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Determinants of FinTech adoption and the moderating effect of preparedness on the relationship between determinants and FinTech adoption by commercial banks in Kenya.

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DETERMINANTS OF FINTECH ADOPTION AND THE MODERATING EFFECT OF PREPAREDNESS ON THE RELATIONSHIP BETWEEN DETERMINANTS AND FINTECH ADOPTION BY COMMERCIAL BANKS IN KENYA

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MAY, 2024

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the document contains no material previously published or written by another person except where due reference is made in the thesis itself.

Steven Omamo

31st May 2024

Approval

This dissertation of Steven Omamo was reviewed and approved by the following:

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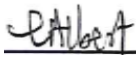

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DEDICATION

I dedicate this work to my family, especially my wife, Jennifer Nambwere, for her love and support.

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ABSTRACT

FinTech has been described as the future of banking due to its disruptive effect. However, the adoption of FinTech by banks in payment, lending and personal banking is low. The purpose of this research was to examine the determinants of FinTech adoption by commercial banks in Kenya. The specific objectives were to examine the effects of cost-related factors, customer-related factors and technology-related factors on Fintech adoption by Kenyan commercial banks. Additionally, this study sought to examine the moderating effect of banks' preparedness on the relationship between the aforementioned factors and FinTech adoption. The theories that anchored this research were the diffusion of innovation theory and the technology acceptance model. Positivism philosophy guided the methodology for this study. The cross-sectional descriptive research design was adopted – this study was observational and collected data from participants at a single point in time. Respondents in this study were recruited using judgmental sampling. The sample needed for this research was respondents from the 34 commercial banks in Kenya. Data was gathered using structured questionnaires, which was distributed to multiple respondents from each bank including marketing, operations, information technology, human resources and finance managers working for banks based in Nairobi County using a drop and pick method. Validity of the study was improved using a pilot study to assess the understandability of the questionnaire and an expert review. Data analysis was performed using the Statistical Package for Social Science (SPSS) version 26. A multiple linear regression was used to determine if cost-related, customer-related, and technology-related factors predicted FinTech adoption by banks. For the first objective, the results also showed a significant negative effect of cost-related factors on the adoption of FinTech by commercial banks in Kenya. Regarding the second objective, the result from this study showed insignificant positive effect of customer-related factors on the adoption of FinTech by commercial banks in Kenya. For the third objective, the results showed a significant positive effect of technology-related factors on the adoption of Fintech by commercial banks in Kenya. Regarding the fourth objective, the findings also indicated that preparedness for Fintech does not have a moderating effect on the relationship between determinants of Fintech adoption since no significant interaction effects were observed. Overall, in the final model for predicting FinTech adoption by commercial banks in Kenya, only cost-related factors and technology-related factors were included with negative and positive effects respectively. The implication of these findings is that reducing cost-related factors can improve the adoption of FinTech by commercial banks in Kenya. These results also suggest that improving technology-related factors can improve the adoption of FinTech by commercial banks in Kenya. In this respect, FinTech adoption can be improved by reducing reliance on legacy systems, making FinTech compatible with banking systems and processes, and developing secure FinTech. Additionally, the findings from this study suggest that enhancing preparedness can improve the adoption of FinTech by commercial banks in Kenya. Preparedness can be enhanced by adopting digital innovation strategies, improving technical capabilities and human resource capabilities, being agile and adaptable, and partnering with FinTech companies

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ABBREVIATIONS AND ACRONYMS

AI	Artificial Intelligence
AML	Anti-money Laundering
ATM	Automated Teller Machine
CAGR	Compound Annual Growth Rate
CBK	Central Bank of Kenya
DOI	Diffusion of Innovation
EAC	East African Community
FinTech	Financial Technology
IT	Information Technology
KBA	Kenya Bankers Association
KYC	Know Your Customer
PEU	Perceived Ease of Use
PU	Perceived Usefulness
SEM	Structural Equation Modelling
SMEs	Small and Medium-sized Enterprises
TAM	Technology Acceptance Model
TOE	Technological, Organizational and Environmental
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
TRI	Technology Readiness Index
UTAUT	Unified Theory of Acceptance and Use of Technology

DEFINITION OF KEY TERMS

Cost-related Factors

These are factors related to the costs associated with acquiring and maintaining FinTech innovations by commercial banks and the expected improvements in financial performance after adopting FinTech (Baumers et al., 2017; Xie et al., 2021).

Customer-related Factors

These are customer characteristics that can potentially drive banks to adopt FinTechs, such as their demographics and technological literacy (Pennington, 2016).

FinTech Adoption

FinTech adoption refers to the use of new technologies, such as big data, cloud computing, block chain and artificial intelligence to deliver financial services. FinTech can be applied in various areas of banking services, such as payment processing, lending and personal banking (Ozatac & Gokmenoglu, 2019).

FinTech Preparedness

Preparedness in this study is defined as the readiness of banks to integrate FinTech into their operations. Preparedness is conceptualized in terms of technical capabilities and human resources capabilities for implementing FinTech. Preparedness is also described in terms of how a bank is adaptable and agile as well as partnering with FinTech companies (Schulte & Liu, 2017).

Technology-related Factors

These are factors associated with the technical characteristics of FinTech innovations, such as their security and compatibility with legacy systems (Hussain et al., 2021)

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

A notable development in the banking sector is the emergence of financial technologies (FinTechs), which automates the delivery of existing and new banking products and services to customers (Wewege & Thomsett, 2019). The adoption of FinTech in the banking sector has been mainly characterized by offering their customers easy-to-use and convenient digital banking solutions as a strategy to broaden their client base (Phadke, 2020). FinTech enhances the cost-effectiveness of banking by automating operations. FinTech also enhancing compliance and transparency in the banking sector, which can help mitigate operational fraud and risk. FinTech can help banks comply with regulatory requirements like anti-money laundering (AML) and know your customer (KYC) norms (Basdekis et al., 2022). Traditional banking relies on an offline system wherein transactions are conducted in physical locations like bank branches and automated teller machines; nevertheless, digitization renders the brick-and-mortar approach to banking more redundant. FinTech is a key driver of digital banking growth globally. FinTech companies use innovative products and models to offer better financial services with faster delivery times and affordable prices compared to legacy banks (Basdekis et al., 2022). This potentially explains the higher growth of FinTech assets globally by 105% during 2013-2022 compared to the growth of traditional bank assets by 75% (Julija, 2023).

While determinants of FinTech adoption have been examined extensively in research, there is seems to be scare studies on the focusing on the banking sector, especially in Kenya. Additionally, there is scant research examining cost-related, customer-related and technology-related factors as determinants and preparedness as moderators.

1.1.1 Fintech Adoption by Banks

FinTech adoption has been conceptualized in various ways. Kurniasari et al. (2023) defined FinTech adoption as the preference and interest in using digital payment platforms for business transaction purposes. According to Matsepe et al. (2022), FinTech adoption is characterized by implementing technologies that power the fourth industrial revolution - the next era in the

digitization of manufacturing – characterized disruptive trends such as advanced robotics and data analytics. Coffie et al. (2021) defined FinTech adoption in terms of the diffusion of FinTech in payment services, such as online payments, card payments, and mobile money. Rahman et al. (2021) defined Fintech adoption as the adoption of artificial intelligence in the provision of banking services. Other conceptualizations of FinTech include implementing blockchain technologies (Deghani et al., 2022; Polas et al., 2022) and mobile peer-to-peer platforms (Dawood et al., 2022). For this study, FinTech adoption will be defined as the use of new and innovative technologies, such as big data, cloud computing, block chain and artificial intelligence to deliver financial services (Clohessy & Acton, 2019).

In addition, FinTech adoption has been operationalized using different indicators in existing studies. For instance, Matsepe et al. (2022) measured FinTech adoption in terms of using data analytics and advanced robotics in service delivery. The indicators of FinTech adoption used by Coffie et al. (2021) included the use of mobile money, card payments and online payments by banks. Polas et al. (2022) measured FinTech adoption by examining the extent to which banks are using blockchain technologies in their payment services. In this study, FinTech adoption was measured in terms of the use of innovative technologies, notably big data, cloud computing, blockchain and artificial intelligence in the delivery of banking services, including payment processing, lending and personal banking (Ozatac & Gokmenoglu, 2019). In addition, it is worth noting that this study focused on the supply side of FinTech adoption (by commercial banks) rather than the demand side by customers of banks (Clohessy & Acton, 2019). These measures have been adopted in prior studies (Das & Das, 2020; Frost, 2020).

1.1.2 Determinants of FinTech Adoption by Banks

Numerous determinants of FinTech Adoption have been examined in the literature across various industries. Most studies on FinTech adoption have focused on the demand-side, exploring the adoption of FinTech by consumers (Yadav et al., 2020). These determinants of FinTech Adoption by consumers include perceived usefulness, user attitudes, perceived behavioral control, customer knowledge, social influence, confidence to use FinTech, trust in FinTech, financial literacy, socio-demographic attributes include age and fender, and digital literacy (Firmansyah et al., 2023; Nugraha et al., 2022). For organizations, numerous factors influence FinTech adoption including costs, concerns surrounding the privacy and security of this technology, the expected benefits to

customers and the firm's bottom line, perceived value of FinTech to the firm, technology-preparedness, and relative advantage (Iwashita, 2022; Xu, 2020; Yadav et al., 2020). Other determinants examined in the literature include the complexity of the technology, support from the management, training requirements, regulatory and legal environment, technological infrastructure, organizational structure and size, organizational resources, customer trust in FinTech, affordability of FinTech and previous experience with FinTech (Riikkinen & Pihlajamaa, 2022).

The determinants that were the focus of this study included cost-related, customer-related and technology-related factors and the moderating effect of banks' preparedness for FinTech. The reason for selecting these variables is because they have been reported to be significant drivers of the adoption of other technological innovations (Yadav et al., 2020). The factors were grouped because the indicators used in each factor are related to each other. While FinTech adoption is extensively researched, there is lack of agreement in the literature surrounding the aforementioned categories of determinants. Cost-related factors are variables related to the costs associated with acquiring and maintaining FinTech innovations by commercial banks and the expected improvements in financial performance after adopting FinTech (Baumers et al., 2017; Xie et al., 2021). Cost is widely regarded as a prohibitive factor when it comes to the adoption of technology by organizations (Iwashita, 2022; Xu, 2020; Yadav et al., 2020). The initial investment in acquiring, installing and configuring new systems, such as training, testing, integration, customization, subscriptions, and licenses, can be significant for organizations (Yadav et al., 2020). The cost of regulatory compliance is also an issue that potentially hinders adoption (Singh et al., 2022). However, new technologies can lead to productivity and efficiency improvements, leading to overall cost-cutting in the long-term (Singh et al., 2020). In FinTech, divergent views exist regarding the association between costs and their adoption. Some studies show the positive effect of cost savings of FinTech on its adoption in the banking sector (Gezu & Sintayehu, 2017; Urumsah et al., 2022; Singh et al., 2020) while others show a negative influence of cost on FinTech its adoption in agricultural and manufacturing sectors considering the costs associated with its implementation and maintenance (Baumers et al., 2017). For this study, the indicators that were used to measure cost-related factors included direct financial costs, switching costs from legacy systems, learning curve costs, and expected improvement in bank performance (Yadav et al., 2020).

