. Safiullah and Paramati (2022) also found similar results. They find that fintech companies are pushing incumbent banks to destabilize their operations and performance. Like Wu et al. (2023) and Safiullah and Paramati (2022) argue that financial instability of banks is short-lived as banks gradually adopt fintech innovations to improve the efficiency of banking services, leading to increased performance. Intense competition from fintech companies has prompted financial institutions providing traditional banking services to rethink their business models and embrace technology in banking (Lee & Shin, 2018).

Despite a decline in performance on some KPIs, banks are beginning to see an increase in productivity due to fintech adoption. According to Wu et al. (2023), shows that incumbent banks are forced to diversify their banking operations and shift to fintech-enabled banking services such as customer deposits, new account opening and new customer onboarding, payments and loan applications and processing. Banks are investing in fintech systems such as mobile and online banking for payments, loan applications, and customer deposit services to compete with fintech companies. Despite the initial instability caused by investments in fintech systems, the bank gradually began to see its performance increase. Thus, the adoption of fintech improves the ability of banks to compete with fintech companies, thereby improving bank performance.

2.6 Conceptual Framework

A conceptual framework is a logical instrument that researchers employ to develop an understanding of a study's context and to guide the research process. Grant and Osanloo (2014) describe it as a structure or blueprint that allows a researcher to offer an explanation for the phenomenon under examination, enabling them to

define the methodologies to be used in their investigation. Conceptual frameworks allow researchers to visualize the relationships between different elements of their study and delineate the factors or variables under investigation.

Essentially, a conceptual framework illustrates the key concepts in a research study and the relationships between them. It forms a map or a guide for the research, making it easier to understand and analyze the research problem. The framework helps researchers organize their thoughts, making the research process more systematic and ensuring that the study addresses the research questions effectively. Conceptual frameworks can be graphically depicted or presented through narratives. These frameworks visually represent the key variables under study and their potential interconnections, providing a holistic overview of the research subject.

Graphical representations in conceptual frameworks are particularly useful in research, as they can simplify complex relationships between variables. They offer a visual layout of theoretical constructs, variables, and the supposed interconnections between them. Through this, they promote a clearer understanding of the research problem, facilitate the formulation of hypotheses, and guide data analysis.

Meanwhile, narrative conceptual frameworks offer an in-depth, qualitative representation of the relationships between the variables. Unlike graphical presentations, narratives allow researchers to discuss each variable and its supposed interconnections thoroughly, providing a rich, context-driven understanding of the research problem.

Following the schematic or narrative representation, the researcher should also

provide a written explanation outlining the relationships between the variables and how they answer the research question, as suggested by (Dickson et al., 2018). This allows for further clarity and depth, providing both the researcher and the reader with an expanded understanding of the research study's theoretical underpinnings.

The use of a conceptual framework comes with numerous benefits. Firstly, it provides structure and guidance for the study, serving as a roadmap for the research process. It helps to identify and define the key concepts and variables to be studied and how they might be interrelated. This guides data collection and analysis, ensuring that the research remains focused and systematic.

Secondly, a conceptual framework aids in the comprehension of the researcher's perspective or worldview. This is especially crucial in qualitative research, where understanding the researcher's standpoint and the contextual factors influencing the study is key to interpreting the findings.

Thirdly, a well-constructed conceptual framework can enhance the clarity and coherence of the research. By clearly outlining the key concepts, their definitions, and their relationships, the researcher makes it easier for others to understand the study. This enhances the transparency of the research process and promotes the credibility and reliability of the research findings.

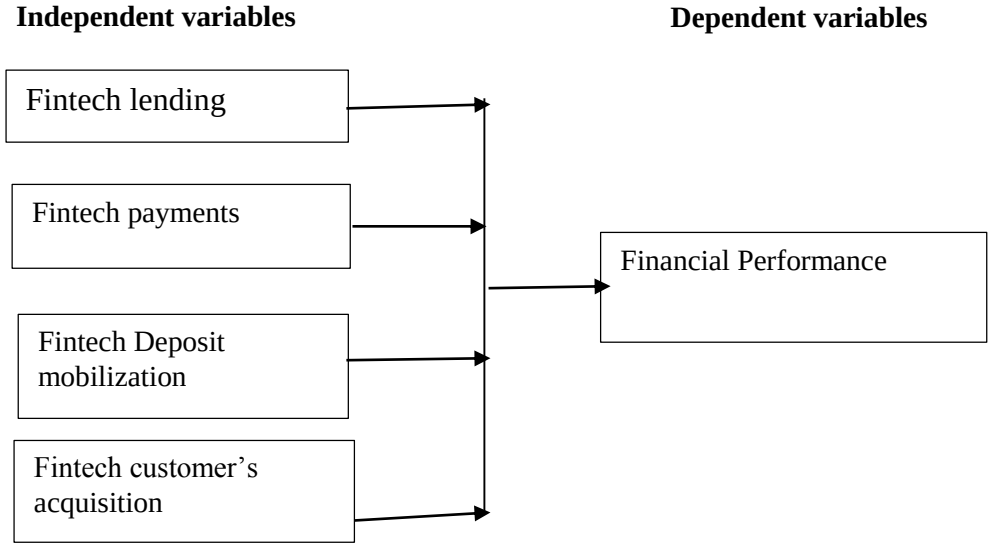
In conclusion, a conceptual framework is a vital tool in research that helps to guide the study, clarify the research problem, and enhance the overall coherence and understanding of the research. Whether presented graphically or narratively, a conceptual framework provides a structured overview of the research study, enhancing its credibility and facilitating a comprehensive understanding of the research problem. By defining the key concepts, variables, and their relationships,

a conceptual framework ensures that the research is systematic, coherent, and able to effectively address the research questions.

2.7 Conceptual Framework

Figure 2.1

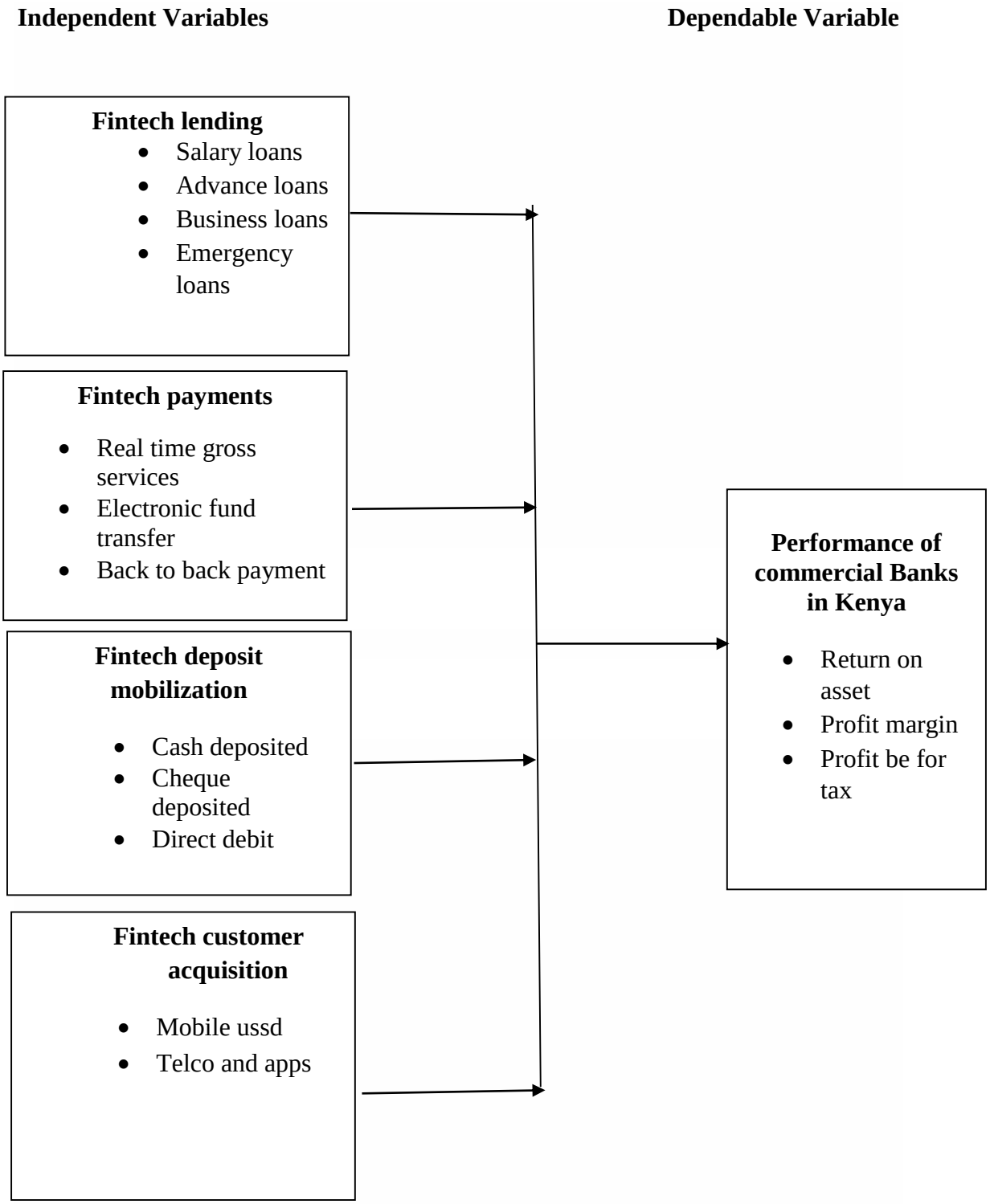
Conceptual Framework



2.8 Operational Framework

Figure 2.2

Operational Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The investigation approach of this study was introduced and described in this chapter. The research design, sampling methods, study population, data collection strategies, and finally the data inquiry processes used to examine the application dossier were all covered in more detail.

3.2 Research Design

According to Kothari (2004), an investigation project is a preparation of the settings for data collection and analysis that combines the study's relevance with procedural efficiency. Cooper and Schindler (2003) claim that the research design provides answers to issues like the methods utilized to gather the data, the kinds of sample tools and strategies to be used, and how time and financial restrictions are handled.

Descriptive research, according to Rillo (2018), can be utilized as a helpful procedure to gather, allocate, evaluate, and categorize data on current processes, trends, situations, practices, and linkages before being completely explained precise. Research that is descriptive describes a phenomenon, an environment, or the people under study. The design makes use of both quantitative and qualitative situational analysis to attempt to provide answers to issues concerning real latitude. Due to the 38 commercial banks that were studied using fintech in their business operations, this design was picked (CBK, 2022).

Descriptive research survey methodology was used in this study to examine how fintech has affected the performance of commercial banks in Meru County. In order to gather data, survey research enables researchers to design polls or questionnaires that

are disseminated to respondents. The technique is the best appropriate for this study since it enables the quick collection of both qualitative and quantitative data from original sources. According to the Central Bank of Kenya, the decision to use this approach was influenced by the 38 commercial banks that were the subject of the study's adoption of fintech.

3.3 Target Population

According to Mugenda and Mugenda (2003), a population is a group of individuals, cases, or objects from which a researcher hopes to draw conclusions (Cooper & Schindler, 2003). The study population needs to be properly chosen, clearly characterized, and segmented in order to establish accurate criteria and guarantee population discretion (Robson, 2002). The 38 commercial banks operating in Meru County served as the study's subjects.

Table 3.1

Target Population

Listed Commercial Banks Operating in Meru	**Credit Managers**	**Operations Manger**	**Branch Manager**	**Tier**
Absa	1	1	2	1
Cooperative Bank	3	3	4	1
KCB Bank	3	3	3	1
Equity Group Holdings	5	5	5	1
Standard Chartered Bank	1	1	1	1
I&M Bank	1	1	1	2
National Bank of Kenya	2	2	1	2
NCBA PLC Group	1	1	1	2
Stanbic Holdings PLC	1	1	1	2
Bank of Africa	1	1	1	4
Credit Bank	1	1	1	3
Bank of Africa	1	1	1	3
Credit Bank	1	1	1	3
Family Bank Ltd	3	3	3	3
Consolidated bank of Kenya	2	2	2	3
Fina Bank Ltd	1	1	1	3
Sidian bank Ltd				
Post Bank Ltd	2	2	2	3
HF Group	1	1	1	3
Total	32	32	32	**96**

3.4 Sampling design and Sample Size

A sampling technique is a method of selecting a subset of inhabitants while ensuring that the subset selected accurately represents the entire population (Chandran, 2004). Cooper and Schindler (2003) define sampling as the methodical process of selecting specific study subjects to start serving as designs for the bigger group from which they were drawn. Due to the tiny population size, banks were categorized into three categories using the census technique, with primary, secondary, and tertiary banks

being determined by the central bank. These divisions are determined by the capital base of each bank, with Tier 1 having the highest capital base and Tier 3 having the lowest capital basis. The researchers guaranteed that the sample is representative of all sizes of licensed banks in Kenya, 38 in total, by sampling each class through census.