Customer-related factors are customer characteristics that can potentially drive banks to adopt FinTechs, such as their demographics and technological literacy (Pennington, 2016). Customers can also play a role in driving organizations to adopt innovative solutions (Frost, 2020). In the era of the Internet, customers are demanding easy-to-use and convenient banking solutions (Das & Das, 2020). As a result, banks are motivated to adopt Fintech solutions. At the same time, the adoption of FinTech by customers varies depending on their demographics with younger customers being more trusting on innovative banking solutions compared to the older customers. Technological literacy is also a factor that influences the extent to which customers will embrace FinTech solutions (Saleem, 2021). In the existing literature, conflicting evidence in the literature can be found for target customer segmentation and its relationship with FinTech adoption. Some scholars report that the target customer segments of a bank determine its propensity to adopt Fintech in the delivery of financial services; therefore, banks will adopt FinTech if it helps to serve their customers better and if they customers trust and use this technology (Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Solarz & Swacha-Lech, 2021). Conversely, other scholars have not reported significant differences in FinTech adoption across various consumer demographic groups (Singh et al., 2020). The indicators used to measure customer-related factors in this study were technological literacy of customers, awareness of Fintech amongst customers, customer demographics (Das & Das, 2020; Frost, 2020).

Technology-related factors associated with the characteristics of FinTechs themselves are also a key factor to consider when implementing them. As Juita et al. (2022) observes, banks have legacy systems and implementing FinTech might pose the need to make significant changes in their operations. The issue of compatibility of these FinTechs, such as cryptocurrency, with banking processes is also a key concern despite the fact that they can make banking transactions more secure (Iwashita, 2022). Some studies have identified security and privacy concerns as a significant barrier to the adoption of FinTech by organizations and consumers alike (Gezu & Sintayehu, 2017; Iwashita, 2022; Juita et al., 2022; Nangin et al., 2020; Saleem, 2021). However, for other scholars, privacy and security issues in FinTech are considered acceptable risks that organizations have to deal with and implement mitigation measures (Hussain et al., 2021; Le, 2021). Therefore, there is lack of clarity regarding how these factors influence the adoption of FinTech in the banking sectors due to contradictory evidence. For this study, the indicators for

technology-related factors were reliance on legacy systems, compatibility of Fintech, security of FinTech.

Preparedness constitutes another important variable that can potentially influence FinTech adoption. Nevertheless, there are conflicting views in the literature regarding the extent to which banks are prepared to adopt FinTech. There is evidence that some banks are bolstering their technical and human resource capabilities and partnering with FinTech companies in order to adapt to the new reality of FinTechs (Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021). An estimated 65% of banks have partnered with at least one FinTech company and 35% of banks have made investments in FinTech startups (McKinsey, 2018). In this study, preparedness was studied as a moderating variable due to its influence on the aforementioned determinants. Organizations that are FinTech-ready are expected to envision the value offered by this technology, ready to absorb costs, have put measures to mitigate any privacy and safety issues, and implement steps to encourage their customers use and trust this technology (Bothma et al., 2023). Preparedness in this study will be measured using having igital innovation strategies, technical capabilities, human resource capabilities, being adaptable and agile, and partnering with Fintech companies (Yadav et al., 2020).

1.1.3 Commercial Banks in Kenya

The banking industry in Kenya is regulated by the Central Bank of Kenya (CBK). Banks in Kenya are diverse in terms of ownership (local/foreign), size, customer base (investment, retail and commercial), number of depositors, and assets (tiers) (Kusimba, 2021). Currently, there are 38 banks operating in Kenya, which can be grouped into three tiers. Tier 1 banks have assets valued at hundreds of billions of KES coupled with millions of depositors. The assets of Tier 1 banks are significant such that any failures in these banks can lead to adverse economic implications for the country. Moreover, Tier 1 banks control nearly half of the market (Muriithi & Louw, 2017; Statista, 2022a). The leading Tier 1 banks include Equity Bank, Kenya Commercial Bank (KCB), the Cooperative Bank of Kenya, NCBA, Standard Chartered Bank of Kenya, I&M Bank, Absa Bank (Previously Barclays), Stanbic Bank Kenya and Diamond Trust Bank. Tier 2 banks consist of medium-sized lenders who control about 41.7% of the market (Statista, 2022b). Some of the Tier 2 banks include Family Bank, Housing Finance, Prime Bank, National Bank, and Ecobank, just to name a few. Tier 3 banks comprise of small banks controlling about 8.4% of the market. Some of

the Tier 3 banks in the country include Guardian Bank, Paramount Universal, Credit Bank, ABC Bank, Sidian Bank, and Fidelity Bank among others (Kusimba, 2021).

FinTech innovations have been instrumental in increasing financial inclusion in Kenya (Opati & Gachukia, 2019). Furthermore, the advent of mobile money and its subsequent integration into formal banking systems have been instrumental in increasing access to digital financial services (Muriithi & Louw, 2017). However, such developments are threatening the future of the banking sector in the country by taking out their market share. For instance, mobile payments constitute a significant proportion of transaction processing and money transfers. Alternative app-based means of sending and receiving money from abroad, such as WorldRemit, Xoom, and Wise, are emerging and are particularly popular amongst the young demographic (Opati & Gachukia, 2019). Moreover, app-based lending has increased considerably in recent years, which is reducing reliance on micro-loans from banks (Mwenda, 2022). Some mobile money platforms, such as M-Shwari, are offering users an opportunity to save their money (Kusimba, 2021). In 2021, customer deposits to M-Shwari totaled KES 571 billion, up from KES 320 billion the previous year (Alushula, 2021). The deposits made to M-Shwari surpassed the deposits made to Equity Bank (KES 569 billion) and KCB (KES 330 billion) (Alushula, 2021). An inference from this scenario is that FinTech is revolutionizing financial services and is rivalling traditional banks. As a result, traditional banks have limited options but to integrate FinTech into their business in order to remain competitive. Therefore, this research sought to examine the determinants of FinTech adoption by commercial banks in Kenya, especially cost-related, customer-related and technology-related factors as well as the moderating effect of preparedness on these determinants.

1.2 Statement of the Problem

While FinTech is clearly disrupting the banking sector, its adoption by Kenyan banks is low (Kenya Institute for Public Policy Research and Analysis [KIPPRA]. 2020). The Fintech revolution is adversely affecting banks in terms of profitability and the loss of customers. Worldwide, FinTech providers, such as neobanks, are undercutting banks in the market (Wewege & Thomsett, 2019). Similar to global trends, banks in Kenya are experiencing dwindling earnings partly due to the disruptive effect of FinTech (Kenya Bankers Association [KBA], 2022). Banks are losing revenues from card payment transactions digital wallets, such as PesaPal and MPESA, which are perceived as cheaper alternatives and more convenient by customers compared to using

banks for payment transactions (Wakarima, 2022). Additionally, licensed neobanks (mobile-only and digital banks) in Kenya, like Branch MFB and Fingo Africa, are gaining inroads into the market for traditional banking, especially amongst tech savvy consumers (KBA, 2021). This trend poses a significant challenge to banks that have made enormous investments in legacy systems and brick-and-mortar facilities. There is widespread agreement that banks risk losing a significant proportion of their market share to FinTech providers, like telcos, if they do not integrate cutting edge financial technologies into their business models (Kusimba, 2021; Misati et al., 2020; Wewege & Thomsett, 2019). Preparedness constitutes one of the strategies that banks can use to mitigate the disruptive effect of FinTech (McKinsey, 2018). Some approaches adopted by banks include bolstering their technical and human resource capabilities and partnering with FinTech companies in order to adapt to the new reality of FinTechs (Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021). Preparedness is a potentially moderating variable because it has no cause-and-effect association with the determinants of FinTech adoption. For instance, preparedness cannot affect the cost-related, technology-related and customer-related factors of FinTech adoption. As a result, there is a need to examine the factors that influence the adoption of FinTechs by banks in order to better understand why banks are hesitant to embrace FinTech despite its disruptive effect.

A study by Bian et al. (2023) examined the driving factors of FinTech adoption by commercial banks in China. They employed textual analysis and machine learning to examine the number of mentions of FinTech related terminologies in the annual reports of these banks as well as the applications of FinTech by the same banks. The findings of this study showed that the adoption of FinTech was primarily driven by the expected positive effect on the financial performance of banks, reduction of risk and the increase in market share of these banks. This study showed that the adoption of FinTech by Chinese banks is primarily driven by the need to improve business performance.

In another study, Wonglimpiyarat (2017) explored FinTech as well as its dynamic transitions in the Thai banking industry. Specifically, the author examined the systemic innovation natire associated with FinTech innovation. Using a qualitative case study approach, Wonglimpiyarat (2017) demonstrated that the adoption of FinTech innovations by Thai banks is hindered by the complex

nature of the technology and the limited capabilities of Thai banks in managing FinTech innovations.

Zhao et al. (2022) provided evidence of how the characteristics of Chinese banks influenced their propensity to adopt FinTech. Using FinTech development index and Zhao et al. (2022) showed that state-owned commercial banks in China had lower FinTech capabilities as indicated by patent claims and applications, which in turn lowered their inclination to adopt this technology. The size of the bank was also a factor, with smaller banks having a higher propensity to adopt FinTech by collaborating with external FinTech companies while larger banks relied more on legacy systems. Zhao et al. (2022) stressed the importance of banks enhancing the FinTech capabilities.

Coetzee (2019) conducted a qualitative study to examine the factors that drive the adoption of FinTechs by commercial banks in South Africa. Coetzee (2019) adopted a non-positivist, qualitative approach using the case study design. Their findings showed that commercial banks in South Africa have adopted a measured risk-averse approach when it comes to implementing FinTech due to the reliance on legacy systems and a traditionally conservative banking industry.

In Nigeria, Kyari and Akinwale (2020) examined the degree of adoption of FinTechs by commercial banks in Nigeria. Using cross-sectional descriptive research, the authors found that the level of FinTech adoption by Nigerian banks is moderate. In this study, the findings revealed a number of factors positively associated with the adoption of FinTech, which included having in-house Research and Development activities, acquisition of hardware technology, acquisition of software technology, and collaborating with external companies involved in the development of FinTech innovations. The results also suggested that expected positive impact of FinTech on bank's financial performance was a driving factor for adoption together with a conducive regulatory environment.

While studies on the factors affecting the adoption of FinTech by commercial banks are extensive, they differ in methodologies, concepts and contexts. These factors have not been studied extensively in the context of developing countries, such as Kenya, where FinTech adoption by banks is still low. In addition, FinTech adoption has been conceptualized differently in the existing literature, especially in terms of using digital payment platforms for business transaction processes, adopting technologies that power the fourth industrial revolution, and adoption of artificial intelligence. To address this conceptual gap, FinTech adoption was defined as the adoption will be

defined as the use of new technologies, such as big data, cloud computing, block chain and artificial intelligence to deliver financial services (Ozatac & Gokmenoglu, 2019). Different methodologies have also been used when studying FinTech adoption, including qualitative in-depth interviews, mixed methods, and meta-analyses, which have yielded different findings. This study adopted the cross-section descriptive design to study FinTech adoption. This research sought to address these gaps by attempting to examine the influence of cost-related, customer-related and technology-related factors on the adoption of FinTechs by commercial banks in Kenya as well as the moderating effect of preparedness on these factors.

1.3 General objective of the Study

The general objective of this research was to examine the factors that influence the adoption of FinTech by banks in Kenya and the moderating effect of preparedness on the factors that influence adoption.

1.3.1 Specific Objectives of the Study

The specific objectives of this study are:

1) To determine the effect of cost-related factors on the adoption of FinTech by commercial banks in Kenya.
2) To determine the effect of customer-related factors on the adoption of FinTech by commercial banks in Kenya
3) To determine the effect of technology-related factors on the adoption of FinTech by commercial banks in Kenya
4) To determine the moderating effect of banks' preparedness on the relationships between cost-related, customer-related and technology-related factors and the adoption of FinTech by commercial banks in Kenya.

1.4 Research Questions

The research questions for this study are:

1) What is the effect of cost-related factors on the adoption of FinTech by commercial banks in Kenya?