3.5 Data Collection Techniques

In order to get the necessary data on the research objectives, the study used secondary data. The term "secondary data" refers to information gathered by other researchers that is not directly linked to the subject under investigation, was done for a different reason, and was done in the past (Mohajan, 2017). Secondary data was gathered from secondary sources such internet publications, World Bank reports, and CBK financial supervisory reports. To assess the effect of fintech on traditional banking in Kenya and the final financial performance, the financial statements of commercial banks were examined. The type of information gleaned from the financial statements depended on the investigation's particular goal. The time frame for the review was from 2015 to 2021. This time frame illustrated when several economic sectors, including the banking industry, decide to adopt fintech. Fintech companies began lending in early 2015. The secondary dataset starts in 2015 and contains annual observations.

3.6 Data validity

Validity is normally determined through pre-testing the research instruments. Pilot testing was described by Vlasceanu and Coman (2018) as a practice run for the primary test. It is impossible to emphasize the importance of a pilot test because it helps identify any vague or unclear concerns. According to Geisen and Murphy (2020), conducting a pilot study before distributing the final survey can help reveal, in real time, questions

that respondents have trouble understanding or interpret in different ways, dead ends in the survey where respondents are unsure what to do next, and questions that don't yield useful data or lack precision. All of this contributes to the validity question.

Ideal sample size for high-precision pilot trials is between 1 and 10% (Tseng & Sim, 2021). The pilot study's sampled participants were not included in the main investigation (Storme & Witlox, 2020). Because a measurement error could have been made if questions were misinterpreted, the participants were asked to evaluate the questionnaire item by item. All aspects of the questionnaire were checked before it was given to the study's subjects, including the questions' substance, language, sequence, form, layout, difficulty, and instructions. The collected data was utilized to make the required adjustments.

3.7 Data analysis

The degree to which a variable consistently measures what it promises to measure is known as validity (Hair et al., 2009). Content validity, construct validity, and other types of validity are frequently employed in research. The concept of content validity will be used in this investigation. The bridge between the structure and the data serves as an explanation for the reliability of the data (Bryman & Bell, 2011). Data from audited financial statements, which contain information on data reliability, will be used in this study to quantify data reliability.

Using SPSS data analysis software, this study used the panel data analysis approach for data analysis. The gathered information was examined in accordance with the study's goals. The factors influencing the financial success of fintech businesses affiliated with commercial banks were estimated using a fixed-effects model. Muriithi

(2016) used the model in a similar study to this one to identify investment risk associated with the economic achievement of Kenyan commercial banks. The impact of financial technology on the financial results of Kenyan commercial banks was investigated utilizing panel data analysis. Enhanced comprehension as to how fintech affected commercial bank profitability. Regression analysis was used in the study to estimate the relationship between the variables.

$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + e$

Where: Y – Financial performance of commercial banks

X_1 – Fintech Lending

X_2 – Fintech Payments

X_3 – Fintech account opening

X_4 – Fintech deposit mobilization

α_0 – Bank performance without influence of Fintech

α_1- α_4 – Coefficients that depict the change in Y due to unit change in each Fintech variable

e – Error term

3.8 Ethical Considerations

Ethics issues such as privacy, confidentiality, and written informed were critical in research (Tripathy, 2013). Because the data might not have been accessible for free via the internet, in publications, or in other public places, permission from the appropriate authorities was sought for future use and analysis. The ownership of the raw data was also accepted. If the study was an element of another research study and the information was not publicly available beyond the original research team, the research team was asked for express written permission to use the data, which was

forwarded with the invitation for ethics clearance. To guarantee that the information was only used for academic purposes, KEMU was asked for permission first.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

In this section, we delve into the detailed analysis, interpretation, and discourse related to the empirical findings. The primary focus of our research was to evaluate the influence of incorporating financial technology on the economic outcome of a Commercial Bank located in Meru County, Kenya. We begin our exploration with an examination of the response rate, followed by an overview of descriptive statistics that provide insights into the objective variables. The final part of this chapter presents an in-depth regression analysis of the aforementioned variables.

4.2 Response Rate

The investigator distributed questionnaires among 96 participants from 32 banking institutions. The data from the participants who completed and returned these questionnaires can be found summarized in the table 4.1.

Table 4.1

Frequency table for Response rate

Responses	**Frequency**	**Percentile**
Effective response	87	90.6%
Ineffective response	9	9.4%
Total	96	100%

As depicted in Table 4.1, a total of 87 participants, representing 90.6% of the total respondents, provided responses that were assessed as valid and beneficial for the study. However, the remaining 9 respondents, accounting for 9.4% of the total, either did not return their questionnaires or did not provide complete answers to all questions, thus rendering their responses less effective for the research.

In light of the findings, it's clear that the adoption of financial technology significantly impacts the financial performance of the commercial bank in Meru County, Kenya. The fact that 90.6% of respondents returned completed questionnaires not only underscores the relevance of the topic at hand but also indicates the level of understanding and acceptance of financial technology among banking staff. This high response rate lends substantial credibility to the study's findings. It also indicates that the staff of the participating banks are well-informed and appreciative of the implications of adopting financial technology, suggesting a positive attitude towards its integration. This favorable response supports the study's premise of a strong relationship between the adoption of financial technology and the improvement of financial performance in commercial banks. However, the unreturned and incomplete questionnaires remind us of the challenges that remain, including resistance to change and varying degrees of digital literacy among staff members, which need to be addressed for a seamless transition to newer technologies.

Citing Wimmer and Dominick (2006) a response rate ranging from 21% to 70% is generally deemed acceptable for self-administered questionnaires as it ensures both precision and a reduction in bias. Moreover, Mugenda and Mugenda (2003) pointed out that a response rate of 50% is considered satisfactory, 60% is good, and 70% is

rated as excellent. Given these benchmarks, the response rate from our study adequately meets the requisite criteria and is deemed fit for further analysis.

4.3 Demographic Characteristics

This section provides information about the demographic attributes of the participants. It encompasses data on the distribution of genders, age groups, educational backgrounds, levels of experience, and the frequency at which customers visit hotels. The findings are presented using frequency tables.

4.3.1 Gender Distribution

The responders had to specify their gender in their responses. The comparison of the proportion of male and female respondents is shown in table 4.2

Table 4.2

Gender Distribution

		Frequency	**Percent**	**Valid Percent**
Valid	Male	46	52.9	52.9
	Female	41	47.1	47.1
	Total	87	100.0	100.0

The results show that there was an equal share of both genders among the responders. Particularly, 52.9% of those who responded were male responders, while 47.1% were

female respondents. These numbers show that the research effectively accounted for gender representation, ensuring that gender biases did not affect the findings.

4.3.2 Management Level

The investigator aimed to determine the managerial position of the participants. The results from analyzing the respondents based on their level of management are displayed in Table 4.3.

Table 4.3

Management level distribution

		Frequency	**Percent**
Valid	Senior Level Management	17	19.5
	Middle Level Management	35	40.2
	Lower Level Management	35	40.2
	Total	87	100.0

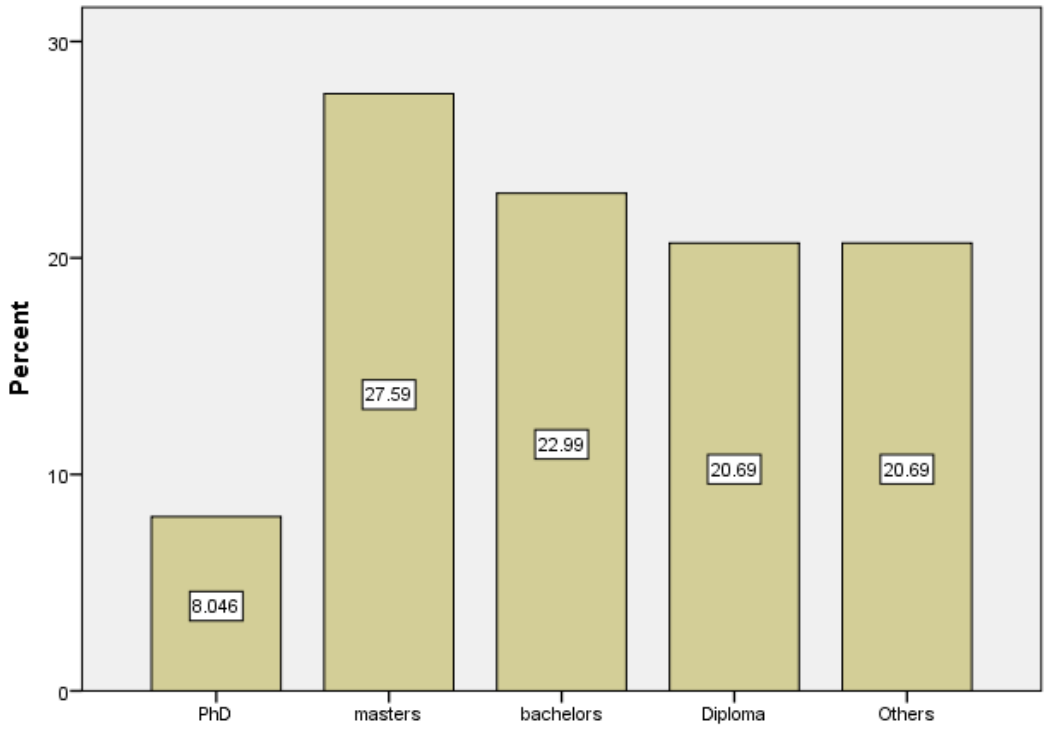
The consequences of the examination show 19.5% of those who responded to the survey were senior level management who included branch managers and operations managers, 40.2% of the respondents were under middle management level and equal proportion of 40.2% were from the lower level management.

4.3.3 Education

The interviewees were asked to describe their educational backgrounds by the researcher. Berry (2011) claims that social science researchers frequently use educational attainment to demonstrate an individual's integration and participation in societal events. Figure 4.1 displays the findings of the respondents' education level.

Figure 4.1

Level of Education



According to the results, the majority of survey respondents—who together accounted for 79.31% of the total respondents—had received tertiary education. Other types of qualifications not mentioned in the questionnaire make up the remaining 20.69%. The findings show that those who participated had a sufficient degree of education to understand and react to the study's questions. In comparison to respondents who are less educated, educated respondents are anticipated to be more competent and make more logical conclusions (Sheikh et al., 2014).

4.3.4 Years Worked

To determine whether the respondent was familiar with the research variables, it was necessary to ask them how long they had worked in the banking sector. According to

the analysis's findings, they had worked for various preceding years, as shown in table 4.4.

Table 4.4

Years Worked

		Frequency	Percent
Valid	Below 5 Yrs	20	23.0
	6-10 Yrs	24	27.6
	11-15 Yrs	14	16.1
	16-20 Yrs	13	14.9
	Above 21 Yrs	16	18.4
	Total	87	100.0

Findings in Table 4.4 indicated that majority 24(27.6%) of the respondents had worked for a period between 6 to 10 years, 20(23.0%) had worked for a period below 5 years. The study also revealed that 16(18.4%) of the respondents had worked for over 21 years in the banking industry. Further the study shows that 14(16.1%) of the respondents had worked between 11 and 15 years while 13(14.9%) of the respondents had worked for 16 to 20 years.

4.4 Reliability Statistics

Cronbach's alpha was used to verify the dependability of each part. The reliability of the survey was assessed using Cronbach's Coefficient values between 0.7 and 1.0 (Korkmaz et al., 2017). Using 10 questionnaires on 10 participants randomly chosen

from three commercial banks, data was collected through selected commercial banks in Tharaka Nithi County. The questionnaires' reliability and validity were tested. For each portion of the questionnaire, highlights of the evaluation of reliability data are provided in Table 4.5.

Table 4.5

Summary of Reliability Statistics

	No of Items	**Cronbach's Alpha**	**Conclusion**
Fintech payment	6	0.814	Reliable
Fintech lending	6	0.769	Reliable
Fintech deposit mobilization	6	0.725	Reliable
Fintech customer acquisition	6	0.765	Reliable
Performance of commercial banks	6	0.794	Reliable
Overall	30	0.773	Reliable

4.5 Descriptive Statistics of Independent Variables

The analysis in this section focuses on the survey responses related to the four independent variables of the study, which are fintech payment, lending, deposit mobilization, and client acquisition. Descriptive statistics like frequencies, means, and standard deviation are included in the data set. According to a 5-point Likert scale, where "Strongly agree" is assigned a score of 5, "Strongly disagree" is assigned a score of 1, the frequencies show the percentage of respondents who agree with each of the statements.

4.5.1 Descriptive Statistics for Fintech payment

The participants were provided with statements concerning Fintech payment practices, and they were asked to rate their agreement level with each practice as applied by the bank. Their responses were then utilized to calculate frequencies, means, and standard deviations to facilitate interpretation. The results from this analysis are detailed in Table 4.6.

Table 4.6

Descriptive Statistics for fintech payment

Statements (N =87)	**SD**	**D**	**N**	**A**	**SA**	**Mean**	**Std. Deviation**
Fintech payments have improved the efficiency of banking operations.	0.60%	0.00%	1.90%	34.70%	62.80%	4.59	0.597
Fintech payments have increased the speed of financial transactions	0.00%	0.60%	2.50%	44.20%	52.70%	4.49	0.582
Fintech payment platforms have increased the accessibility and convenience of banking services for customers.	0.60%	0.00%	0.00%	35.00%	64.40%	4.62	0.558
Fintech payment solutions have enabled banks to reach a broader customer base.	0.60%	2.50%	3.20%	40.10%	53.60%	4.44	0.733
Fintech payment systems have improved the competitiveness of banks in the market.	0.00%	0.00%	5.70%	43.20%	51.10%	4.45	0.602
Fintech payments have improved customer satisfaction with banking services	0.00%	0.00%	1.30%	45.10%	53.60%	4.52	0.525
Average %	0.30%	0.52%	2.43%	40.38%	56.37%	4.52	0.600
Summary	0.82% (Disagreement)			96.75% (Agreement)			

As per the answers presented in Table 4.6, majority of the respondents (96.75%) strongly agreed with different statements on influence of fitech payment adoption and performance of commercial backs as supported by an average collective score of 4.52 and 0.600 standard deviation. This showed that the adoption of fintech payment in commercial banks has improved the efficiency of banking operations as supported by 97.5% of the respondents agreed on the statement. At 96.90% respondents agreed that Fintech payments have increased the speed of financial transactions with a mean of 4.49 and a standard deviation of 0.582, 99.4% of the respondents strongly agreed that Fintech payment platforms have increased the accessibility and convenience of banking services for customers with a mean of 4.62 and a standard deviation of 0.55. A substantial 94.70% of participants agreed that Fintech payment platforms have enhanced the accessibility and convenience of banking services for clients, evidenced by a mean score of 4.44 and a standard deviation of 0.77. Regarding the statement that Fintech payment systems have bolstered the competitiveness of banks in the marketplace, 94.30% of respondents concurred. Meanwhile, a resounding 98.7% strongly agreed that Fintech payments have uplifted customer satisfaction levels in banking services, supported by a mean of 4.52 and a standard deviation of 0.525.

These findings draw parallels with prior studies that have explored the transformative effects of technology on banking services. Wawira (2013) highlighted the beneficial impact of agency banking, a technological innovation that lowers transaction costs, thereby positively influencing the financial health of commercial banks in Kenya. This idea that leveraging technology can lead to cost savings is also echoed in Alizadeh et al. (2020) research on Bank Keshavarzi Iran. They reported that the application of information technology in banking contributes significantly to the efficiency of the

financial system by reducing time spent by customers and employees, cutting down costs, and facilitating seamless network transactions.

Similar themes are found in a myriad of other studies. For example, Hernando and Nieto (2007) indicated that the introduction of internet banking services significantly improves bank performance by extending the reach and improving customer service. Research conducted by Sultan (2011) suggested that technology helps financial institutions enhance their service offerings, ultimately leading to increased customer satisfaction and loyalty. Wilter et al. (2023) provided further insight, stating that the use of technology can create a competitive advantage for banks, as it allows them to serve their customers better, faster, and at lower costs.

In this context, it's worth mentioning that the benefits of fintech are not restricted to the banking sector alone. As stipulated by Chishti and Barberis (2016) fintech's scope has the potential to revolutionize all financial services by making transactions more accessible, convenient, and cost-effective. This suggests that our findings align with broader academic discourse on the subject, further validating the results of this study.

4.5.2 Descriptive Statistics for fintech lending

The respondents were requested to respond to constructs on the effect of adoption of fintech lending on the financial performance of commercial banks in Meru County, Kenya. Table 4.7 shows the findings on the items relating to fintech lending.

Table 4.7

Descriptive Statistics for fintech lending

Statements (N = 87)	**SD**	**D**	**N**	**A**	**SA**	**M**	**Std. Deviation**
Fintech lending has positively impacted the overall profitability of traditional banks	2.50%	0.00%	1.30%	45.70 %	50.50 %	4.42	0.757
Fintech lending has increased the accessibility of credit for small and medium-sized enterprises (SMEs).	0.00%	0.00%	2.50%	43.80 %	53.70 %	4.51	0.549
Fintech lending has reduced the reliance on traditional collateral requirements for loan approvals.	0.00%	0.00%	10.10 %	39.40 %	50.50 %	4.4	0.666
Fintech lending has increased competition among banks, leading to improved services and products for customers.	0.00%	1.90%	8.20%	38.20 %	51.70 %	4.4	0.72
Fintech lending has enabled banks to reach a broader customer base, including underserved individuals or businesses	0.00%	0.00%	1.30%	42.60 %	56.10 %	4.55	0.523
Fintech lending has reduced the processing time for loan applications, making it more efficient for customers.	0.00%	5.00%	18.90 %	29.30 %	46.80 %	4.18	0.911
Average %	0.42%	1.15%	7.05%	39.83 %	51.55 %	4.41	0.69
Summary	1.57% (Disagreement)			91.36% (Agreement)			

According to Table 4.7's results, the majority of survey participants (91.36%), who gave the various statements commercial banks had adopted for lending to fintech companies an average score of 4.41 and a standard deviation of 0.69, agreed with them. Overall, the respondents largely concurred that Fintech lending has positively

impacted the overall profitability of traditional banks were held at 96.20%, that fintech lending has increased the accessibility of credit for small and medium-sized enterprises (SMEs) at 97.50%, that Fintech lending has reduced the reliance on traditional collateral requirements for loan approvals are given at 89.90%, that Fintech lending has increased competition among banks, leading to improved services and products for customers at 89.90%, that fintech lending has enabled banks to reach a broader customer base, including underserved individuals or businesses at 98.70% and that Fintech lending has reduced the processing time for loan applications, making it more efficient for customers at 76.10%. This means that commercial banks in Meru County are keen to adopt fintech lending that encounter the present needs of their clienteles.

A study by Ndagijimana (2017) that examined the impact of mobile borrowing on the financial stability of Kenyan commercial banks supports our findings further. This study found a substantial and favorable correlation between these financial results of banks and their use of mobile lending. The report advises policymakers to take into account the effects of mobile lending when creating financial rules in light of technological developments and the shifting trend away from conventional brick-and-mortar banking toward more technology-driven services. It also suggests commercial banks should continue to adopt and integrate mobile lending into their operations due to the increasing accessibility of mobile devices among the population.

In the same vein, Kinyanzui et al. (2018) explored the impact of mobile credit on the operational efficiency of banks in Kenya. Utilizing both primary and secondary data sources, they examined how easy access to credit impacts the performance of businesses. Their research methodology included a questionnaire with both open-

ended and closed-ended queries, with data analysis done using the multiple linear regression approach. Operational efficiency was evaluated using metrics such as earnings per share, return on assets (ROA), and the ratio of non-performing loans. Mobile credit was measured by the businesses' capacity to carry out various transactions, like payments, loan collections, and disbursements to shareholders, via mobile devices. The study showed a decrease in the proportion of non-performing loans after the implementation of mobile credit, suggesting an improvement in the efficiency of debt collection operations. Furthermore, it found that mobile credit adoption positively influenced brand image, market adaptability, and perceived reliability, thereby improving the operational efficiency of these enterprises.

In a broader context, other researchers like Koenig-Lewis et al. (2015) have also highlighted the positive impact of technological innovations, particularly mobile banking, on customer satisfaction and retention. Meanwhile, a study by Khrawish (2011) revealed that the adoption of e-banking significantly enhances the profitability of banks, aligning well with our findings. These pieces of evidence from diverse sources lend credence to the notion that the adoption of financial technology, like mobile lending and credit, can significantly improve various aspects of banking operations and overall financial performance.

4.5.3 Descriptive Statistics for adoption of fintech deposit mobilization

The study sought to determine the influence of adoption of fintech deposit mobilization on the financial performance of commercial banks in Meru County, Kenya. The responses were presented in table 4.8.

Table 4.8

Descriptive Statistics for adoption of fintech deposit mobilization

Statements (N = 87)	SD	D	N	A	SA	M	Std. Deviation
Fintech deposit mobilization has improved the overall profitability of banks.	0.00%	0.00%	0.00%	35.60 %	64.40 %	4.64	0.480
Fintech deposit mobilization has created new business opportunities for banks.	0.00%	0.00%	1.30%	26.20 %	72.50 %	4.71	0.480
Fintech deposit mobilization has increased the efficiency of banking operations.	0.00%	0.00%	1.30%	36.30 %	62.40 %	4.61	0.513
Fintech deposit mobilization has enhanced the competitiveness of banks in the market.	0.00%	0.00%	6.30%	39.40 %	54.30 %	4.48	0.614
Fintech deposit mobilization has improved customer satisfaction with banking services.	0.00%	1.90%	6.30%	41.30 %	50.50 %	4.40	0.694
Fintech deposit mobilization has reduced the operational costs of banks.	0.00%	3.80%	29.00 %	22.40 %	44.80 %	4.08	0.941
Average %	0.00%	0.95%	7.37%	33.53 %	58.15 %	4.49	0.620
Summary	0.95% (Disagreement)			91.68% (Agreement)			

From the results presented by Table 4.8, respondents strongly agreed with all the constructs on adoption of fintech deposit mobilization as supported by a mean level of 91.68% with an average score of 4.49 and 0.620 standard deviation. All the respondents 100% strongly agreed that Fintech deposit mobilization has improved the overall profitability of banks. that employees share experiences at 98.70%, that Fintech deposit mobilization has created new business opportunities for banks the respondents agreed at 98.70%, 98.70% of the respondents also agreed with the statement that Fintech deposit mobilization has increased the efficiency of banking operations. 98.3% of the respondents also strongly agreed that Fintech deposit mobilization has enhanced the competitiveness of banks in the market and that Fintech deposit mobilization has improved customer satisfaction with banking services 91.80% of the respondents agreed with statement.

Additionally, our study found that 67.2% of participants agreed that Fintech's role in deposit mobilization has led to a reduction in banks' operational costs. This finding is in line with Mwiti's 2016 research, which sought to examine the influence of alternative banking practices on the financial performance of commercial banks in Kenya, over a five-year period from 2011 to 2015. Regression analysis was employed to determine the impact of these alternative banking methods on the financial outcomes of the banks. The results of the study revealed a strong, positive correlation between the use of alternative banking channels and improved financial performance. It was further concluded that these alternate banking methods had a substantial and positive impact on the financial performance of the banks.

This aligns with our findings and is further supported by other studies. For instance, According to Were et al. (2013), the use of mobile banking has resulted in substantial

savings in costs for banks, primarily because less physical infrastructure is required. The adoption of new delivery channels, such as mobile banking and online banking, has a favorable impact on banks' profitability by expanding their client base and lowering transaction costs, according to a study by Kithinji (2010) on Kenyan commercial banks. These results underline the growing significance of Fintech in improving the operational effectiveness and financial health of banks.

4.5.4 Descriptive Statistics for adoption of fintech customer acquisition

Respondents were given statements and asked to rate how much they agreed with each in order to get information about the impact of adopting fintech acquisition strategies on the financial health of commercial banks in Meru County, Kenya. The findings were shown in Table 4.9.

Table 4.9

Descriptive Statistics for adoption fintech customer acquisition

Statements (N=87)	**SD**	**D**	**N**	**A**	**SA**	**M**	**Std Dev**
Fintech customer acquisition has increased the efficiency of banking processes	2.50%	0.00%	1.30%	45.40%	50.80%	4.42	0.757
Fintech customer acquisition has enhanced the convenience of banking services for customers.	0.00%	0.00%	2.50%	43.50%	54.00%	4.51	0.549
Fintech customer acquisition has improved the accuracy and security of financial transactions.	0.00%	0.00%	10.10%	39.40%	50.50%	4.4	0.666
Fintech customer acquisition has expanded the reach of banking services to underserved populations.	0 0.00%	6 1.90%	8.20%	37.90%	52.00%	4.4	0.721
Fintech customer acquisition has improved banks' ability to offer personalized financial products and services.	0.00%	0.00%	1.30%	42.30%	56.40%	4.55	0.523
Fintech customer acquisition has strengthened banks' relationships with existing customers	0 0.00%	1 5.40%	18.90%	29.00%	46.70%	4.17	0.919
Average %	0.42%	1.22%	7.05%	39.58%	51.73%	4.41	0.690
Summary	**1.63% (Disagreement)**			**91.32% (Agreement)**			

Table 4.9 shows the results indicating that 91.32% of the respondents agreed with the statements on fintech customer acquisition and performance of commercial banks as supported by response average of 4.41 with a 0.690 standard deviation. Cumulatively, most of the respondents agreed that Fintech customer acquisition has increased the efficiency of banking processes at 96.20%, Fintech customer acquisition has enhanced the convenience of banking services for customers at 97.50%, Fintech customer acquisition has improved the accuracy and security of financial transactions at 89.90%, Fintech customer acquisition has expanded the reach of banking services to underserved populations at 89.90%, Fintech customer acquisition has improved banks' ability to offer personalized financial products and services at 98.70% and that Fintech customer acquisition has strengthened banks' relationships with existing customers at 75.70%.