2) What is the effect of target customer-related factors on the adoption of FinTech by commercial banks in Kenya?
3) What is the effect of technology-related factors on the adoption of Fintech by commercial banks in Kenya?
4) Does preparedness moderate the relationship between the determinants and the adoption of FinTech by commercial banks in Kenya?

1.5 Significance of the Study

1.5.1 Policymakers and Regulators

The findings from this research revealed the factors enabling and hindering the adoption of FinTech by leading banks in Kenya. The banking regulator, CBK, can leverage these findings to enact policies that can incentivize banks to embrace FinTech. The study also revealed the areas that policy makers might need to address to encourage the adoption of FinTech by banks.

1.5.2 Practitioners

Managers of banks in Kenya might benefit from this research from recommendations that may help them integrate FinTech into their business models. FinTech is already revolutionizing banking; thus, banks have to integrate this innovation into their operations. By understanding the barriers and facilitators of FinTech adoption, banks can be better informed to formulate appropriate strategies and allocate resources effectively towards increasing their preparedness for the FinTech revolution.

1.5.3 Scholars

For scholars, this research built on existing literature on the adoption of FinTech in the banking sector. Research on FinTech adoption is still in its infancy stages. Therefore, findings from the proposed study expanded extant literature in order to develop a better understanding of the factors influencing adoption of FinTech by banks in Kenya. From the findings, a model to explain the adoption of FinTech in the Kenyan banking sector was developed.

1.6 Scope of the Research

The scope of this study was to examine the determinants of FinTech adoption in Kenyan banks. While there are numerous determinants of FinTech adoption, this study focused on cost-related factors, customer-related factors, technology-related factors and the moderating effect of preparedness on these factors. The scope of FinTech adoption was on payments, lending and personal banking processes. The methodological scope of this study was quantitative, which was executed using the descriptive cross-sectional research design. The geographical scope for this research was Nairobi County, where most banks have their headquarters and vast networks of branches. In this study, the sample consisted of managers from 34 commercial banks were surveyed. The time scope for this study was three months: March – May 2024.

1.7 Chapter Summary

This chapter has discussed the background to the study including a brief description of the gaps that will be addressed. The research problem, objectives, questions, objectives and scope have also been discussed. In the next chapter, a review of theoretical and empirical literature is provided to position the study in existing literature.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing theoretical and empirical literature on the factors that influence the adoption of FinTech by banks. This chapter is structured as follows: section 2.2 discusses the theoretical review, section 2.3 discusses the empirical review, section 2.4 presents the research gap, and the conceptual framework is presented in Section 2.5.

2.2 Theoretical Review

The theories that guided this study were Diffusion of Innovation (DOI) theory and Technology Acceptance Model (TAM). These theories are discussed in detail in the subsections below as well as how they are related to the study. Multiple theories were used to inform the study in order to provide a more comprehensive framework that better explains the variables than using a single framework.

2.2.1 Diffusion of Innovation Theory

The DOI theory was first proposed in 1962 by Rogers Everett and has been extensively applied to understand the acceptance and rejection of innovations. This theory describes the process through which an innovation is communicated amongst members of a social system over time using certain channels (Lin & Atkin, 2014). The process of innovation commences with being familiar with an invention and forming attitudes towards it that in turn influence the decision to adopt or reject. Therefore, DOI is a gradual process wherein a new innovation is transferred by members of a social system over time using different channels.

The DOI theory outlines five factors that determine the adoption of innovation, which are relative advantage, trialability, compatibility, complexity, and observability. Relative advantage refers to

the level to which an innovation is viewed as being better than the current way of doing things. Compatibility refers to the extent to which an innovation is considered to be aligned with the current needs, experiences and values of adopters (Torfing & Triantafillou, 2016). Complexity refers to the level of difficulty of using and understanding an innovation (Lin & Atkin, 2014). Trialability is the level to which an innovation might be experimented or tried out before full adoption. Observability is the extent to which others can see the outcomes of adopting an innovation (Torfing & Triantafillou, 2016). DOI posits that relative advantage, compatibility, trialability and observability are positively associated with adoption rate whereas complexity is negatively associated with adoption (Lin & Atkin, 2014).

The DOI theory also groups adopters into five categories based on their rate of adoption, which are innovators, early adopters, early majority, later majority, and laggards. Innovators are techies and experimentalists who adopt a new invention immediately when it becomes available (Torfing & Triantafillou, 2016). Early adopters are visionaries with interest in exploring new innovations for solving technical issues. The early majority are mainly pragmatists who are comfortable with new technology and focus on technical problems rather than existing tools to address the problem (Lin & Atkin, 2014). The late majority consists of conservative people who are skeptical about new technology. Lastly, laggards lack interest in new technology and seldom adopt innovations.

The DOI theory has a number of strengths. First, it is useful for explaining how new technology and ideas are adopted and spread in a society. Another strength of the DOI theory is that it outlines the factors that are likely to influence the rate of adoption, which are the characteristics of adopters and the innovation as well as the communication channels used for conveying information regarding the new technology (Torfing & Triantafillou, 2016). The DOI theory is also useful for predicting the rate of adoption of new technologies and identifying the potential barriers that might hinder adoption. Despite these strengths, the DOI theory has been subject to criticism on various grounds. First, this model focuses only on the innovation and does not take into consideration other complex variables that might influence adoption, such as economic conditions and culture (Zanello et al., 2016). Additionally, in the current age of disruptive innovations, the diffusion pattern might differ from the one expected in the theory. The adoption patterns for disruptive innovations follow an S-shaped curve and not the bell-shaped curve. Despite these limitations, the DOI theory has been applied in studies spanning multiple disciplines and have yielded consistent findings that

validate the diffusion process and the theory's internal consistency and predictive power (Ekdale et al., 2015; Shibeika & Harty, 2015).

The DOI theory informs the current research by adapting some variables and relationships. The variable of cost examined in this study can be linked to the concept of relative advantage. In this regard, the cost of adopting FinTech can lower its relative advantage compared to legacy banking systems.; thus, it can be expected that cost will be negatively associated with FinTech adoption. The variable of security and privacy concerns can be tied to the factors of compatibility (Wonglimpiyarat, 2017). In the banking sector, security and privacy are important considerations when adopting innovations (Juita et al., 2022). Innovations that threaten the security and privacy of banks and their customers are less likely to be adopted. FinTech, being an information technology (IT) innovation, poses some cybersecurity threats to banks, which might in turn discourage adoption. Overall, DOI helps to explain how the attributes of FinTech influence their adoption in banks.

2.2.2 Technology Acceptance Model

Fred Davis developed TAM in order to explain the factors that determine the acceptance of computing technologies. This theory postulates that the willingness of an individual to use a specific technology in future depends on their behavioral intention, which is influenced by their perceived ease of use (PEU) and perceived usefulness (PU) (Marangunić & Granić, 2015). PEU refers to the extent to which an individual believes that the use of a particular technology would require minimal effort. PU refers to the extent to which a person believes that using a specific system can enhance performance in terms of effectiveness, efficiency, and usefulness for the job. TAM is the most popular model for predicting the adoption of technology and explains nearly 40% of technology adoption or rejection. This model has also been expanded to include organization and system variables that influence PU and PEU, such as technical capability, training and financial cost to organizations. The extended TAM model considers the impact of the user environment on adoption as well as the characteristics of users, such as their self-efficacy and anxiety (Marangunić & Granić, 2015).

TAM has numerous strengths a strong predictive power and internal consistency. TAM also takes into account social and external influences that impact technology adoption (Taherdoost, 2018).

This theory has also been used to explain technology adoption in various contexts (organizational and individual users) and has been applied to a variety of technological innovations. Studies have also confirmed the validity of the proposed constructs in TAM (Marangunić & Granić, 2015; Taherdoost, 2018). A limitation of the TAM is that it evaluates technology adoption subjectively through behavioral intention (Taherdoost, 2018). Overall, the limitations of TAM do not overshadow its contributions with respect to understanding the process of technology adoption.

TAM will inform the current study by adapting variables related to organizational attributes, which in this case are target customer segments and banks' preparedness. The variable of target customer segments can be tied to perceived usefulness. Banks that perceive FinTech as being useful for its target customers are expected to have a higher adoption rate compared to those that view this technology as being unimportant for their customers (Chowdhury & Hussain, 2022). This variable can also be linked to the relevance of the innovation to the job at hand. Banks that believe that FinTech enables them to serve their customers better are more likely to adopt compared to those that see no value in FinTech in terms of improving their service. The variable of preparedness is adapted from the organizational characteristics that influence technology adoption in the extended TAM model. Preparedness refers to organizational perceptions regarding their self-efficacy to adopt the technology (Hu et al., 2019). Banks that believe that they are better prepared to adopt FinTech are expected to have higher rates of adoption compared to those with low preparedness perceptions.

2.3 Empirical Review

2.3.1 Cost-related Factors and FinTech adoption

Adoption of new technologies is usually characterized by direct and indirect financial and non-financial costs, and auxiliary risks. Direct financial costs refer to costs that need explicit cash outlays, such as hardware investments (costs related to buying new equipment and hardware), licensing and subscriptions (costs for buying software license). Hardware might also need periodic upgrade, support and maintenance. Indirect/non-financial costs do not need an explicit cash outlay; however, they are critical considerations in technology adoption decisions (Xie et al., 2021). Some indirect costs include switching costs and opportunity costs. Switching costs denote the costs needed to switch from one technology platform to another, which can take the form of

implementation and learning curve costs. Implementation costs are linked to adapting existing environments and systems in order to accommodate the novel technology, such as re-organizing production lines, changing service providers, and data format conversion (Chesbrough, 2019). Adopting a new technology also comes with significant learning curve costs, which are characterized by allocating resources and time to adjust to the use of the new technology through training employees and educating customers. Technological change also needs some form of behavior change and extensive practice. Opportunity cost also presents another indirect cost linked to new technology adoption. This is the cost of adopting technology today instead of waiting for another superior innovation to emerge in future. Lastly, new technologies have some auxiliary risks that are considered in the adoption decision, such as platform risk and lock-in (Xie et al., 2021). Platform risk denotes the failure of a specific platform that the firm is dependent on. Lock-in risk is the likelihood that an adopter will be locked in to use an inferior technology for an extended period of time because of high switching costs. People are less likely to adopt a new technology if they fear that it might be suboptimal after they have committed themselves.

The influence costs on technology adoption have been established in previous studies. Some studies indicate a negative association between costs and the adoption of FinTech across various sectors (Baumers et al., 2017; Gezu & Sintayehu, 2017; Iwashita, 2022; Xu, 2020; Yadav et al., 2020). In the Indian agricultural sector, Yadav et al. (2020) employed a descriptive survey design and reported that high initial costs and capital investments was one of the significant barriers to the adoption of Blockchain technologies in the Indian agricultural sector. Similar findings were reported in a descriptive study by Oliva et al. (2020), who demonstrated cost is a significant barrier to the uptake of sustainable farming technologies by Zambian farmers. Moreover, the high costs explained why farmers who had adopted the technology eventually abandoned it. In the manufacturing sector in the UK, Baumers et al. (2017), using a secondary data analysis, identified cost as one of the significant factors that hinders the adoption of additive manufacturing technologies (3D printing).