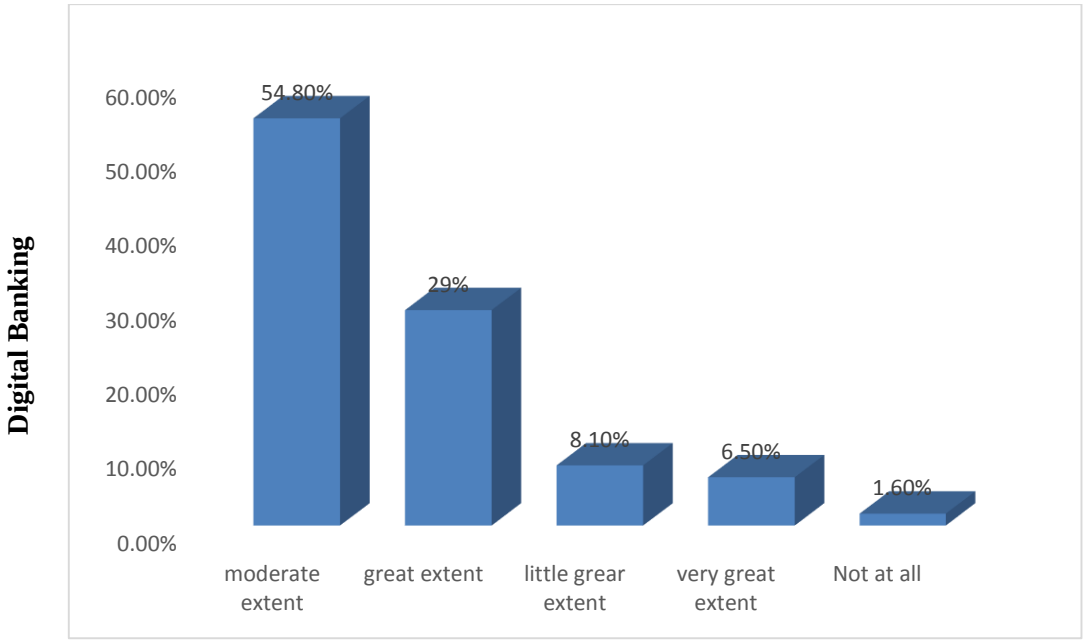
4.5.5 Financial performance of commercial banks

This particular variable was gauged by posing questions related to the potential increase in income as a result of financial technology adoption, the possible overall profit boost due to the use of digital banking technology, and the profit directly attributable to digital banking. The analysis of these and other sub-variables is discussed in the following sections.

The participants were asked to rate how much they thought financial technology alerts helped the bank cut losses from fraud. On a Likert scale, where 1 stood for "not at all" and 5 for "to a very great extent," participants were asked to score their opinions. The answers to this question are compiled in Figure 4.2.

Figure 4.2

Digital banking technology alarms have aided to diminish cost



Participants were asked to quantify the extent to which they think financial technology alerts have been effective in mitigating losses related to fraud. Ratings were given on a Likert scale from 1 to 5, with 1 meaning 'not at all' and 5 denoting 'to a very great extent'. The collated responses are presented in Figure 4.2.

The potential of financial technology to prevent fraud-related losses has been widely discussed in academic literature. The positive influence of financial technology in this regard is supported by studies like that of Apte and Petrovsky (2016) who found that real-time alert systems and advanced algorithms used in fintech platforms can significantly help to detect fraudulent activities and prevent potential losses.

On the other hand, some research argues that the implementation of financial technology may present new avenues for fraudulent activities, thereby leading to potential losses. Research conducted by Legowo et al. (2021) highlighted that while fintech offers several advantages, it also introduces novel security risks and potential fraud vectors due to increased digitalization. These contrasting viewpoints indicate that while financial technology alerts can assist in minimizing fraud-related losses, the complex digital environment can also open up new channels for fraud, thus reinforcing the need for robust security mechanisms within fintech systems.

On the positive side, studies by Liébana-Cabanillas et al. (2015) illustrated how biometric technologies used in fintech can enhance the security of financial transactions, effectively reducing fraud-related losses. Their research indicated that the application of fingerprint and facial recognition technologies in financial transactions offers a significant layer of security, making it harder for fraudsters to gain unauthorized access.

However, as per the research by Arner et al. (2016) while fintech has revolutionized the financial industry and provides multiple benefits, it has also brought new risks. They argued that the rapid pace of technological change and the global nature of fintech could lead to an increase in systemic risks, including a higher potential for fraud and cybercrime.

Another study by Zhang et al. (2016) highlighted the cyber-security threats associated with fintech, emphasizing that as digital banking becomes more widespread, so does the potential for digital fraud. The study concluded that while technology can

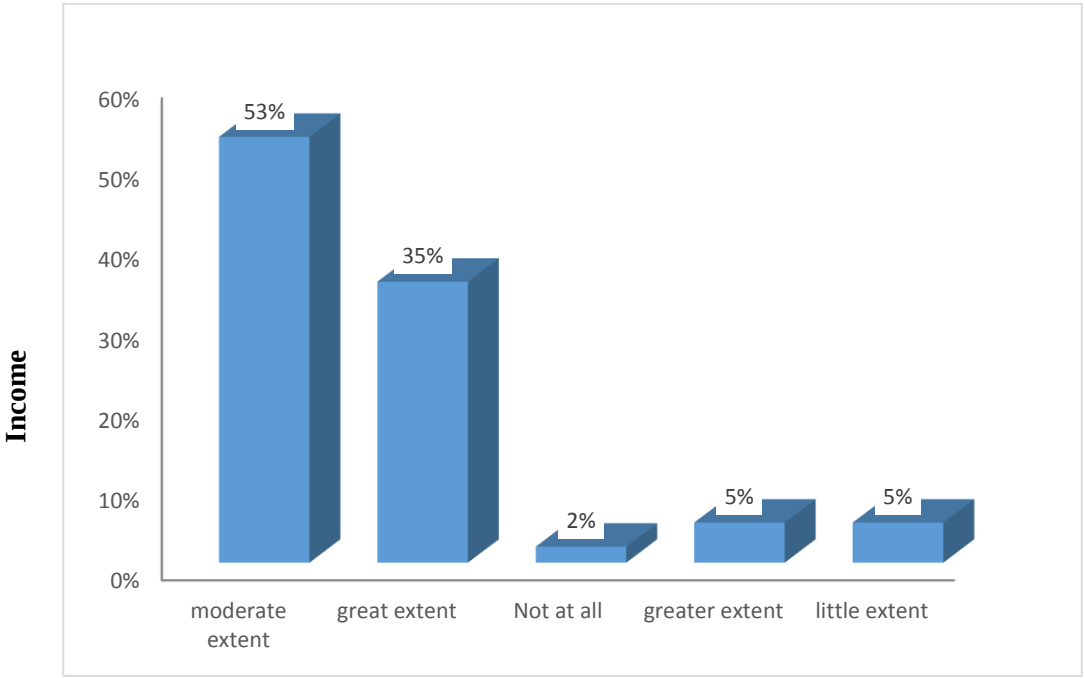
significantly enhance efficiency and customer experience, it can also expose financial institutions to increased cyber threats.

Digital banking technology income increase

In exchange for fees and interest, commercial banks offer a variety of transactions, including loans and basic account enquiries. The respondents were asked to describe the extent to which they think the bank's revenue has increased as a result of these services in order to determine the impact of electronic banking services on these earnings. The totaled answers to this query are as follows displayed in Figure 4.3.

Figure 4.3

Increase in income due to digital banking technology



The majority of participants, 53%, felt that the bank's income increased moderately due to the implementation of digital banking services. 35% of the respondents believed that these services significantly enhanced the bank's income. Only 2% of the

respondents thought that there was no increase in income, while 5% indicated that the income increase was substantial, and another 5% felt the increase was marginal.

In support of these findings, a study by Hassan et al. (2015) established that digital banking services, such as mobile and internet banking, positively influenced the profitability of banks due to increased customer convenience, reduced transaction costs, and the ability to reach a larger customer base.

Contrarily, some studies argue that the increased costs associated with the implementation and maintenance of digital banking services could offset the additional income generated. For instance, a study by DeYoung (2005) found that while digital banking services can increase income through fees and cost savings, the initial costs, ongoing maintenance, and cybersecurity costs associated with these platforms could lead to a net decrease in profitability in certain cases.

In addition, a study by Deloitte (2016) indicated that while fintech innovations have the potential to increase bank income, they also present new challenges, including the need for significant investments in digital infrastructure and security, as well as increased regulatory scrutiny. The research highlighted that these factors can create considerable costs, which may offset the potential income increase.

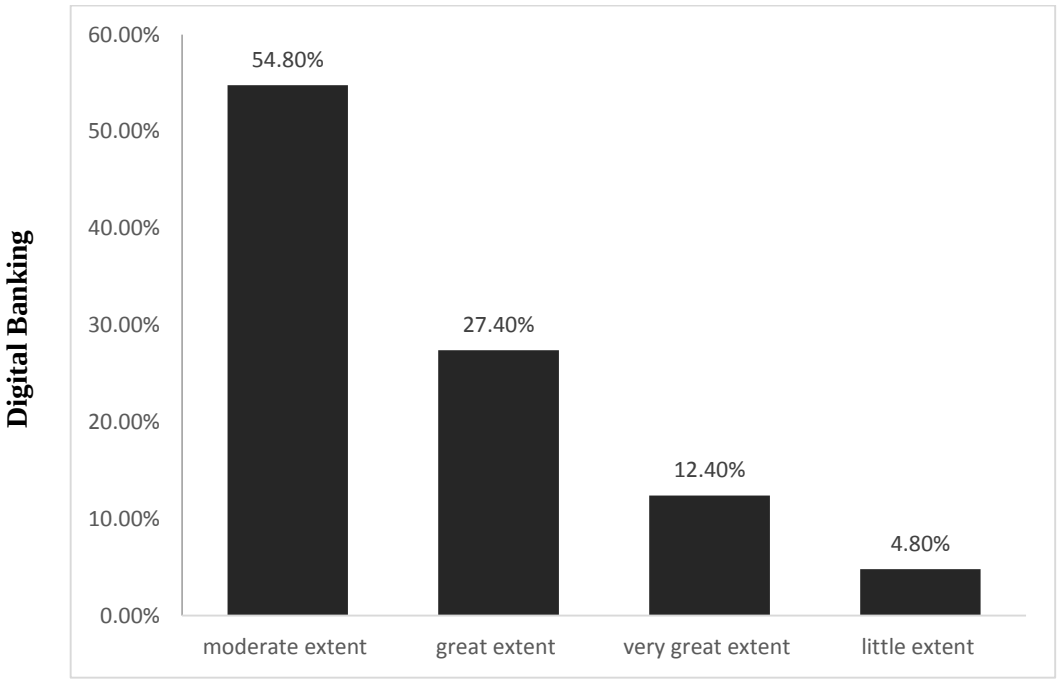
These differing views reflect the complex impacts of digital banking services on a bank's income, highlighting the need for a strategic approach when implementing these services.

Digital banking technology innovations helped the bank to record a good performance

Participants were queried regarding the extent to which they felt digital banking technology contributed to the bank's overall good performance. The collective responses to this query are represented in Figure 4.4.

Figure 4.4

Digital banking technology and good performance



The collected responses reveal that 54.8% of participants believe digital banking technology has moderately contributed to the bank's good performance. 27.4% feel that the contribution to performance has been significant, while 12.4% believe it has been very significant. Conversely, 4.8% of respondents believe the contribution has

been marginal. Importantly, none of the respondents felt that digital banking technology failed to assist the banks in achieving good performance.

These findings echo the study conducted by Karim et al. (2022) which demonstrated a positive relationship between the adoption of digital banking technology and bank performance. Their research showed that the implementation of digital banking enhanced customer satisfaction, operational efficiency, and profitability, all of which contribute to improved overall performance. They note that issues such as system downtime, security breaches, and the potential alienation of customers not comfortable with digital technology could negatively affect bank performance.

In addition, research by Zhu et al. (2019) cautions that while digital technology may enhance some areas of performance, it may also introduce vulnerabilities, such as increased susceptibility to cybercrime. They argue that these potential threats need to be carefully managed to ensure that the overall impact on performance is positive.