Similar findings have been reported indicating that perceived high costs hinder the adoption of FinTech by banking institutions. A panel data study by Xu (2020) reported that high cost of capital hinders innovation in China. Banks with a higher weighted average cost of capital were less likely to adopt innovation. Similarly, Gezu and Sintayehu (2017), using a descriptive survey design,

observed that high investment costs constituted a significant barrier towards the adoption of e-banking by Ethiopian banks. Gezu and Sintayehu (2017) reported that using e-banking increases the cost to banks and that banks had to train their personnel to gain the required technical skills for implementing and maintaining e-banking systems. In Japan, a qualitative study by Iwashita (2022) attributed low FinTech adoption by banks to high switching costs. Other studies showing the negative effect of costs on FinTech adoption include Chowdhury and Hussain (2022) in Bangladesh, Ateik et al. (2020a), Ateik et al. (2020b) in Yemen, Jugurnath et al. (2018) in Mauritius, and Jin et al. (2019) in Malaysia. On the contrary, some scholars report that cost is not a significant barrier, especially for large organizations that weight the benefits and costs associated with adopting FinTech (Urumsah et al., 2022; Singh et al., 2020). These contradictory findings suggest a lack of clarity regarding the relationship between cost and FinTech adoption. From the literature, the effect of cost on FinTech adoption remains unclear, especially if perceived benefits of adoptions are considered.

Regarding risk, new technologies have some auxiliary risks that are considered in the adoption decision, such as platform risk and lock-in (Xie et al., 2021). Platform risk denotes the failure of a specific platform that the firm is dependent on. Lock-in risk is the likelihood that an adopter will be locked in to use an inferior technology for an extended period of time because of high switching costs. People are less likely to adopt a new technology if they fear that it might be suboptimal after they have committed themselves. The negative effect of perceived risk on FinTech adoption has been demonstrated in some studies. Xie et al. (2021), using an explanatory design, reported a negative association between perceived risk and the intention to adopt internet wealth management systems in China. Ali et al. (2021) reported a significant negative association between perceived risk and the intention to adopt Islamic FinTech. On the contrary, the perceived benefits of FinTech have been reported to have a positive impact on the adoption of this technology (Abdul-Rahim et al., 2022; Ryu, 2018). Overall, it is difficult to determine the perceived value of FinTech and its impact on adoption due to differing perspectives on the effects of financial costs. Moreover, the extent to which FinTech is perceived as beneficial or risky is not clear since most studies have not examined perceived risk, benefits and cost under a unifying variable of perceived value.

In addition, a study by Bian et al. (2023) examined the driving factors of FinTech adoption by commercial banks in China. They employed textual analysis and machine learning to examine the

number of mentions of FinTech related terminologies in the annual reports of these banks as well as the applications of FinTech by the same banks. The findings of this study showed that the adoption of FinTech was primarily driven by the expected positive effect on the financial performance of banks, reduction of risk and the increase in market share of these banks. This study showed that the adoption of FinTech by Chinese banks is primarily driven by the need to improve business performance.

2.3.2 Customer-related Factors and FinTech adoption

Customers can also play a role in driving organizations to adopt innovative solutions (Frost, 2020). In the digital era, customers are demanding easy-to-use and convenient banking solutions (Das & Das, 2020). As a result, banks might be motivated to adopt Fintech solutions. At the same time, the adoption of FinTech by customers varies depending on their demographics with younger customers being more trusting on innovative banking solutions compared to the older customers. Technological literacy is also a factor that influences the extent to which customers will embrace FinTech solutions (Saleem, 2021). In the existing literature, conflicting evidence in the literature can be found for target customer segmentation and its relationship with FinTech adoption. Some scholars report that the target customer segments of a bank determine its propensity to adopt Fintech in the delivery of financial services; therefore, banks will adopt FinTech if it helps to serve their customers better and if they customers trust and use this technology (Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Solarz & Swacha-Lech, 2021). Conversely, other scholars have not reported significant differences in FinTech adoption across various consumer demographic groups (Singh et al., 2020).

Customer segmentation entails dividing a large, diverse customer base into smaller groups of related customers with common characteristics of relevance to marketing banking products/services. Banks prioritize customer segmentation to help them offer tailored products/services. Additionally, understanding the preferences of customers is key in maximizing up- and cross-selling opportunities (Pennington, 2016). Customer segmentation is also an important variable in identifying profitable segments and launching innovative services and products. Customer segmentation by banks can be based on various characteristics including demographics (age and gender), technological preferences, income, attitudes, personal preferences, and retail or corporate customers, just to name a few (Pennington, 2016).

Customer segmentation is an important consideration in FinTech adoption by banks. Studies show that demographic characteristics influence attitudes towards FinTech adoption by consumers (Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Mutiso & Wepukhulu, 2018; Solarz & Swacha-Lech, 2021). These studies suggest that the target customer segments of a bank determine its propensity to adopt Fintech in the delivery of financial services. Das and Das (2020) observed that awareness and use of FinTech services among Indian bank customers was higher in Generation Z and millennials compared to baby boomers and Generation X customers. Das & Das (2020) also reported that the adoption of FinTech services was higher amongst younger customers than older consumers. Likewise, Alshari and Lokhande (2022) examined the effect of demographics on Yemeni bank customers' attitudes towards and intention to use FinTech, and reported that the intent to use FinTech was higher among younger, educated and high-income customers. Similar results were documented by Frost (2020) who reported that younger consumers have a higher likelihood of trusting and using FinTech services. The higher adoption of FinTech amongst younger consumers has also been reported in other studies (Solarz & Swacha-Lech, 2021). Similarly, Mutiso and Wepukhulu (2018) found that younger bank customers in Kenya were more likely to use online banking compared to older ones. Younger customers surveyed in the study also reported higher awareness of and trust in online banking than older customers. These findings suggest that FinTech adoption varies across various customer segments. However, other scholars have not reported significant differences in FinTech adoption across various consumer demographic groups (Singh et al., 2020). As a result, it is not clear if customer segmentation can drive the adoption of FinTech.

2.3.3 Technology-related Factors and FinTech adoption

Technology-related factors associated with the characteristics of FinTechs themselves are also a key factor to consider when implementing them. As Juita et al. (2022) observes, banks have legacy systems and implementing FinTech might pose the need to make significant changes in their operations. The issue of compatibility of these FinTechs, such as cryptocurrency, with banking processes is also a key concern despite the fact that they can make banking transactions more secure (Iwashita, 2022).

While FinTech has revolutionized the delivery of financial services, they are replete with several privacy and security issues (Hussain et al., 2021). Usability and acceptance of FinTech by

customers requires security and privacy guarantees. In the present information age, customers are more concerned about their privacy, especially their financial data. Cyberattacks are one of the leading threats that banks face in this information age (Hussain et al., 2021). A survey of financial experts revealed that data theft, compromised devices, identity fraud, endpoints security and denial of service as the most prioritized issues that banks regularly deal with (CSI, 2022). Other security concerns that banks face include data breaches, mobile malware attacks and ransomware attacks. With the adoption of FinTech, threats to data security and privacy are heightened.

Security and data privacy concerns represent a barrier to FinTech adoption by banks (Gezu & Sintayehu, 2017; Iwashita, 2022; Juita et al., 2022; Nangin et al., 2020; Saleem, 2021). These studies suggest that concerns regarding the privacy and security of FinTech hinder their adoption by banks. A study by Gezu and Sintayehu (2017) using Ethiopian banks reported that security risks and lack of trust were barriers to the adoption of e-banking. Respondents in the study reported that data confidentiality and security issues constitute a key barrier to the adoption of e-banking due to concerns regarding viruses and hackers. In Japan, Iwashita (2022) identified the risk of cyberattacks as one of the barriers to the adoption of Fintech by banks. Same views were reaffirmed in a study by Saleem (2021), who reported a negative association between perceived security and data risk and FinTech adoption in Pakistani financial institutions. Similarly, Nangin et al. (2020) reported that perceived security of FinTech was negatively associated with trust, which in turn hindered its adoption. Similar conclusions were obtained in a systematic review by Juita et al. (2022) in Indonesia, which identified security and privacy concerns as significant barriers to adoption. Stewart and Jürjens (2018) and Herdinata et al. (2018) also identified security of FinTech as a key barrier to the adoption of FinTech in Germany. The significant effect of organizational readiness in Fintech adoption was also demonstrated by Clohessy and Acton (2019) and Mascarenhas et al. (2021) in terms of management support. From these studies, it can be expected that privacy and security concerns might hinder FinTech adoption. However, for other scholars, privacy and security issues in FinTech are considered acceptable risks that organizations have to deal with and implement mitigation measures (Hussain et al., 2021; Le, 2021). Therefore, there is lack of clarity regarding how these factors influence the adoption of FinTech in the banking sectors due to contradictory evidence.

In another study, Wonglimpiyarat (2017) explored FinTech as well as its dynamic transitions in the Thai banking industry. Specifically, the author examined the systemic innovation natire associated with FinTech innovation. Using a qualitative case study approach, Wonglimpiyarat (2017) demonstrated that the adoption of FinTech innovations by Thai banks is hindered by the complex nature of the technology and the limited capabilities of Thai banks in managing FinTech innovations.

Zhao et al. (2022) provided evidence of how the characteristics of Chinese banks influenced their propensity to adopt FinTech using FinTech development index. Zhao et al. (2022) showed that state-owned commercial banks in China had lower FinTech capabilities as indicated by patent claims and applications, which in turn lowered their inclination to adopt this technology. The size of the bank was also a factor, with smaller banks having a higher propensity to adopt FinTech by collaborating with external FinTech companies while larger banks relied more on legacy systems. Zhao et al. (2022) stressed the importance of banks enhancing the FinTech capabilities.

Coetzee (2019) conducted a qualitative study to examine the factors that drive the adoption of FinTechs by commercial banks in South Africa. Coetzee (2019) adopted a non-positivist, qualitative approach using the case study design. Their findings showed that commercial banks in South Africa have adopted a measured risk-averse approach when it comes to implementing FinTech due to the reliance on legacy systems and a traditionally conservative banking industry.

In Nigeria, Kyari and Akinwale (2020) examined the degree of adoption of FinTechs by commercial banks in Nigeria. Using cross-sectional descriptive research, the authors found that the level of FinTech adoption by Nigerian banks is moderate. In this study, the findings revealed a number of factors positively associated with the adoption of FinTech, which included having in-house Research and Development activities, acquisition of hardware technology, acquisition of software technology, and collaborating with external companies involved in the development of FinTech innovations. The results also suggested that expected positive impact of FinTech on bank's financial performance was a driving factor for adoption together with a conducive regulatory environment.

2.3.4 Moderating Effect of Banks' Preparedness on The Relationships Between Cost-related Factors, Customer-related Factors and Technology-related Factors and The Adoption of Fintech

Customers are increasingly looking for convenient banking solutions, which compels banks to be innovative and keep up with the FinTech revolution. A global survey by McKinsey (2018) reported that 80% of executives in top banks are beginning to prepare for changes brought about by FinTech. An estimated 65% of banks have partnered with at least one FinTech company and 35% of banks have made investments in FinTech startups. Additionally, Anagnostopoulos (2018) reported that banks are preparing for the FinTech revolution by implementing regulatory technology (RegTech), which helps banks in complying with FinTech regulations. Preparedness can also be enhanced by having a FinTech strategy in place for leveraging and integrating this innovation into the bank's operations. Another aspect of preparedness described in the literature is having a dedicated team to implement FinTech innovation (Schulte & Liu, 2017). Other aspects of preparedness include being adaptable and agile to make changes in a continually evolving FinTech environment, a learning organization, having a vision for digital future, building internal innovation capabilities, procuring/sourcing FinTech solutions externally, and investing in or acquiring FinTech companies (Acar & Çıtak, 2019; Coetzee, 2018).