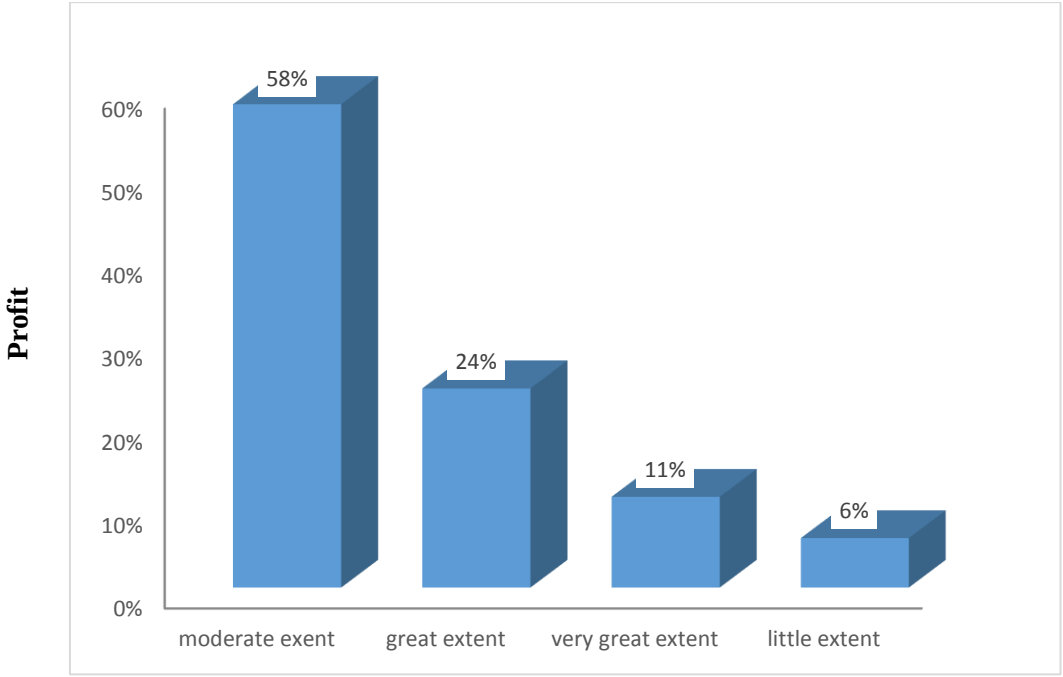
These contrasting studies highlight that the impact of digital banking technology on bank performance is multifaceted, and that successful implementation requires a strategic approach that carefully manages potential risks alongside benefits.

Overall profit of the bank due to digital banking technology

Participants were inquired about the extent to which they believed the bank's overall profits had risen due to the introduction of digital banking services. The collective responses to this inquiry are depicted in Figure 4.5.

Figure 4.5

Overall profit of the bank due to digital banking technology



As depicted in Figure 4.5, 58% of respondents perceived a moderate increase in the bank's overall profit due to the implementation of digital banking technology. 24% of respondents believed that the profits significantly increased, while 11% felt the increase was very significant. On the other hand, 6% of participants thought the profit increase was only marginal, and none of the respondents believed that there was no increase in profit.

This suggests that the widespread use of digital banking technology, such as internet and mobile banking, has contributed to improved financial performance for banks. These findings align with the study by Kathuo (2015) which found that banks reported a surge in profits due to the usage of mobile banking technology.

However, other researches provide a different perspective. For instance, DeYoung (2005) suggested that the introduction of digital banking technology could have cost implications that may offset increases in profit. The study highlighted that the upfront investment, maintenance costs, and the need for robust cybersecurity could result in significant expenses, reducing net profitability.

Moreover, a study by Ayadi et al. (2019) argued that while digital banking could improve operational efficiency and reduce transaction costs, it might not necessarily lead to a substantial profit increase. They found that the aggressive competitive environment created by digital banking could lead to narrower profit margins as banks reduce fees and interest rates to attract and retain customers.

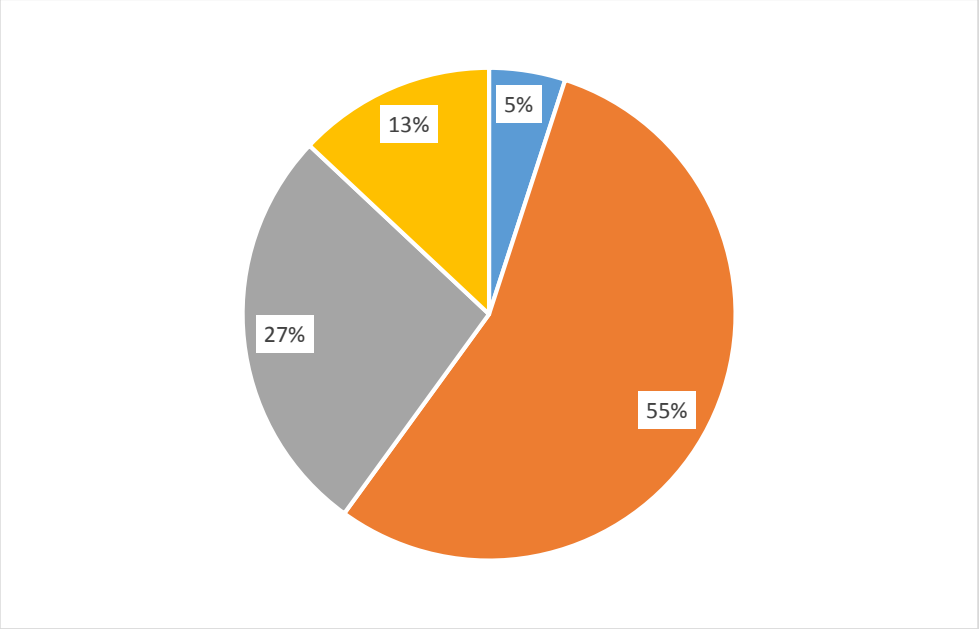
These varying views illustrate the complex interplay between digital banking technology and bank profitability, suggesting that effective strategic planning and management are critical to ensure that the benefits outweigh the costs.

Profit attributed to the bank due to digital banking technology innovation

Participants were queried regarding the proportion of the bank's profit they believed could be credited to digital banking services. Their collective responses are depicted in Figure 4.6.

Figure 4.6

Overall profit attributed to digital banking technology innovations



The illustration indicates that 5% of the participants believed that profits resulting from digital banking technology comprised less than 1% of the bank's overall profits. However, the majority, at 55%, thought it accounted for 1-10% of the profits. Further, 27% of the respondents estimated that digital banking technology contributed to 10-30% of the profits, while 13% believed it made up 31-50% of the profits. Remarkably, none of the respondents felt the profit contribution from digital banking technology exceeded 50%.

These findings suggest that while digital banking technology innovations have boosted commercial banks' profitability to some degree, the bulk of the bank's profits do not originate from these digital advancements. This notion aligns with the Central Bank of Kenya's financial report for 2017. The report indicated that the banking sector

witnessed an improvement in financial strength in 2017, with total net assets registering an 8.3% increase from Ksh. 3,695.9 billion in December 2016 to Ksh. 4,002.7 billion in December 2017. Notably, the balance sheet's primary contributors were loans and advances, government securities, and placements, which accounted for 50.3%, 24.9%, and 4.2% respectively.

Nonetheless, other researchers present differing viewpoints. For instance, a study by Bátiz-Lazo and Wood (2002) suggested that despite the significant investments in digital banking technology, banks have not fully capitalized on its potential to generate profits. The study highlighted that challenges such as technological literacy among customers, security concerns, and resistance to change have limited the profitable usage of these technologies.

Similarly, Arner et al. (2016) postulated that while digital banking technology offers the promise of increased efficiency and potentially larger customer bases, these advantages might not directly translate into increased profits. They pointed out that as the banking industry becomes more digitized, competition increases, leading to reduced fees and interest rates which could limit profit growth.

Such perspectives underscore the nuanced relationship between digital banking technology and profitability, emphasizing the need for careful strategic management in implementing and using these technologies.

4.6 Findings on Inferential Analysis

Results from inferential statistics were useful in forecasting and making generalization to the sample under study based on the data gathered from research participants.

4.7 Linear Regression Diagnostics

Through various diagnostic tests, the researcher aimed to determine whether the assumptions of the traditional linear regression model had been broken. This section talks about the experiments that were run.

4.7.1 Outliers

The distances measured by Mahalanobis and Cook's distance measurements were used in the study to look for any out-of-the-ordinary data points. By performing an initial analysis of regression on the data using SPSS, these proximity values were produced. Using a Chi-square distribution with a 5% significance level and 5 variables, the cutoff value for Mahalanobis' statistics was calculated, yielding a cutoff value of 22.276 (Mahalanobis, 1936). Similarly, 0.057 was used as the Cook's Distance cutoff value.

Table 4.10

Testing for Outliers

Residuals Statistics[a]	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**N**
Mahal. Distance	0.180	22.276	4.984	3.714	317
Cook's Distance	0.000	0.057	0.004	0.007	317

No outliers were found based on the criteria, and the data was deemed suitable for

testing the study's linear regression model.

4.7.2 Normality

The objective of the study was to determine whether independent variables were normal. The variables that are independent were determined to be statistically substantially divergent from a distribution that is normal based on the Shapiro-Wilk test for normality, as demonstrated in

Table 4.11

Normality of Independent Variables Tests of Normality

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**Df**	**Sig.**	**Statistic**	**Df**	**Sig.**
Fintech payment	0.128	87	0.000	0.935	87	0.000
Fintech lending	0.135	87	0.000	0.906	87	0.000
Fintech deposit	0.132	87	0.000	0.923	87	0.000
Fintech customer acquisition	0.135	87	0.000	0.906	87	0.000

a. Lilliefors Significance Correction

The Shapiro-Wilk statistic, which is thought to be closer to unity, was higher than 0.8 for all the variables, though. The unstandardized residuals are thought to be sufficiently regularly distributed if the Shapiro-Wilk statistic approaches unity (Osborne, 2013). It was determined that the assumption of a classical linear regression model hadn't been broken and that the results of the data analysis would be valid because it was obvious that the independent variables did not have a normal distribution while the error terms did.

Table 4.12

Skewness and Kurtosis of Residuals Descriptive Statistics

	N	**Skewness**		**Kurtosis**	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Standardized Residual	87	-.441	.237	.441	.273
Valid N (listwise)	87				

4.7.3 Multicollinearity

To avoid raising the standard error values and making the independent variables less significant, there should be little correlation among the independent variables. The associations between the variables are shown in table 4.12.

Table 4.13

Correlations

		FP	**FL**	**FDM**	**FCA**
FP	Pearson Correlation	1	0.642**	0.535**	0.515**
Sig. (2-tailed)			0.000	0.000	0.000
FL	Pearson Correlation	0.642**	1	0.652**	0.751**
Sig. (2-tailed)		0.000		0.000	0.000
FDM	Pearson Correlation	0.535**	0.652**	1	0.520**
Sig. (2-tailed)		0.000	0.000		0.000
FCA	Pearson Correlation	0.515**	0.751**	0.520**	1
Sig. (2-tailed)		0.000	0.000	0.000	
N		87	87	87	87

Since the Pearson correlation for each independent variable was less than 0.8, the findings proved that there was no collinearity between the variables. As a result of this discovery, the variables can be used to analyze the study's data further because there was little multicollinearity. **. Correlation is significant at the 0.01 level (2-tailed).

Table 4.14

Collinearity Statistics

Model		Tolerance	VIF
1	(Constant)		
	FP	0.559	1.788
	FL	0.213	4.694
	FDM	0.548	1.825
	FCA	0.425	2.350

According to Ombaka (2014), the values for all variables are below five, as indicated by the variation in the inflation factor seen in Table 4.14. VIF values under five indicate that the parameters are not collinear.

4.8 Multiple Regression Analysis

The goal of the study was to determine how financial technology adoption has affected the financial health of commercial banks in Meru County. Based on the study's goals, four hypotheses were developed and put to the test via a t-test. Multiple linear regressions were carried out using SPSS (version 28) to evaluate the individual contributions of each variable to the overall model. The t-test findings from the regression output were used to assess the study hypotheses. Table 4.15 shows the model summary, Table 4.16 the analysis of variance, and Table 4.17 the results of the model test.

Table 4.15

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.998[a]	.997	.997	0.02729

a. Predictors: (Constant), Fintech payment, lending. Deposit mobilization and customer acquisition.

b. Dependent Variable: Financial performance

In Table 4.15, the Pearson correlation coefficient is 0.998. This demonstrates that there was a considerable positive link between the adoption of financial technology and the financial success of commercial banks. Financial technology factors, according to the coefficient of correlation (R Square), are responsible for 99.7% of the differences in the financial performance of commercial banks. The other 0.3 percent of the variability are all accounted for by variables that were left out of this model.

Table 4.16

Analysis of variance.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73.363	4	14.673	19695.700	.000[b]
	Residual	0.232	82	0.001		
	Total	73.595	86			

a. Dependent Variable: financial performance

b. Predictors: (Constant), Fintech payment, lending. Deposit mobilization and customer acquisition.

The analysis of variance using F-statistics was used to test the null hypothesis that there is no non-linear relationship between the use of financial technology and the financial health of commercial banks in Meru County. The results are shown in Table 4.16. The outcome shows that the observed F-statistics have a p-value of 0.000, or less than 5% (F (5, 311) = 19695.700, p=0.000 0.05), corresponding to them. The results demanded that the null hypothesis be rejected; leading to the conclusion that financial technology adoption and the financial health of commercial banks in Meru County are significantly correlated.

Table 4.17

Regression Coefficients

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	-0.360	.031		3.946	.000
	Fintech payment	.105	.002	.082	1.685	.000
	Fintech lending	.934	.001	.064	.597	.000
	Fintech deposit mobilization	.014	.003	.012	.198	.005
	Fintech customer acquisition	.002	.007	.002	-.811	.738

a. Dependent Variable: Financial performance

The regression equation of the linear regression analysis is as shown below:

$Y= -0.360+0.105X1+0.934X2+0.0142X3+0.002X4+e$

Where:

Y – Financial performance

X_1 – Fintech payment

X_2 – Fintech lending

X_3 – Fintech deposit mobilization

X_4 – Fintech customer acquisition

e – error term

Table 4.16 shows the findings from the multiple linear regression and the findings include standardized and unstandardized coefficient, t-statistics, and p-values. P-value of less than the significant value of 5 percent ($p<0.05$) was the only condition for rejecting the null hypothesis of a particular variable.

4.9 Conclusion of Hypothesis Test

The study anticipated to explore the influence of adoption of financial technology on financial performance in Meru County. The objectives of the research were achieved by testing four null hypotheses. The findings of the hypothesis test are displayed in table 4.18.

Table 4.18

Hypotheses Conclusions

Null Hypotheses	**P – Value**	**Decision**
Ho_1: Adoption of fintech payment has no significant effect on financial performance of commercial banks in Meru County, Kenya.	0.000	H_0 rejected
Ho_2: Adoption of fintech lending has no significant effect on financial performance of commercial banks in Meru County, Kenya.	0.000	H_0 rejected
Ho_3: Adoption of fintech deposit mobilization has no significant effect on financial performance of commercial banks in Meru County, Kenya.	0.005	H_0 rejected
Ho_4: Adoption of fintech customer acquisition has no significant effect on financial performance of commercial banks in Meru County, Kenya	0.738	H_0 Failed to be rejected

With a p-value of 0.738, only one variable—customer acquisition—had its null hypotheses fail to be rejected. It follows that the performance of commercial banks in Meru County is significantly and favorably impacted by the payment, lending, and deposit mobilization capabilities of fintech. With a p-value of 0.738, greater than 0.05, fintech consumer mobilization had a positive but statistically insignificant impact on the performance of commercial banks in Meru County.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

In this section, the findings are summarized, the research questions are answered, conclusions are reached, suggestions for further study are made, and recommendations are made. The study's main goal was to determine how adoption of technology for finance (Fintech) affected the financial results of commercial banks in Kenya's Meru County. The study had four main goals: to determine the impact of adopting fintech payments on the financial performance of commercial banks; to investigate the influence of adopting fintech lending on the financial performance of commercial banks; to determine the impact of adopting fintech deposit mobilization on the financial performance of commercial banks; and to investigate the influence of adopting fintech customer acquisition on the financial performance of commercial banks.

The Diffusion of the Theory of Innovation, the Model of Technology Acceptance, and the Theory of Financial Intermediary served as the study's theoretical foundations. The sample for the study included 96 respondents from 32 commercial banks in Meru County. Two questionnaires were used to obtain the data, one of which the researcher used the drop and pick approach to disseminate to respondents. The statistical package for social sciences (SPSS) software, version 28.0, was used to analyze the data.

5.2. Summary of the Findings

According to the study's presented premise, the financial performance of commercial banks in Meru County is not considerably impacted by the implementation of financial technology. A thorough statistical analysis was performed on the relationships

between the variables, and based on the results, certain null hypotheses were accepted and others were rejected. An empirical report on each of the study's concepts was based on the data that was gathered and carefully evaluated.

5.2.1 Influence of fintech payment on financial performance.

The investigator scrutinized the impact of adopting fintech payment systems on the financial performance of commercial banks in Meru County. The results indicated that a significant majority of the respondents agreed vehemently with various statements regarding the impact of fintech payment adoption on the performance of commercial banks. The research concluded that there is a substantial and positive correlation between the adoption of fintech payment systems and the financial performance of commercial banks.

Regarding the first objective of the study, multiple regression analyses revealed that fintech payment had a considerable impact on the financial performance of commercial banks when all variables were taken into account. Consequently, the study refutes the null hypothesis (H01) stating that fintech payments do not significantly influence the performance of commercial banks in Meru County. In other words, the evidence suggests that the adoption of fintech payment systems does indeed significantly impact the financial performance of these institutions.

5.2.2 Influence of fintech lending on financial performance

The majority of respondents agreed with claims that the use of fintech lending has a big impact on how well commercial banks are doing financially. The study found a

strong association between the effects of fintech lending on financial success. The null hypothesis that fintech lending has no meaningful impact on financial performance was thus rejected. This led to the conclusion that there is a large linear relationship between fintech lending and commercial banks' financial performance. Moreover, the research unveiled that fintech lending has broadened the accessibility of credit for Small and Medium-sized Enterprises (SMEs). It has facilitated banks in reaching a more extensive customer base, including individuals or businesses that were previously underserved. This is a substantial revelation, as it not only underscores the financial implications of fintech lending but also its capacity to drive social and economic inclusivity.

5.2.3 Influence of fintech deposit mobilization on financial performance.

The third objective sought to ascertain the impact of fintech deposit mobilization adoption on the financial performance of commercial banks in Meru County, Kenya. A significant number of respondents strongly agreed that fintech deposit mobilization has positively influenced the overall profitability of commercial banks. Further analysis confirmed a positive correlation between fintech deposit mobilization and financial performance.

When all the independent variables were taken into account, it became evident that fintech deposit mobilization significantly affects the performance of commercial banks in Meru County. This led to the rejection of the null hypothesis (H02), which stated that the adoption of fintech deposit mobilization has no significant impact on the financial performance of commercial banks in Meru County, Kenya. This outcome

underlines the crucial role that fintech deposit mobilization plays in bolstering the financial health of banks, thereby contributing to their growth and stability.

5.2.4 Influence of fintech customer acquisition on financial performance.

The fourth research objective aimed to assess the impact of fintech customer acquisition adoption on the financial performance of commercial banks in Meru County, Kenya. Most respondents concurred with the assertions regarding fintech customer acquisition and its impact on commercial banks' performance. The study determined that there exists a significantly positive linear relationship between fintech customer acquisition and financial performance.

As a result, a commercial bank's financial performance can improve as a result of a unit change in the acquisition of fintech customers. However, it was decided that this modification was statistically negligible. Since the implementation of fintech customer acquisition does not significantly affect the financial results of commercial banks in Meru County, the researcher accepted the null hypothesis (H04) and came to that conclusion.

This finding contrasts with prevailing assertions that digital customer acquisition methods significantly enhance banks' financial performance. Digital channels for customer acquisition directly contribute to banks' financial outcomes by attracting a broader customer base. The present study's results, suggesting that while digital channels are effective for reaching more customers, they don't necessarily translate to immediate significant gains in financial performance, as customer acquisition costs can initially offset the potential revenue.

5.3. Conclusion

This study sought to comprehend the effects of financial technology adoption on the financial health of commercial banks in Meru County, Kenya. The findings imply that the economic success of commercial banks is influenced by all four study variables—fintech payment, lending, deposit recruitment, and client acquisition.

The effect of adoption of fintech payments on financial performance of commercial banks in Meru County, Kenya

These results show that the financial performance of commercial banks is greatly impacted by fintech settlements, lending, and deposit mobilization.

The effect of adoption of fintech customer acquisition on the financial performance of commercial banks in Meru County, Kenya

However, fintech customer acquisition did not yield a significant impact on financial performance. This means while the adoption of digital customer acquisition techniques does aid in expanding the customer base and in tailoring financial products and services more effectively, it may not immediately or significantly translate into enhanced financial performance.

This finding aligns with previous research that although digital customer acquisition broadens customer reach, the high costs associated with these methods can initially counterbalance the potential financial gains.

The effect of adoption of fintech lending on the financial performance of commercial banks in Meru County, Kenya

These results provide valuable insights into how banks can strategically prioritize their fintech investments. Banks could focus on fintech applications in payment processing, lending, and deposit mobilization as they appear to offer immediate and significant financial returns. Meanwhile, investments in customer acquisition technologies,

although they don't deliver immediate significant financial impact, remain crucial for their potential long-term benefits in customer relationship management and market expansion.

5.4. Recommendations

It is important to outline the need to adopt fintech payment to improve the efficiency of banking operations and to increase the accessibility and convenience of banking services for customers. Fintech lending need to be adopted by the commercial banks to increase the accessibility of credit for small and medium-sized enterprises (SMEs) and enable banks reach to a broader customer base, including underserved individuals or businesses.

The study further recommend adoption of fintech deposit mobilization to create new business opportunities for banks and increase the efficiency of banking operations. Similarly adoption of fintech customer acquisition enhance the convenience of banking services for customers and improve banks' ability to offer personalized financial products and services.

5.4.2 Further Study

The commercial banks in Meru County were the only ones included in this study. It is advised that more research be done that includes financial data from other Kenyan counties, as this could offer new perspectives.

Additionally, the study failed to recognize and look into the influence of moderating factors on financial performance. The researcher suggests that future studies examine how modifiers affect the implementation of technology for finance and financial performance.

REFERENCES

Africinvest (2016). *Africa and the global fintech revolution.* https://www.africinvest.com/document/africa-and-the-global-fintech-revolution.pdf

Alizadeh, A., Chehrehpak, M., Nasr, A. K., & Zamanifard, S. (2020). An empirical study on effective factors on adoption of cloud computing in electronic banking: a case study of Iran banking sector. *International Journal of Business Information Systems*, *33*(3), 408-428. https://www.inderscienceonline.com/doi/abs/10.1504/IJBIS.2020.105833

Al-Matari, E. M. (2022). Do corporate governance and top management team diversity have a financial impact among financial sector? A further analysis. *Cogent Business & Management*, *9*(1), 2141093. https://www.tandfonline.com/doi/full/10.1080/23311975.2022.2141093

Anifa, M., Ramakrishnan, S., Joghee, S., Kabiraj, S., & Bishnoi, M. M. (2022). Fintech Innovations in the Financial Service Industry. *Journal of Risk and Financial Management*, *15*(7), 287. https://www.mdpi.com/1911-8074/15/7/287

Apte, S., & Petrovsky, N. (2016). Will blockchain technology revolutionize excipient supply chain management? *Journal of Excipients and Food Chemicals*, *7*(3), 76-78. https://researchnow.flinders.edu.au/en/publications/will-blockchain-technology-revolutionize-excipient-supply-chain-m

Arner, D. W., Barberis, J., & Buckley, R. P. (2016). 150 years of Fintech: An evolutionary analysis. *Jassa*, (3), 22-29. https://search.informit.org/doi/abs/10.3316/ielapa.419780653701585

Aron, J. (2017). *Leapfrogging': A survey of the nature and economic implications of mobile money*. [Working Paper]. Centre for the Study of African Economies, University of Oxford

Ayadi, R. (2019). *Banking business models: Definition, analytical framework and financial stability assessment*. Palgrave Macmillan.

Bank for international settlement (BIS). (2017). 87th Annual Report. https://www.bis.org/publ/arpdf/ar2017e.pdf

Bátiz-Lazo, B., & Wood, D. (2002). An historical appraisal of information technology in commercial banking. *Electronic Markets*, *12*(3), 192-205. https://www.tandfonline.com/doi/abs/10.1080/101967802320245965

Berg, T., Fuster, A., & Puri, M. (2022). Fintech lending. *Annual Review of Financial Economics*, *14*, 187-207. https://www.annualreviews.org/doi/abs/10.1146/annurev-financial-101521-

112042

Blythin, J., & Van Cooten, J., (2017). *The Development of FinTech in Nairobi: Contributions to Financial Inclusion and Barriers to Growth*. [Master's Thesis, Lund University]. Sweden. https://lup.lub.lu.se/luur/download?func=downloadFile&recordOId=8917326&fileOId=8917329

Board, F. S. (2019). Evaluation of the effects of financial regulatory reforms on small and medium-sized enterprise (SME) financing. *FSB, Basel. https://www.fsb.org/wp-content/uploads/USCoC.pdf*

Bower, J. L., & Christensen, C. M. (1995). Disruptive technologies: catching the wave. https://www.academia.edu/download/59516552/disruptive_technologies20190604-89196-pd4gyy.pdf

Bryman, A. (2011). Research methods in the study of leadership. *The SAGE handbook of leadership*, 15-28. https://www.torrossa.com/en/resources/an/4913712#page=54

Central Bank of Kenya (2018). 2018 *Annual Report on the Supervision of Banks.Nairobi.* https://www.centralbank.go.ke/uploads/cbk_annual_reports/1992040379_2018%20Annual%20Report.pdf

Central Bank of Kenya. (2022). *2018 Annual Report on the supervision of Banks*. https://www.centralbank.go.ke/uploads/banking_sector_annual_reports/1620216033_2022%20Annual%20Report.pdf

Chishti, S., & Barberis, J. (2016). *The Fintech book: The financial technology handbook for investors, entrepreneurs and visionaries*. John Wiley & Sons.