Organizational preparedness has been identified as an important factor that influences technology adoption (Ndungu & Moturi, 2020). A study by Ndungu and Moturi (2020) in the Kenyan micro-finance sector demonstrated the significant role played by organizational preparedness in FinTech adoption. Ndungu and Moturi (2020) measured organizational preparedness in terms of the capability of IT infrastructure, availability of FinTech implementation strategy (digital-led strategies), adequacy of resources for FinTech implementation (an annual IT budget for acquiring technology infrastructure and new FinTech solutions), and having competent and skilled staff for implementing and maintaining FinTech solutions. Ndungu and Moturi (2020) reported a positive association between these aspects of organizational preparedness and the adoption of FinTech. Other elements of preparedness, such as having digital-led strategies, technical capabilities, human resource capabilities, and partnering with FinTech companies have been reported to have a positive impact on the adoption of FinTech (Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021). In addition, Dehghani

et al. (2022) and Dawood et al. (2022) reported that the availability of technical knowledge influenced organization's decision to adopt financial technologies.

2.4 Research Gaps

A number of gaps have been identified in existing literature that will be addressed in the present study. First, there are disagreement gaps characterized by inconsistencies in the literature regarding the relationships between the determinants (cost-related factors, technology-related factors and customer-related factors) and the adoption of FinTech. Although the topic of FinTech adoption has been researched extensively, there is lack of clarity surrounding some determinants of FinTech adoption by organizations, especially in terms of cost-related factors, technology-related factors and customer-related factors). Some studies show the positive effect of these determinants on adoption (Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Solarz & Swacha-Lech, 2021) whereas other indicate insignificant effect (Singh et al., 2020). Hence, the relationship between these determinants and FinTech adoption is unclear.

Besides disagreement gaps, conceptual gaps have also been found in the literature. In particular, FinTech adoption has been conceptualized differently in the literature. In the existing literature, FinTech has been measured using different indicators, including the adoption of mobile money, card payments and online payments by banks (Coffie et al., 2021), adoption of blockchain technologies (Oliva et al., 2020; Polas et al., 2022), adoption of e-banking (Gezu & Sintayehu, 2017), and cryptocurrency (Juita et al., 2022). In addition, different studies have used different determinants with most studies focusing on a single category of determinants (Das & Das, 2020; Frost, 2020). This study examined cost-related, technology-related, and customer-related determinants as well as the moderating effect of preparedness on these determinants.

Furthermore, methodological gaps have been identified in the literature. Studies on FinTech adoption have employed different methodologies, such as descriptive survey design (Oliva et al., 2020; Yadav et al., 2020; Gezu & Sintayehu, 2017), secondary data analysis (Baumers et al., 2017; Xu, 2020), and qualitative methods (Iwashita, 2022), which have yielded different findings. This study adopted the cross-section descriptive design to study FinTech adoption

Contextual gaps also exist. Existing studies on FinTech adoption have been conducted in the Indian agricultural sector (Yadav et al., 2020), Zambian agricultural sector (Oliva et al., 2020), manufacturing sector in the United Kingdom (Baumers et al., 2017), banking institutons in China (Xu, 2020), Ethopian banks (Gezu & Sintayehu, 2017), Chowdhury and Hussain (2022) in Bangladesh, Ateik et al. (2020a), Ateik et al. (2020b) in Yemen, Jugurnath et al. (2018) in Mauritius, and Jin et al. (2019) in Malaysia. Therefore, it is evident that most studies on FinTech adoption have been conducted in developed countries that differ from developing ones in terms of the regulatory environment and technological infrastructure. Moreover, determinants differ across industries. Few studies on FinTech adoption have been conducted in the context of banking sector of developing countries, like Kenya, that have a unique regulatory environment that differs from the developed world. Table 2.1 presents the summary of the existing literature on the topic and the existing gaps identified.

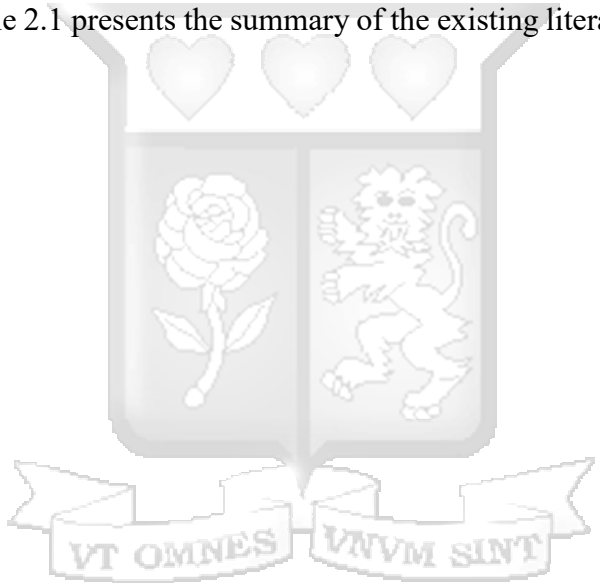


Table 2.1: Summary of Research Gaps

Authors	Country of study	Research methodology used	Findings	Research Gaps	Focus of the current study
Ndungu and Moturi (2020)	Kenya	Quantitative - Descriptive survey design	Technology factors (availability and characteristics), environmental characteristics (government regulation and technology support infrastructure) and organizational factors (Resources and size) were significant determinants of the adoption of mobile FinTech by microfinance institutions in Kenya	Conceptual gap	Present study will also examine customer-related and cost-related factors
Kurniasari et al. (2023)	Indonesia	Quantitative -Descriptive design	The adoption of FinTech in organizations	Conceptual and contextual gaps	Current study will also examine technology-related factors. The

			was significantly influenced by regulatory services, customer trust, and effort and performance expectancy		context of the current study will be the banking sector in Kenya
Matsepe & van der Lingen (2022)	South Africa	Qualitative interviews	The adoption of FinTech was reported to be influenced by various factors including organizational characteristics, organizational leadership, industry characteristics, technology usability, and adopter traits.	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Coffie et al. (2021).	Ghana	Quantitative - Descriptive design	CEO characteristics (education and age), business characteristics (location, age of business, nature and size), and	Conceptual and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya.

			FinTech characteristics (affordability, ease of use, accessibility and type) significantly influenced the diffusion of FinTech Payment Services by SMEs in Ghana		
Gezu & Sintayehu (2017)	Ethiopia	Quantitative - Descriptive design	Security risks, lack of trust, data confidentiality and security issues were identified as barriers to the adoption of e-banking.	Conceptual and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya.
Bambore & Singla (2017)	Ethiopia	Quantitative - Descriptive design	Perceived usefulness and ease of use were significant determinants of intentions to adopt electronic banking	Conceptual and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya.

Kurniasari et al. (2022)	Indonesia	Quantitative - Descriptive design	Government policies and trust in FinTech were identified as significant determinants of FinTech adoption by banks	Conceptual and contextual gaps	Current study will also focus on cost-related, technology-related and customer-related factors. The context will be the banking sector in Kenya
Rahman et al. (2021)	Malaysia	Mixed method - descriptive survey and Qualitative in-depth interviews	The lack of regulatory requirements, IT infrastructure and relevant skills, and data security and privacy were identified as significant challenges of artificial intelligence (AI) adoption by banking services in Malaysia.	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Nugraha et al. (2022)	Indonesia	Quantitative research with the Structural Equation Modeling	Perceived usefulness, ease of use, perceived ease of use, user innovativeness,	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be

		(SEM) technique	trust and government support have a significant positive effect on the intention to adopt FinTech by Indonesian SMEs		descriptive cross-sectional research design
Chowdhury & Hussain (2022)	Bangladesh	Quantitative design using SEM	Perceived security and cost efficiency of FinTech influenced its adoption by banks	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Hu et al. (2019)	Bangladesh	Quantitative design using SEM	Perceived trust, perceived benefit, and facilitating conditions significantly influenced the adoption of FinTechs	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Khatun & Tamanna (2020)	Bangladesh	Quantitative design using SEM	The adoption of FinTech by financial institutions was positively influenced by added value,	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design

			perceived reliability, facilitating conditions, social influence and effort expectancy.		
Bothma & Mostert (2023)	Namibia	Descriptive, quantitative research design and structural equation modelling (SEM)	Perceived usefulness, ease of use, and system quality significantly influenced the implementation of electronic banking.	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Islam et al. (2021)	Bangladesh	Quantitative survey	The adoption of FinTech by financial institutions was influenced by their perceived usefulness, ease of adapting, and ease of training of staff	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Polas et al. (2022)	Bangladesh	Quantitative survey	The adoption of blockchain technology and artificial intelligence was influenced	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be

			by the knowledge of these technologies, perceived ease of use, and relative advantage that they offer to organizations		descriptive cross-sectional research design
Ateik et al. (2020a)	Yemen	Quantitative survey	Costs, technology competency, perceived ease of use, perceived usefulness and impact on service quality were identified as significant factors influencing the implementation of FinTech	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Ateik et al. (2020b)	Yemen	Quantitative survey	Technology competency mediated the effect of costs, technology competency, perceived ease of use, and	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design

			perceived usefulness on the adoption of FinTech		
Dehghani et al. (2022)	United States	Mixed methods – qualitative and quantitative	Technology-related factors including perceived interoperability and perceived data quality have a positive impact upon blockchain adoption intention. However, the effect is negative for perceived technological volatility, regulatory uncertainty, standardization uncertainty and the perceived lack of technological knowledge.	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Stewart & Jürjens (2018)	Germany	Quantitative descriptive	Data security and customer trust in	Conceptual, methodological	Current study will also focus on cost-related and customer-related factors. The context will

			FinTechs influence their adoption	and contextual gaps	be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Herdinata et al. (2019).	Indonesia	Quantitative descriptive	Organizational technological competence was a significant factor that influences the adoption of FinTech	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Mascarenhas et al. (2021)	Brazil	Quantitative descriptive	Perceived benefits of FinTechs influenced their adoption while perceived risks did not have a significant effect	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Clohessy & Acton (2019).	Articles reviewed obtained from various countries	Meta-analysis	Support from top management and organizational readiness are facilitators for the adoption of blockchain technology. Large	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design

			companies are more likely to adopt blockchain than small to medium-sized enterprises.		
Dawood et al. (2022)	Malaysia	Quantitative research with SEM	Perceived mobile trust, perceived convenience, perceived economics, and perceived mobile ease of use as the primary drivers of mobile peer-to-peer platform adoption	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Xu (2020)	United States	Quantitative analysis using panel data	Firms exposed to more uncertainty and more innovative, while those that are financially constrained are less innovative; thus, less likely to be innovative	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design

Saleem (2021)	Pakistan	Quantitative survey	Relationship between Fintech revolution and Fintech adoption intention was negatively influenced by perceived risk.	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Nangin et al. (2020)	Indonesia	Quantitative survey	Perceived ease of use and trust in FinTechs increased their adoption	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Riikkinen & Pihlajamaa (2022)	Finland	Qualitative case study	Strategic partnerships and cooperation between banks and FinTechs can increase adoption	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Elsaid (2021)	Articles reviewed obtained from various countries	Meta-analysis	Strategic partnerships and cooperation between banks and FinTechs can increase adoption	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design