Christensen, C. M., Raynor, M., & Mcdonald, R. (2015). The big idea: What is disruptive innovation. *Harvard Business Review*, *93*(12), 44-53. https://hbr.org/2015/12/what-is-disruptive-innovation

Communications Authority of Kenya (2018). *Report on the economy's performance for the 2017/2018 quarter three.* https://cak.go.ke/sites/default/files/annual-reports/FY%202017-2018%20CAK%20Annual%20Report.pdf

Cooper, D. R., Schindler, P. S., Cooper, D. R., & Schindler, P. S. (2003). Business research methods. http://sutlib2.sut.ac.th/sut_contents/H139963.pdf

Davis, F. D. (1989). Technology acceptance model: TAM. *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*, 205-219.

https://open.ncl.ac.uk/theories/1/technology-acceptance-model/

Deloitte (2016). *Global Human Capital Trends 2016 the new organization: different by design.* Deloitte University Press.

Desai, F. (2015). The fintech boom and bank innovation. *Forbes. com*, *14*. https://www.forbes.com/sites/falgunidesai/2015/12/14/the-fintech-revolution/

DeYoung, R. (2005). The performance of Internet-based business models: Evidence from the banking industry. *The Journal of Business*, *78*(3), 893-948. https://www.jstor.org/stable/10.1086/429648

Dhar, V., & Stein, R. M. (2017). FinTech platforms and strategy. *Communications of the ACM*, *60*(10), 32-35. https://dl.acm.org/doi/fullHtml/10.1145/3132726

Didenko, A. (2017). Regulating FinTech: Lessons from Africa. *San Diego Int'l LJ*, *19*, 311. https://heinonline.org/HOL/LandingPage?handle=hein.journals/sdintl19&div=16&id=&page=

Dorfleitner, G., Hornuf, L., Schmitt, M., Weber, M., Dorfleitner, G., Hornuf, L., & Weber, M. (2017). Definition of FinTech and description of the FinTech industry. *FinTech in Germany*, 5-10. https://link.springer.com/chapter/10.1007/978-3-319-54666-7_2

Foster, R. N. (1986). Working the S-curve: assessing technological threats. *Research Management*, *29*(4), 17-20. https://www.tandfonline.com/doi/abs/10.1080/00345334.1986.11756976

Gayatri M., Maria F., Xavier F. and Barreto R. (2019). Beyond the Hype of Fintechs and Their Potential to Expand Financial Access. Poor People's Consultation Group (CGAP).

Geisen, E., & Murphy, J. (2020). A compendium of web and mobile survey pretesting methods. *Advances in questionnaire design, development, evaluation and testing*, 287-314. https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119263685.ch12

Grant, C., & Osanloo, A. (2014). Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blueprint for your "house". *Administrative issues journal*, *4*(2), 4. https://dc.swosu.edu/aij/vol4/iss2/4

Hair, J., Money, A., Page, M. and Samouel, P. (2007) Research Methods for Business. Routledge, London. https://www.scirp.org/(S(351jmbntvnsjt1aadkozje))/reference/referencespapers.aspx?referenceid=1687234

Halalmeh, M. (2021). The impact of strategic agility on employees' performance in commercial banks in Jordan. *Management Science Letters*, *11*(5), 1521-1526. http://growingscience.com/beta/msl/4567-the-impact-of-strategic-agility-on-employees-performance-in-commercial-banks-in-jordan.html

Hornuf, L., Klus, M. F., Lohwasser, T. S., & Schwienbacher, A. (2021). How do banks interact with fintech startups? *Small Business Economics*, *57*, 1505-1526. https://link.springer.com/article/10.1007/s11187-020-00359-3

Huparikar, A., & Shinde, N. (2022). A Study on Influence of FinTech on Customer Satisfaction of Banks in Pune. *Journal of Positive School Psychology*, 989-995. https://www.journalppw.com/index.php/jpsp/article/view/5945

Kandpal, V., Chandra, D., Dalei, N. N., & Handoo, J. (2023). Expanding Financial Inclusion Through Fintech and E-governance. In *Financial Inclusion in Circular Economy: A Bumpy Road Towards Sustainable Development* (pp. 103-129). Cham: Springer International Publishing. https://link.springer.com/chapter/10.1007/978-3-031-22723-3_6

Karim, S., Naz, F., Naeem, M. A., & Vigne, S. A. (2022). Is FinTech providing effective solutions to Small and Medium Enterprises (SMEs) in ASEAN countries? *Economic Analysis and Policy*, *75*, 335-344. https://www.sciencedirect.com/science/article/abs/pii/S0313592622000868

Karthika, M., Neethu, K., & Lakshmi, P. (2022). Impact of Fintech on the Banking Sector. *Integrated Journal for Research in Arts and Humanities*, *2*(4), 109-112. https://ijrah.com/index.php/ijrah/article/view/66

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. https://www.strategicjournals.com/index.php/journal/article/viewFile/167/183

Kemboi, B. J. (2018). *Effect of financial technology on the financial performance of commercial banks in Kenya* (Master's Thesis, University of Nairobi).Kenya. http://erepository.uonbi.ac.ke/bitstream/handle/11295/105104/Kemboi%20_Effect%20of%20Financial%20Technology%20on%20the%20Financial%20Performance%20of%20Commercial%20Banks%20in%20Kenya.pdf?sequence=1&isAllowed=y

Kharawish, H. A. (2011). Determents of Commercial Banks Performance: Evidence from Jordan International Research Journal of Finance and Economics. *Zarqa University*, *5*(5), 19-45.

Khrawish, H. A., & Al-Sa'di, N. M. (2011). The impact of e-banking on bank profitability: Evidence from Jordan. *Middle Eastern Finance and Economics*, *13*(1), 142-158. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=6605dc78

78a7155b40b7f56425ca5631e3c275b9

Kinyanzui, K., Achoki, G., & Kiriri, P. (2018) Effect of Mobile Credit on Operational Efficiency in Commercial Banks in Kenya. *Open Journal of Business and Management*, **6**, 833-849. https://www.scirp.org/journal/paperinformation.aspx?paperid=87041

Kithinji, A. M. (2010). *Credit risk management and profitability of commercial banks in Kenya.* http://erepository.uonbi.ac.ke/bitstream/handle/11295/40437/aibuma2011-submission232.pdf

Koenig-Lewis, N., Marquet, M., Palmer, A., & Zhao, A. L. (2015). Enjoyment and social influence: predicting mobile payment adoption. *The Service Industries Journal*, *35*(10), 537-554. https://www.tandfonline.com/doi/full/10.1080/02642069.2015.1043278

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

KPMG(2017). KPMG Survey of Corporate Responsibility Reporting 2017. https://kpmg.com/xx/en/home/insights/2017/10/the-kpmg-survey-of-corporate-responsibility-reporting-2017.html

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business horizons*, *61*(1), 35-46. https://www.sciencedirect.com/science/article/abs/pii/S0007681317301246

Legowo, M. B., Subanidja, S., & Sorongan, F. A. (2021). Fintech and bank: Past, present, and future. *Jurnal Teknik Komputer AMIK BSI*, *7*(1), 94-99. https://dosen.perbanas.id/docs/wp-content/uploads/2020/04/8.-FinTech-and-Bank-Past-Present-and-Future.pdf

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management*, *40*(3), 191-204. https://www.sciencedirect.com/science/article/abs/pii/S0378720601001434

Leong, K., & Sung, A. (2022). Retraining and Reskilling Financial Participators in the Digital Age. In *Financial Data Analytics: Theory and Application* (pp. 3-21). Cham: Springer International Publishing.

Liébana-cabanillas, F., Leiva, F. M., & Fernández, J. S. (2015). Influence of age in the adoption of new mobile payment systems. *Revista Brasileira de Gestão de Negócios*, 17(58), 1390-1407. http://www.spell.org.br/documentos/ver/39203/influence-of-age-in-the-adoption-of--new-mobile---/i/en

Lyytinen, K., & Damsgaard, J. (2001). What's wrong with the diffusion of innovation theory? The case of a complex and networked technology. In *Diffusing Software Product and Process Innovations: IFIP TC8 WG8. 6 Fourth Working Conference on Diffusing Software Product and Process Innovations April 7–10, 2001, Banff, Canada 4* (pp. 173-190). Springer US. https://link.springer.com/chapter/10.1007/978-0-387-35404-0_11

Mohajan, H. K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spiru Haret University. Economic Series*, *17*(4), 59-82. https://www.ceeol.com/search/article-detail?id=673569

Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative & qualitative apporaches* (Vol. 2, No. 2). Nairobi: Acts press.

Mujuka, D. A. (2018). Factors Affecting Financial Performance of Commercial Banks in Kenya *International journal of academics & research.* 1(1), 20-37.https://d1wqtxts1xzle7.cloudfront.net/57245839/02IBM_Journals_Vol1_Issue1_02-libre.pdf?1535222957=&response-content-disposition=inline%3B+filename%3D

Muriithi, J. G. (2016). *Effect of financial risk on financial performance of commercial banks in Kenya* (Doctoral Thesis, Jomo Kenyatta University of Agriculture and Technology]. Kenya. http://ir.jkuat.ac.ke/bitstream/handle/123456789/2376/Jane%20Gathiga%20Muriithi%20Phd%20Finanace%20Thesis%202016.pdf?sequence=3&isAllowed=y

Murinde, V., Rizopoulos, E., & Zachariadis, M. (2022). The impact of the FinTech revolution on the future of banking: Opportunities and risks. *International Review of Financial Analysis*, *81*, 102103. https://www.sciencedirect.com/science/article/pii/S1057521922000734

Murthy, G., Vidal, M. F., Faz, X., & Barreto, R. (2019). Fintechs and financial inclusion. *Focus Note. Washington, DC: CGAP, May. https://www.rfilc.org/wp-content/uploads/2021/06/Fintech-and-Financial-Inclusio-A-Funders-Guide-to-Greater-Impact.pdf*

Muthiora, B. (2015). Enabling mobile money policies in Kenya: Fostering a digital financial revolution. *GSMA Mobile Money for the Unbanked*, 1-28. http://t1.daumcdn.net/brunch/service/user/P5W/file/mxAyGPsEeNdS1FAkt9vWxBJVHSg.pdf

Mutua, R. W. (2013). *Effects of mobile banking on the financial performance of commercial banks in Kenya* (Doctoral Thesis, University of Nairobi). Kenya. http://erepository.uonbi.ac.ke/handle/11295/64340

Mwiti, B. (2016). *The Effect of Alternative Banking Channels on Financial Performance of Commercial Banks in Kenya* (Master's Thesis, University of

Nairobi). Kenya. http://erepository.uonbi.ac.ke/bitstream/handle/11295/98409/Mwiti%20Benjamin_The%20Effect%20of%20Alternative%20Banking%20Channels%20on%20Financial%20Performance%20of%20Commercial%20Banks%20in%20Kenya.pdf?sequence=1&isAllowed=y

National Economic Council (NEC) (2017). *Defining Fintech and Creating Business Value Through Technology in a Fintech Manner. https://www.fintechfutures.com/tag/national-economic-council/*

Navaretti, G. B., Calzolari, G., & Pozzolo, A. F. (2017). Getting rid of NPLs in Europe. *Non-Performing Loans*, *9*. https://www.bruegel.org/sites/default/files/wp-content/uploads/2017/07/European_Economy_2017_1_v1.pdf#page=9

Navaretti, G. B., Calzolari, G., Mansilla-Fernandez, J. M., & Pozzolo, A. F. (2018). Fintech and banking. Friends or foes? *Friends or Foes*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3099337

Ndagijimana, A. N. (2017). *Effect of mobile lending on the financial performance of commercial banks in Kenya* (Doctoral dissertation, University of Nairobi). http://erepository.uonbi.ac.ke/handle/11295/102241

Ngumi, P. M. (2014). *Effect of bank innovations on financial performance of commercial banks in Kenya* (Doctoral Thesis, Jomo Kenyatta University of Agriculture and Technology). Kenya. http://ir.jkuat.ac.ke/bitstream/handle/123456789/1238/Ngumi%2c%20patrick%20Mwangi-PHD%20BA%20-3013.pdf?sequence=1&isAllowed=y

Nieto, M. J., & Santamaría, L. (2007). The importance of diverse collaborative networks for the novelty of product innovation. *Technovation*, *27*(6-7), 367-377. https://www.sciencedirect.com/science/article/abs/pii/S0166497206001064

Okello, I. (2016). *The effect of electronic retail payment services on financial performance of commercial banks in Kenya* (Master's Thesis, University of Nairobi). Kenya. http://erepository.uonbi.ac.ke/bitstream/handle/11295/99045/Okello_The%20Effect%20of%20Electronic%20Retail%20Payment%20Services%20on%20Financial%20Performance%20of%20Commercial%20Banks%20in%20Kenya.pdf?sequence=1&isAllowed=y

Ombaka, B. E. (2014). *Resources, external environment, innovation and performance of insurance companies in Kenya* (Doctoral Thesis, University of Nairobi).Kenya. http://erepository.uonbi.ac.ke/bitstream/handle/11295/76437/Ombaka%20Beatrice%20Elesani_Resources%2c%20external%20environment%2c%20innovation%20and%20performance%20of%20Insurance%20Companies%20in%2

0Kenya.pdf?sequence=3&isAllowed=y

Osborne, P. (2013). *Anywhere or not at all: Philosophy of contemporary art*. Verso Books.

Puschmann, T. (2017). Fintech. *Business & Information Systems Engineering*, *59*, 69-76. https://doi.org/10.1007/s12599-017-0464-6

PwC (2016): *Blurring Boundaries: How Fintech is Redefining the Financial Industry is a Global Report on Fintech*. https://www.pwc.com/sg/en/publications/how-fintech-is-shaping-financial-services.html#:~:text=The%20%22Blurred%20Lines%3A%20How%20FinTech,senior%20FS%20and%20FinTech%20executives.

Pwc global fintech report (2017). *The expanding impact of fintech on the financial services industry is changing the game.* https://www.pwc.com/gx/en/industries/financial-services/assets/pwc-global-

Ravitch, S. M., & Carl, N. M. (2016). *Qualitative research: bridging the conceptual, theoretical, and methodological*. Sage Publications.

Rillo, A. D., & Levine, J. J. (2018). Leveraging remittance technologies for financial inclusion in Asia. *LABOR MIGRATION IN ASIA*, 3. https://static1.squarespace.com/static/562fad4ee4b0aaa589cd9ce4/t/5b3ba4401ae6cfac1e18e387/1530635328378/Leveraging+Remittance+Technologies+for+Financial+Inclusion+in+Asia+-+ADB+Labor+Migration+in+Asia.pdf

Robinson, G. (2021). Capturing a moving target: interviewing fintech experts via LinkedIn. *Area*, *53*(4), 671-678. https://rgs-ibg.onlinelibrary.wiley.com/doi/full/10.1111/area.12726

Sabi, H. M. (2014). Research trends in the diffusion of internet banking in developing countries. *Journal of Internet Banking and Commerce*, *19*(2), 1. https://search.proquest.com/openview/e17f69db561538bf4c0f71cb73fce00a/1?pq-origsite=gscholar&cbl=39255

Safiullah, M., & Paramati, S. R. (2022). The impact of FinTech firms on bank financial stability. *Electronic Commerce Research*, 1-23. https://link.springer.com/article/10.1007/s10660-022-09595-z

Schueffel, P. (2016). Taming the beast: A scientific definition of fintech. *Journal of Innovation Management*, *4*(4), 32-54. https://journalsojs3.fe.up.pt/index.php/jim/article/view/2183-0606_004.004_0004

Schumpeter, J. A., & Nichol, A. J. (1934). Robinson's economics of imperfect competition. *Journal of political economy*, *42*(2), 249-259. https://doi.org/10.1086/254595

Sheikh, M. A., Abelsen, B., & Olsen, J. A. (2014). Role of respondents' education as a mediator and moderator in the association between childhood socio-economic status and later health and wellbeing. *BMC Public Health*, *14*, 1-15. https://link.springer.com/article/10.1186/1471-2458-14-1172

Storme, T., De Vos, J., De Paepe, L., & Witlox, F. (2020). Limitations to the car-substitution effect of MaaS. Findings from a Belgian pilot study. *Transportation Research Part A: Policy and Practice*, *131*, 196-205. https://www.sciencedirect.com/science/article/abs/pii/S0965856418312564

Sultan, N. A. (2011). Reaching for the "cloud": How SMEs can manage. *International journal of information management*, *31*(3), 272-278. https://www.sciencedirect.com/science/article/abs/pii/S0268401210001143

Tripathy, J. P. (2013). Secondary data analysis: Ethical issues and challenges. *Iranian journal of public health*, *42*(12), 1478. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441947/

Tseng, C. H., & Sim, D. (2021). Sample size planning for pilot studies. *arXiv preprint arXiv:2105.05483*. https://arxiv.org/abs/2105.05483

Vives, X. (2017). The impact of FinTech on banking. *European Economy*, (2), 97-105. https://blog.iese.edu/xvives/files/2018/02/EE_2.2017.pdf#page=99

Vlasceanu, M., & Coman, A. (2018). Mnemonic accessibility affects statement believability: The effect of listening to others selectively practicing beliefs. *Cognition*, *180*, 238-245. https://www.sciencedirect.com/science/article/pii/S001002771830204X

Wawira, N. J. (2013). Contributions of agency banking on financial performance of commercial banks in Kenya. [Master's Thesis, Kenyatta University]. Kenya. https://ir-library.ku.ac.ke/bitstream/handle/123456789/10075/Contributions%20of%20agency%20banking%20.pdf?sequence=1

Wen, H., Fang, J., & Gao, H. (2023). How FinTech improves financial reporting quality? Evidence from earnings management. *Economic Modelling*, *126*, 106435. https://doi.org/10.1016/j.econmod.2023.106435

Were, M., Kamau, A., Sichei, M., & Kiptui, M. (2013). A theoretical framework for Kenya's central bank macro econometric model. *Africa growth initiative working paper*. https://www.brookings.edu/wp-content/uploads/2016/06/05_kenya_central-_bank_macroeconometic_model_kamau-2.pdf

Wilter, M. M., Kambura, M. S., & Mugoche, M. A. (2023). Effect of adoption of fintech payments on financial performance of commercial banks in Meru County, Kenya. *International Research Journal of Economics and*

Finance, *5*(3). 11-20. https://irjp.org/index.php/IRJEF/article/view/140/150

Wimmer, R. D., & Dominick, J. R. (2006). Mass media research: An introduction Belmont. *CA: Thomson Wadsworth*, 231-254. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441947/

Wu, Y. H., Bai, L., & Chen, X. (2023). How does the development of fintech affect financial efficiency? Evidence from China. *Economic Research-Ekonomska Istraživanja*, *36*(2), 2106278. https://www.tandfonline.com/

Yue, P., Korkmaz, A. G., Yin, Z., & Zhou, H. (2022). The rise of digital finance: Financial inclusion or debt trap? *Finance Research Letters*, *47*, 102604. https://www.sciencedirect.com/science/article/pii/S1544612321005432

Zhang, G., Ran, Q., Liao, Q., Yu, Y., Zhang, X., Chen, K., & Lai, Q. (2016). Key seismic exploration technology for the Longwangmiao Fm gas reservoir in Gaoshiti–Moxi area, Sichuan Basin. *Natural Gas Industry B*, *3*(4), 323-329. https://www.sciencedirect.com/science/article/pii/S2352854016300845

Zhu, Q., Krikke, H., & Caniëls, M. C. (2021). The effects of different supply chain integration strategies on disruption recovery: A system dynamics study on the cheese industry. *Logistics*, *5*(2), 19. https://www.mdpi.com/2305-6290/5/2/19

APPENDICES

APPENDIX I: COMMERCIAL BANKS IN MERU COUNTY, KENYA

Target Population Table 3.1

Listed Commercial Banks Operating in Meru	Credit Managers	Operations Manger	Branch Manager	Tier
Absa	1	1	2	1
Cooperative Bank	3	3	4	1
KCB Bank	3	3	3	1
Equity Group Holdings	5	5	5	1
Standard Chartered Bank	1	1	1	1
I&M Bank	1	1	1	2
National Bank of Kenya	2	2	1	2
NCBA PLC Group	1	1	1	2
Stanbic Holdings PLC	1	1	1	2
Bank of Africa	1	1	1	4
Credit Bank	1	1	1	3
Bank of Africa	1	1	1	3
Credit Bank	1	1	1	3
Family Bank Ltd	3	3	3	3
Consolidated bank of Kenya	2	2	2	3
Fina Bank Ltd	1	1	1	3
Sidian bank Ltd				
Post Bank Ltd	2	2	2	3
HF Group	1	1	1	3
Total	32	32	32	96

APPENDIX II: QUESTIONNAIRE

Dear respondent,

We kindly ask for your assistance in completing the following inquiry for a scholarly research project. Please be assured that your responses will be strictly confidential. For each question, select only one option that best represents your perspective. Your insightful input is instrumental to this study.

SECTION A: DEMOGRAPHIC CHARACTERISTICS

1. Bank Name ……
2. Gender

   Male [ ] Female [ ]

3. What is your management level in the bank?

   Senior Level Management ☐
   Middle Level Management ☐
   Lower-Level Management ☐

4. level of Education

   PhD [ ] Masters [ ]
   Bachelors [ ] Diploma [ ]
   Others [ ]

5. For how long have you been working in the banking industry?

   Below 5 yrs. [ ]
   6-10yrs [ ]
   11-15 yrs. [ ]
   16-20 yrs. [ ]
   Above 21 yrs. [ ]

6. Do your institutions use Pesalink?

   Yes [ ] No [ ]

SECTION B: FINANCIAL TECHNOLOGY ADOPTION

FINTECH PAYMENTS

Please rate your level of agreement with the following statements, using a scale of 1 to 5, where: 1 - Strongly Disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 - Strongly Agree

S/No	STATEMENTS	5	4	3	2	1
1	Fintech payments have improved the efficiency of banking operations.					
2	Fintech payments have increased the speed of financial transactions					
3	Fintech payment platforms have increased the accessibility and convenience of banking services for customers.					
4	Fintech payment solutions have enabled banks to reach a broader customer base.					
5	Fintech payment systems have improved the competitiveness of banks in the market.					
6	Fintech payments have improved customer satisfaction with banking services					

FINTECH LENDING

Please rate your level of agreement with the following statements, using a scale of 1 to 5, where: 1 - Strongly Disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 - Strongly Agree

S/No	STATEMENTS	5	4	3	2	1
1	Fintech lending has positively impacted the overall profitability of traditional banks					
2	Fintech lending has increased the accessibility of credit for small and medium-sized enterprises (SMEs).					

3	Fintech lending has reduced the reliance on traditional collateral requirements for loan approvals.					
4	Fintech lending has increased competition among banks, leading to improved services and products for customers.					
5	Fintech lending has enabled banks to reach a broader customer base, including underserved individuals or businesses					
6	Fintech lending has reduced the processing time for loan applications, making it more efficient for customers.					

FINTECH DEPOSIT MOBILIZATION

Please rate your level of agreement with the following statements, using a scale of 1 to 5, where: 1 - Strongly Disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 - Strongly Agree

S/No	**STATEMENTS**	**5**	**4**	**3**	**2**	**1**
1	Fintech deposit mobilization has improved the overall profitability of banks**.**					
2	Fintech deposit mobilization has created new business opportunities for banks.					
3	Fintech deposit mobilization has increased the efficiency of banking operations.					
4	Fintech deposit mobilization has enhanced the competitiveness of banks in the market.					
5	Fintech deposit mobilization has improved customer satisfaction with banking services.					
6	Fintech deposit mobilization has reduced the operational costs of banks.					

FINTECH CUSTOMER ACQUISITION

Please rate your level of agreement with the following statements, using a scale of 1 to 5, where: 1 - Strongly Disagree; 2 – Disagree; 3 – Neutral; 4 – Agree; 5 - Strongly Agree

S/No	STATEMENTS	5	4	3	2	1
1	Fintech customer acquisition has increased the efficiency of banking processes					
2	Fintech customer acquisition has enhanced the convenience of banking services for customers.					
3	Fintech customer acquisition has improved the accuracy and security of financial transactions.					
4	Fintech customer acquisition has expanded the reach of banking services to underserved populations.					
5	Fintech customer acquisition has improved banks' ability to offer personalized financial products and services.					
6	Fintech customer acquisition has strengthened banks' relationships with existing customers.					

SECTION C: PERFORMANCE OF COMMERCIAL BANKS

Please use a checkmark (✔) to denote your level of agreement with the subsequent statements regarding your bank's performance as it pertains to their digital banking services and products.

(1= Not at all, 2= little extent, 3=Moderate extent, 4=Great extent, 5=Very great extent)

	Performance of banks	1	2	3	4	5
	The number of registered users is growing at a rate higher than rate at which costs are rising					
	Digital banking alerts have helped to minimize frauds					
	The banks income has increased due to mobile banking loans					
	The benefits of digital mobile banking in my bank far outweigh the costs					
	Overall Profit of the bank has increased due to digital					

	banking transactions					
	Digital banking service helped the bank to record a good performance					
	Performance of banks	Below 1%	1-10%	11-30%	31-50%	Above 50%
	What is the volume of profits attributed to digital banking technology					

28. Comment on the effect Digital banking on the financial performance of your Bank

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