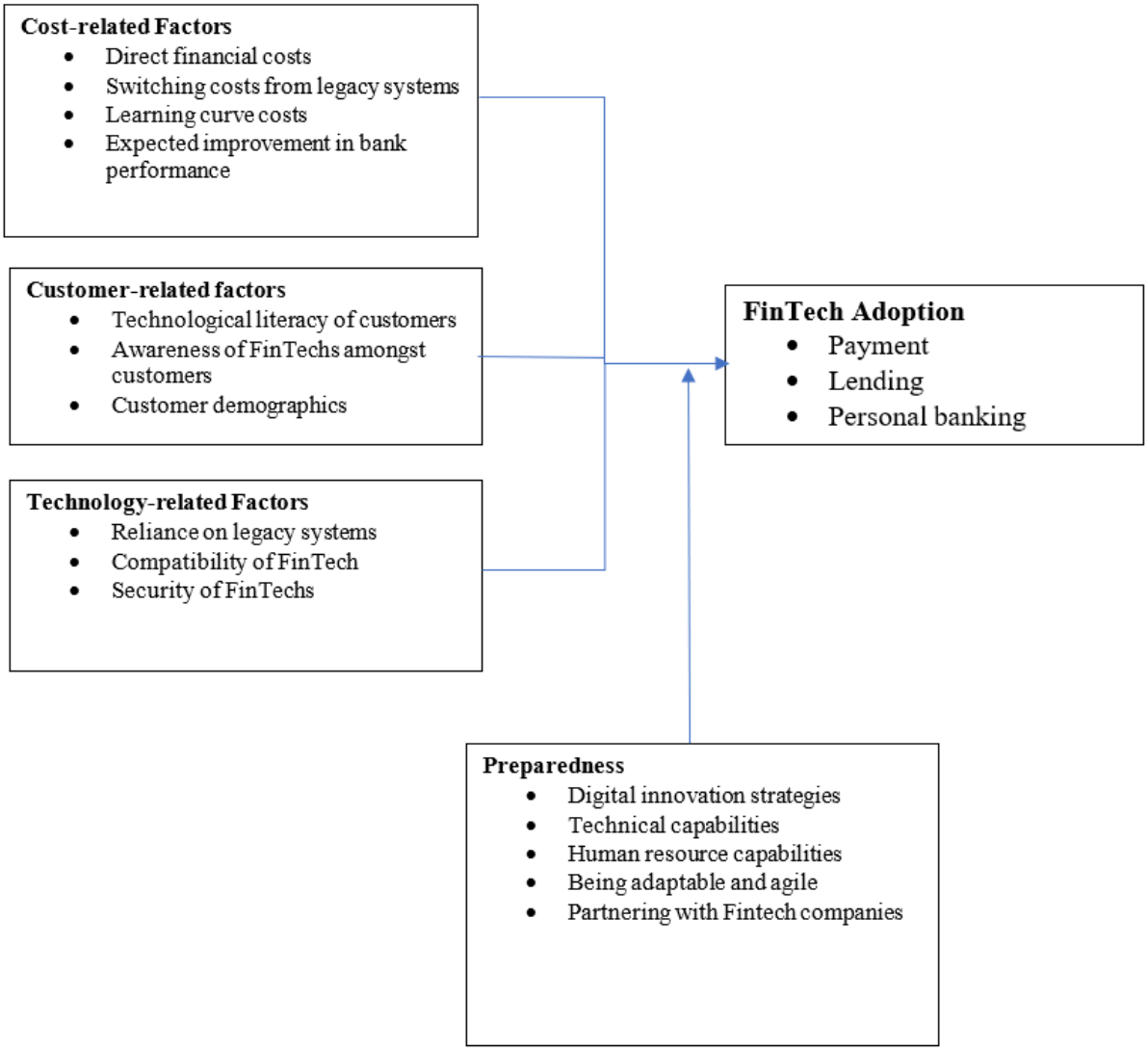
Jugurnath et al. (2018)	Mauritius	Quantitative survey	Usefulness, ease of use, relative advantage, perceived risk, perceived cost of FinTechs had an effect on their adoption	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design
Jin et al. (2019)	Malaysia	Quantitative survey	Usefulness, ease of use, relative advantage, perceived risk, perceived cost of FinTechs influenced their adoption	Conceptual, methodological and contextual gaps	Current study will also focus on cost-related and customer-related factors. The context will be the banking sector in Kenya and the methodology will be descriptive cross-sectional research design

Source: Researcher (2024)

2.5 Conceptual Framework

Figure 2.1 depicts the conceptual framework for this research. The independent variables were cost-related factors, customer-related factors, and technology-related factors. The constructs used to measure the cost-related factors included direct financial costs, switching costs, learning curve costs, and expected improvements in bank performance. The indicators for customer-related factors were technological literacy of customers, awareness of FinTech among customers, and customer demographics. The indicators of technology-related factors include reliance on legacy systems, compatibility of FinTechs, and security of FinTechs. The indicators for preparedness included digital innovation strategies, technical capabilities/infrastructure, human resource capabilities, being adaptable and agile, and partnerships with FinTech companies. FinTech adoption will be operationalized in terms of the degree to which banks have integrated FinTech solutions into their functions such as payment processing, lending, and personal banking. Figure 2.1 shows the conceptual framework for this study. Table 2.2 shows the operationalization of the variables in the questionnaire.

Figure 2.1: Conceptual framework



Source: Researcher (2024)

Table 2.1 Operationalization of variables

Variable	Specific variable name	Type of variable	Measurement	Literature source
Cost-related factors	Direct financial costs	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Baumers et al., 2017; Gezu & Sintayehu, 2017; Iwashita, 2022; Xu, 2020; Yadav et al., 2020)
	Switching costs from legacy systems	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Baumers et al., 2017; Gezu & Sintayehu, 2017; Iwashita, 2022; Xu, 2020; Yadav et al., 2020)
	Learning curve (training costs)	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Baumers et al., 2017; Gezu & Sintayehu, 2017; Iwashita, 2022; Xu, 2020; Yadav et al., 2020)
	Expected improvement on bank performance		Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Baumers et al., 2017; Gezu & Sintayehu, 2017; Iwashita, 2022; Xu, 2020; Yadav et al., 2020)
Customer-related factors	Technological literacy of customers	Ordinal	Five-point Likert scale items (1 – never (not at all), 2 – rarely (not often), 3 – sometimes (from time to time), 4 – very often (frequently), 5 – Always (at all times)	(Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Mutiso & Wepukhulu, 2018; Solarz & Swacha-Lech, 2021)

Variable	Specific variable name	Type of variable	Measurement	Literature source
	Awareness of FinTechs among customers	Ordinal	Five-point Likert scale items (1 – never (not at all), 2 – rarely (not often), 3 – sometimes (from time to time), 4 – very often (frequently), 5 – Always (at all times)	(Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Mutiso & Wepukhulu, 2018; Solarz & Swacha-Lech, 2021)
	Customer demographics	Ordinal	Five-point Likert scale items (1 – never (not at all), 2 – rarely (not often), 3 – sometimes (from time to time), 4 – very often (frequently), 5 – Always (at all times)	(Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Mutiso & Wepukhulu, 2018; Solarz & Swacha-Lech, 2021)
Technology -related factors	Reliance on legacy systems	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Gezu & Sintayehu, 2017; Iwashita, 2022; Juita et al., 2022; Nangin et al., 2020; Saleem, 2021)
	Compatibility of FinTech	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Gezu & Sintayehu, 2017; Iwashita, 2022; Juita et al., 2022; Nangin et al., 2020; Saleem, 2021)
	Security of FinTech	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	(Gezu & Sintayehu, 2017; Iwashita, 2022; Juita et al., 2022; Nangin et al., 2020; Saleem, 2021)

Variable	Specific variable name	Type of variable	Measurement	Literature source
Preparedness for FinTech Adoption	Digital innovation strategies	Ordinal	Five-point Likert scale items (1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree)	(Ndungu & Moturi, 2020 ; Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021)
	Technical capabilities	Ordinal	Five-point Likert scale items (1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree)	(Ndungu & Moturi, 2020 ; Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021)
	Human resource capabilities	Ordinal	Five-point Likert scale items (1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree)	(Ndungu & Moturi, 2020 ; Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021)
	Adaptable and agile	Ordinal	Five-point Likert scale items (1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree)	(Ndungu & Moturi, 2020 ; Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021)

Variable	Specific variable name	Type of variable	Measurement	Literature source
	Partnering with FinTech	Ordinal	Five-point Likert scale items (1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree)	(Ndungu & Moturi, 2020 ; Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021)
Dependent Variable				
FinTech Adoption	Payments	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	
	Lending	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	
	Personal banking	Ordinal	Five-point Likert scale items (1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high)	

2.6 Chapter Summary

This chapter has review existing theoretical and empirical literature on the topic of FinTech adoption. The theoretical frameworks that will underpin this study have also been discussed. Research gaps have been identified, which are mostly inconsistencies in the existing literature with regard to the relationships between the determinants and FinTech adoption. The next chapter describes the methodological steps that will be undertaken to collect the data needed to answer the research queries.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology for the current study. The chapter is organized as follows. Section 3.2 addresses research philosophy etc. The elements addressed in this chapter include the research philosophy, design, population and sampling, data collection, data analysis, research quality and ethics.

3.2 Research Philosophy

The four research philosophies that can be considered for any research are pragmatism, positivism, realism and interpretivism. The pragmatism philosophy is based on the assumption that the research question should support action for it to be relevant (Saunders & Lewis, 2017). As a result, this philosophy does not recommend any specific approach; instead, the researcher has the discretion to select the most appropriate method that can produce findings that can support practical applications. The positivism philosophy is based on the presumption that valid knowledge is one obtained through observation and measurement in an objective manner that is devoid of the researcher's personal views. Positivism is suitable for research studies seeking to explain or predict phenomena (Saunders & Lewis, 2017). The realism philosophy is based on the notion that the human mind and reality are independent of each other. The interpretivism philosophy draws on the view that research should be informed by human interest; thus, emphasis should be on understanding the unique meanings and thoughts of people regarding phenomena (Saunders & Lewis, 2017).

This research was underpinned by the positivism philosophy, which is based on the presumption that objective reality exists and can be observed. Positivism recommends the utilization of structured methods and deductive approaches to collect and analyze data respectively. This philosophy also requires large samples in order to produce generalizable findings (Saunders & Lewis, 2017). The rationale for selecting the positivism philosophy is because its assumptions are consistent with the nature of the present research. Positivism focuses on making predictions and explaining phenomena empirically, which is consistent with this study. The current research

warranted the use of a structured/rigid method to collect data in line with the positivism philosophy. Similar studies on FinTech adoption have also adopted the positivism philosophy (Das & Das, 2020; Frost, 2020).

3.3 Research Design

Consistent with positivism, this research adopted the quantitative method. Quantitative research entails collecting and analyzing numerical data using statistical techniques in order to uncover relationships between variables (Bell et al., 2022). The quantitative method is aligned with the objective of this research, which aims to investigate the relationships between FinTech adoption and other factors including cost-related, technology-related, and customer-related factors. The specific quantitative design that was used in this research was the descriptive cross-sectional research design. This design is employed to describe and assess relationships between variables (Bell et al., 2022), which is consistent with the objective of this study that seeks to investigate the association between FinTech adoption and determinants including cost-related, technology-related, and customer-related factors. The unit of analysis was a bank in Kenya. The descriptive cross-sectional research design has also been adopted in other similar studies on FinTech adoption (Das & Das, 2020; Frost, 2020).

3.4 Population of the Study

Population refers to the entire group that the findings will be generalized to (Saunders & Lewis, 2017). The population for this research comprised of commercial banks in Kenya. In Kenya, there are 38 commercial banks (CBK, 2023). The unit of analysis in this study was the bank.

3.5 Sample Design and Technique

Respondents in this study were recruited using judgmental sampling in which respondents were selected if they meet criteria established by the researcher in terms of their relevance in providing data needed to answer the research questions (Bell et al., 2022). Respondents consisted of senior managers working for banks including marketing, finance, operations, human resources, and information technology managers.

To calculate the sample size needed for this research, Yamane's formula was utilized ($n = N/(1 + N*e^2)$), where N is the size of the population while e represents the sampling error. By adopting a

sampling error of 5% and a population size of 38, $n = 38/(1 + 38\ X\ 0.05^2 = 34$. Thus, the minimum sample size needed were respondents from at least 34 banks. Table 3.1 shows the distribution of the sample. Marketing, finance, operations, human resources, and information technology managers from the 34 banks were targeted for survey. • Multiple respondents were surveyed from each bank.

Table 3.1 Clusters of participants

Clusters	Sample size
Marketing managers	34
Operations managers	34
Human resources managers	34
Information technology managers	34
Finance managers	34
Total	170

3.6 Data Collection Methods

Primary data for this study was gathered using structured questionnaires, which contain closed-ended questions that limit the range of responses that a respondent can provide. Structured questionnaires were used because they lower the cognitive load for the respondent by reducing the amount of thinking needed, which can lead to more accurate data and a higher response rate. Additionally, structured questionnaires are standardized, which makes it easier to code and analyze (Sekaran & Bougie, 2016). Questionnaires are also effective in gathering vast data from a large pool of respondents within short durations (Bell et al., 2022). The questionnaire used in this study consisted of three sections. Section A gathered information on the demographic information of respondents including their age, gender, education level, and position. In Section B, information on the determinants were gathered. Lastly, Section C gathered data on the adoption of FinTech by commercial banks.

Questionnaires will be distributed using a drop and pick approach to the target respondents due to the difficulty of getting their contacts; hence, the need to make appointments before distributing the questionnaire. Questionnaires were distributed physically to respondents who will be requested

to take the survey. In addition, an electronic format of the questionnaire was developed on Google Forms and distributed using email and WhatsApp to respondents who preferred taking the survey online. Respondents were asked if they preferred an online survey rather the physical one and their preferred way of being contacted by either email or WhatsApp. Trained research assistants were employed to help increase the response rate.

3.7 Research Quality

This section discusses the measures that were taken to enhance the validity and reliability of the findings of this research.

3.7.1 Validity

Validity refers to the extent to which measures used in a study are accurate (Saunders & Lewis, 2017). First, a pilot study was administered to 30 respondents from non-bank organizations who evaluated the understandability of the questionnaire. Expert review is the second strategy that was used to improve content validity (Sekaran & Bougie, 2016). In this regard, the questionnaire was formulated under the direction of a supervisor from Strathmore University.

3.7.2 Reliability

Reliability is defined as the degree to which the study can produce consistent findings if replicated. After data collection, Cronbach alpha was calculated to determine if the internal consistency coefficient is satisfactory, that is, at least 0.7 (Bell et al., 2022). Table 3.2 shows the Cronbach's alpha coefficients for the subscales, which affirms the reliability of the questionnaire since they exceed the threshold coefficient of 0.7.

Table 3.2: Reliability

Variable	Cronbach's Alpha Coefficient	Number of Items	Interpretation
Cost-related factors	0.914	4	Reliable
Customer-related factors	0.977	3	Reliable
Technology-related factors	9.969	3	Reliable
Preparedness for FinTech	0.993	5	Reliable
FinTech adoption	0.941	3	Reliable

Source: Researcher (2024)

3.8 Data Analysis

Data analysis was performed using the Statistical Package for Social Science (SPSS) version 26. To describe and summarize data, descriptive statistics, especially frequencies, means and standard deviations will be used. To answer the research questions, multiple linear regression was used with FinTech adoption as the dependent variable. The assumptions that were tested for multiple linear regression are linear relationships between dependent variable and predictors; independence of distributions; and normal distributions. While the statements for the dependent variable are ordinal; the final score obtained from the means of the individual statement was a continuous/ratio variable – hence, linear regression is appropriate. Charts and tables were used to graphically represent the findings. The regression equation that was used is:

$$FT = \beta_0 + \beta_1 \text{COF} + \beta_2 CUF + \beta_3 \text{TF} + \in \ldots.(1)$$

$$FT = \beta_0 + \beta_1 COF * PR + \beta_2 CUF * PR + \beta_3 TF * PR + \in \ldots (2)$$

Where

FT – FinTech adoption
COF – Cost-related factors
CUF – Customer-related factors
TF – technology related factors
PR - Preparedness

3.9 Ethical Considerations

An important ethical issue that was considered in this research was upholding the principle of voluntary participation, which required not using any form of coercion to encourage participation. Instead, participants should be provided with adequate information about the study in the letter of introduction in order for them to make an informed choice on whether or not to participate. The second key consideration was respondents' confidentiality, which required not disclosing any information about respondents to those who are not involved in the research (Sekaran & Bougie, 2016). The data collected from the research will be kept private in a password-secure computer that can only be accessed by the researcher. This information will be destroyed one year after the completion of the research. Seeking ethical approval was also an important consideration, which

was done at two levels. First, approval from Strathmore University's Internal Ethical Review Committee was sought. Secondly, the National Commission for Science, Technology and Innovation (NACOSTI) also provided approval before any data was collected.

3.10 Chapter Summary

This chapter has discussed the research methodology for the current study. The elements addressed in this chapter include the research philosophy, design, population and sampling, data collection, data analysis, research quality and ethics. The study was guided by the positivism philosophy. The descriptive cross-sectional design was used with data collected using questionnaires administered to managers of commercial banks in Kenya.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 Introduction

The general objective of this research was to examine the factors that influence the adoption of FinTech by banks in Kenya and the moderating effect of preparedness on the factors that influence adoption. This chapter discusses the key findings of this research. In this chapter, the findings are presented in line with the objectives of this study. The chapter is structured as follows: Section 4.2 presents the response rate, 4.3 is the respondents' demographic information, 4.4 is the descriptive analysis, 4.5 is the inferential analysis and 4.6 is the summary of the chapter.

4.2 Response Rate

The response rate is an important aspect that contributes to the validity of a research. A high response rate indicates that a sample is less likely to be biased (Bell et al., 2022). Conversely, a lower response indicates a potentially biased and an unrepresentative sample that is likely to skew the results of a study (Sekaran & Bougie, 2016). For this research, the target sample size was 170 respondents – five managers from 34 banks in Kenya. The researcher collected 148 complete questionnaires, which shows a response rate of 87%. According to Bell et al. (2022), a response rate of <60% is adequate for analysis. Therefore, the response of rate of 87% reported in this study was sufficient to proceed with the analysis and yield generalizable findings. Table 4.1 details the response rate from this research.

Table 4.1: Response Rate

Category	**Frequency**	**Percentage**
Questionnaires distributed	170	100%
Complete questionnaires returned	148	87%
Questionnaires not returned	22	13%

Source: Researcher (2024)

4.3 Respondents' Demographic Information

This section describes the demographic profile information obtained from participants in this research, which included their age, gender, education level and position in the organization. This demographic information for respondents is summarized in Table 4.2

Table 4.2: Respondents' Demographic Profile Information

		Frequency	Percent
Age	18-25	6	4.1%
	26-35	26	17.6%
	36-45	43	29.1%
	46-55	66	44.6%
	56 and above	7	4.7%
	Total	148	100.0%
Gender	Male	86	58.1%
	Female	62	41.9%
	Total	148	100.0%
Level of Education	Bachelor's Degree	38	25.7%
	Master's Degree	96	64.9%
	PhD	14	9.5%
	Total	148	100.0%
Position	Finance Manager	27	18.2%
	HR Manager	27	18.2%
	Operations Manager	20	13.5%
	IT Manager	49	33.1%
	Marketing Manager	25	16.9%
	Total	148	100.0%

Source: (Researcher, 2024)

Regarding age, the results showed that the majority of the respondents were aged 46-55 years (44.6%), followed by those aged 36-45 years (29.1%), 26-65 years (17.6%, 56 and above (4.7%), and lastly 18-25 years (4.1%). Concerning gender, the majority of the respondents were male (58.1%) while female respondents constituted 41.9% of the sample. In terms of the level of education, most respondents indicated having a Master's Degree (64.9%) as the highest level of education completed, followed by Bachelor's Degree (25.7%) and lastly PhD (9.5%). With respect to the position of respondents in the company, the majority reported that they were IT managers

(33.1%), followed by finance managers (18.2%), HR managers (18.2%), marketing managers (16.9%) and lastly operations managers (13.5%).

4.4 Descriptive Analysis

In this section, the descriptive analysis of the variables in this study is presented. The section presents the descriptive analysis of cost-related factors, customer-related factors, technology related factors, and preparedness.

4.4.1 Descriptive Statistics on Cost-related Factors

The first objective of this research was to investigate the influence of cost-related factors on the adoption of FinTech by commercial banks in Kenya. The indicators for cost-related factors that were used in this study were direct financial costs, switching costs, learning curve costs, and expected improvements in bank performance. The findings showed that the majority of the respondents (33.8%) were neutral (neither disagreed nor agreed) that the financial cost of acquiring and maintaining FinTechs is high. Additionally, most respondents (38.5%) strongly agreed that it will be costly to switch from legacy systems to adopt FinTech. The results also showed that the majority of the respondents (37.8%) agreed that the cost of training personnel on FinTech is high. Lastly, the results showed that most respondents (41.2%) agreed that the expected improvement in bank performance after adopting FinTech is low. Detailed findings regarding these responses are provided in Table 4.3.

Table 4.3: Frequencies for Cost-related Factors

		Frequency	Percent
The financial cost of acquiring and maintaining FinTechs is high	Strongly Disagree	0	0.0%
	Disagree	11	7.4%
	Neither Disagree nor Agree	50	33.8%
	Agree	38	25.7%
	Strongly Agree	49	33.1%
	Total	148	100.0%
It will be costly to switch from our legacy systems to adopt FinTech	Strongly Disagree	0	0.0%
	Disagree	17	11.5%
	Neither Disagree nor Agree	41	27.7%
	Agree	33	22.3%
	Strongly Agree	57	38.5%
	Total	148	100.0%
	Strongly Disagree	0	0.0%

The costs of training our personnel on FinTechs is high	Disagree	9	6.1%
	Neither Disagree nor Agree	38	25.7%
	Agree	56	37.8%
	Strongly Agree	45	30.4%
	Total	148	100.0%
The expected improvement in bank performance after adopting FinTech is low	Strongly Disagree	1	0.7%
	Disagree	1	0.7%
	Neither Disagree nor Agree	51	34.5%
	Agree	61	41.2%
	Strongly Agree	34	23.0%
	Total	148	100.0%

The descriptive statistics for cost-related factors are shown in Table 4.4. The results suggested that the financial cost of acquiring and maintaining FinTech is high (Mean = 3.84, Standard Deviation = 0.974). The findings also indicated that it is costly to switch from legacy systems to FinTech (Mean = 3.88, Standard Deviation = 1.056). In addition, the results indicated that FinTech training costs are high (Mean = 3.93, SD = 0.897) whereas the expected improvement in bank performance after adopting FinTech is low (Mean = 3.85, Standard Deviation = 0.803). The overall mean score for cost-related factors was 3.875 (Standard Deviation = 0.8358), suggesting high costs associated with adopting FinTech. These findings are summarized in Table 4.4.

Table 4.4: Descriptive Statistics for Cost-related Factors

	N	Mean	Standard Deviation
The financial cost of acquiring and maintaining FinTechs is high	148	3.84	.974
It will be costly to switch from our legacy systems to adopt FinTech	148	3.88	1.056
The costs of training our personnel on FinTechs is high	148	3.93	.897
The expected improvement in bank performance after adopting FinTech is low	148	3.85	.803
Overall Mean for Cost-related Factors	**148**	**3.8750**	**.83580**

Source: Researcher (2024)

4.4.2 Descriptive Statistics on Customer-related Factors

The second objective of this research was to examine the effect of customer-related factors on the adoption of FinTech by commercial banks in Kenya. The indicators that were used for customer-related factors included technological literacy of customers, awareness of FinTech among

customers, and customer demographics. The results showed that there was an equal proportion of respondents (26.4%) who either strongly disagreed or were neutral (neither disagreed nor agreed) that their customers have high technological literacy levels. In addition, most respondents (29.1%) reported that their customers are not aware of FinTechs. Lastly, the majority (31.1%) strongly disagreed that they segment their customers based on demographics. Detailed findings on these responses are presented in Table 4.5

Table 4.5: Frequencies for customer-related factors

		Frequency	Percent
Our customers have a high technological literacy	Strongly Disagree	39	26.4%
	Disagree	29	19.6%
	Neither Disagree nor Agree	39	26.4%
	Agree	34	23.0%
	Strongly Agree	7	4.7%
	Total	148	100.0%
Our customers are aware of FinTechs	Strongly Disagree	43	29.1%
	Disagree	39	26.4%
	Neither Disagree nor Agree	30	20.3%
	Agree	30	20.3%
	Strongly Agree	6	4.1%
	Total	148	100.0%
We segment our customers based on demographics	Strongly Disagree	46	31.1%
	Disagree	34	23.0%
	Neither Disagree nor Agree	44	29.7%
	Agree	18	12.2%
	Strongly Agree	6	4.1%
	Total	148	100.0%

The descriptive statistics suggested that customers of commercial banks in Kenya have moderate technology literacy (Mean = 2.6, Standard Deviation = 1.233). The results also suggest moderate awareness of FinTechs among customers of commercial banks in Kenya (Mean = 2.44, Standard Deviation = 2.35). In addition, the results indicated that there is moderate customer segmentation based on demographics in commercial banks in Kenya (M = 2.35, Standard Deviation = 1.16). The overall mean for customer related factors was 2.464 (Standard Deviation = 1.1778). These findings are presented in Table 4.6.

Table 4.6: Descriptive statistics for customer-related factors

	N	Mean	Standard Deviation
Our customers have a high technological literacy	148	2.60	1.233
Our customers are aware of FinTechs	148	2.44	1.219
We segment our customers based on demographics	148	2.35	1.160
Overall Mean for Customer Related Factors	**148**	**2.4640**	**1.17780**

Source: Researcher (2024)

4.4.3 Descriptive Statistics on Technology-related Factors

The third objective of this research was to examine the influence of technology-related factors on the adoption of FinTech by commercial banks in Kenya. The technology-related factors that were examined were reliance on legacy systems, compatibility of FinTechs, and security of FinTechs. The majority of the respondents (40.5%) were neutral (neither disagreed nor agreed) when asked whether their bank was conservative one that is dependent on legacy systems. The findings also showed that most respondents (29.7%) were neutral regarding the compatibility of FinTech with their processes and systems. In addition, the majority of respondents (27.7%) strongly disagreed that the security of FinTech is a major concern for their banks. These findings are detailed in Figure 4.7.

Table 4.7: Frequencies for Technology-related factors

		Frequency	Percent
We are a conservative bank that is extremely reliant on our legacy systems	Strongly Disagree	47	31.8%
	Disagree	21	14.2%
	Neither Disagree nor Agree	60	40.5%
	Agree	9	6.1%
	Strongly Agree	11	7.4%
	Total	148	100.0%
FinTech might not be compatible with our systems and processes	Strongly Disagree	41	27.7%
	Disagree	32	21.6%
	Neither Disagree nor Agree	44	29.7%
	Agree	25	16.9%
	Strongly Agree	6	4.1%
	Total	148	100.0%
The security of FinTech is a major concern for our bank	Strongly Disagree	41	27.7%
	Disagree	31	20.9%
	Neither Disagree nor Agree	39	26.4%
	Agree	29	19.6%
	Strongly Agree	8	5.4%
	Total	148	100.0%

Source: Researcher (2024)

The descriptive statistics suggested that commercial banks in Kenya are moderately conservative when it comes to relying on legacy systems (Mean = 2.43, Standard Deviation = 1.207). The analysis also suggested that commercial banks in Kenya have systems and processes that are moderately compatible with FinTech (Mean = 2.48, Standard Deviation = 1.181). In addition, the results showed that the security of FinTech is a moderate concern for commercial banks in Kenya (Mean = 2.54, Standard Deviation = 1.237). The overall mean for technology related factors was 2.4842 (Standard Deviation = 1.1731). These findings are illustrated in Table 4.8

Table 4.8: Descriptive Statistics for Technology-related Factors

	N	Mean	Standard Deviation
We are a conservative bank that is extremely reliant on our legacy systems	148	2.43	1.207
FinTech might not be compatible with our systems and processes	148	2.48	1.181
The security of FinTech is a major concern for our bank	148	2.54	1.237
Overall Mean for Technology Related Factors	**148**	**2.4842**	**1.17310**

Source: Researcher (2024)

4.4.4 Descriptive Statistics on Preparedness for Fintech Adoption

The fourth objective of this research was to determine the moderating effect of banks' preparedness on the relationships between cost-related, customer-related and technology-related factors and the adoption of FinTech by commercial banks in Kenya. The indicators used to measure preparedness for FinTech adoption were digital innovation strategies, technical capabilities/infrastructure, human resource capabilities, being adaptable and agile, and partnerships with FinTech companies. The majority of respondents strongly disagreed that their bank has a digital innovation strategy (27.7%). The results also indicated that most respondents strongly disagreed (29.1%) that their banks have the technical infrastructure needed to implement FinTech. In addition, most respondents strongly disagreed (26.4%) that their banks had adequate skilled staff for FinTech. The findings also indicated that most respondents strongly disagreed (27.7%) that their banks are agile and adaptable and can rapidly adapt to implement FinTech. Most respondents also strongly disagreed (31.1%) that their banks have partnered with or acquired FinTech firms. These findings are presented in detail in Table 4.9

Table 4.9: Frequencies for Preparedness for FinTech Adoption

		Frequency	Percent
We have a digital innovation strategy – the bank envisions a future of digital banking	Strongly Disagree	41	27.7%
	Disagree	35	23.6%
	Neither Disagree nor Agree	28	18.9%
	Agree	28	18.9%
	Strongly Agree	16	10.8%
	Total	148	100.0%
Technical capabilities – technical infrastructure needed to implement FinTech is available	Strongly Disagree	43	29.1%
	Disagree	29	19.6%
	Neither Disagree nor Agree	22	14.9%
	Agree	42	28.4%
	Strongly Agree	12	8.1%
	Total	148	100.0%
Human resource capabilities – the bank has adequate skilled staff for FinTech	Strongly Disagree	39	26.4%
	Disagree	28	18.9%
	Neither Disagree nor Agree	35	23.6%
	Agree	31	20.9%
	Strongly Agree	15	10.1%
	Total	148	100.0%
Adaptable and agile – the bank can rapidly adapt to changes in the market	Strongly Disagree	41	27.7%
	Disagree	36	24.3%
	Neither Disagree nor Agree	26	17.6%
	Agree	30	20.3%
	Strongly Agree	15	10.1%
	Total	148	100.0%
Partnering with FinTech – the bank has partnered with or acquired FinTech companies	Strongly Disagree	44	29.7%
	Disagree	46	31.1%
	Neither Disagree nor Agree	16	10.8%
	Agree	29	19.6%
	Strongly Agree	13	8.8%
	Total	148	100.0%

Source: Researcher (2024)

The descriptive analysis suggested that the commercial banks in Kenya are moderately prepared in terms of having a digital innovation strategy (Mean = 2.61, Standard Deviation = 1.353), technical capabilities (Mean = 2.67, Standard Deviation = 1.367), human resource capabilities (Mean = 2.7, Standard Deviation = 1.33), being adaptable and agile (Mean = 2.61, Standard Deviation = 1.348), and partnering with FinTech firms (Mean = 2.47, Standard Deviation = 1.332). The overall mean for preparedness for Fintech adoption was 2.6108 (Standard Deviation = 1.32804), which suggests moderate preparedness. These findings are presented in Table 4.10.

Table 4.10: Descriptive Statistics for Preparedness for Fintech Adoption

	N	Mean	Standard Deviation
We have a digital innovation strategy – the bank envisions a future of digital banking	148	2.61	1.353
Technical capabilities – technical infrastructure needed to implement FinTech is available	148	2.67	1.367
Human resource capabilities – the bank has adequate skilled staff for FinTech	148	2.70	1.333
Adaptable and agile – the bank can rapidly adapt to changes in the market	148	2.61	1.348
Partnering with FinTech – the bank has partnered with or acquired FinTech companies	148	2.47	1.332
Preparedness for Fintech Adoption	148	2.6108	1.32804

Source: Researcher (2024)

4.4.5 Descriptive Statistics on Fintech Adoption

FinTech adoption was the dependent variable, which was measured using the degree to which banks have integrated FinTech solutions into their functions such as payment processing, lending, and personal banking. The majority of the respondents indicated that FinTech adoption in payments was low (31.8%). Most respondents also showed that FinTech adoption in lending was moderate (35.8%) while FinTech adoption in personal banking was moderate (37.8%). These findings are summarized in Table 4.11.

Table 4.11: Frequencies for FinTech Adoption

		Count	Percent
Fintech Adoption in payments	Very low	31	20.9%
	Low	47	31.8%
	Moderate	31	20.9%
	High	23	15.5%
	Very high	16	10.8%
	Total	148	100.0%
Fintech Adoption in lending	Very low	39	26.4%
	Low	29	19.6%
	Moderate	53	35.8%
	High	16	10.8%
	Very high	11	7.4%
	Total	148	100.0%
Fintech Adoption in personal banking	Very low	42	28.4%
	Low	47	31.8%
	Moderate	56	37.8%
	High	3	2.0%
	Very high	0	0.0%
	Total	148	100.0%

Source: Researcher (2024)

The descriptive statistics showed that Fintech adoption in payments was moderate (Mean = 2.64, Standard Deviation = 1.273). similarly, the adoption of FinTech in lending (M = 2.53, Standard Deviation = 1.203) and personal banking (M = 2.14 = 0.854) was moderate. The overall mean for FinTech adoption was 2.4347 (Standard Deviation = 1.06384), which suggests moderate adoption. These findings are presented in Table 4.12.

Table 4.12: Descriptive Statistics for FinTech Adoption

	N	Mean	Standard Deviation
Fintech Adoption in payments	148	2.64	1.273
Fintech Adoption in lending	148	2.53	1.203
Fintech Adoption in personal banking	148	2.14	.854
FinTech Adoption	148	2.4347	1.06384

Source: Researcher (2024)

4.5 Inferential Analysis

This section presents the findings of inferential analysis including correlations and multiple linear regressions. The diagnostic tests for regression analysis are also presented.

4.5.1 Correlation Analysis Findings

Pearson Correlation analysis shows if the direction, strength and significance of the association between variables (Bell et al., 2022). Table 4.13 shows the results of the Pearson correlation analysis.

Table 4.13: Correlations

		Cost-related Factors	Customer Related Factors	Preparedness for Fintech Adoption	Technology Related Factors	FinTech Adoption
Cost-related Factors	*r*	1				
	Sig					
Customer Related Factors	*r*	-.928**	1			
	Sig.	.000				
Preparedness for Fintech Adoption	*r*	-.943**	.985**	1		
	Sig.	.000	.000			
Technology Related Factors	*r*	-.899**	.986**	.972**	1	.964**
	Sig.	.000	.000	.000		.000
FinTech Adoption	*r*	-.937**	.973**	.979**	.964**	1
	Sig.	.000	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Researcher (2024)

The findings show significant correlations between the independent variable (FinTech Adoption) and independent variables. The results showed a significant strong negative association between cost-related factors and Fintech adoption by commercial banks in Kenya (r = -0.937, p = 0.00). The results also indicated a strong positive correlation between FinTech adoption and customer-

related factors (r = 0.973, p = 0.00). In addition, a significant strong positive correlation was found between FinTech adoption and preparedness (r = 0.979, p = 0.00). A positive correlation was also found between FinTech adoption and technology-related factors (r = 0.964, p = 0.00).

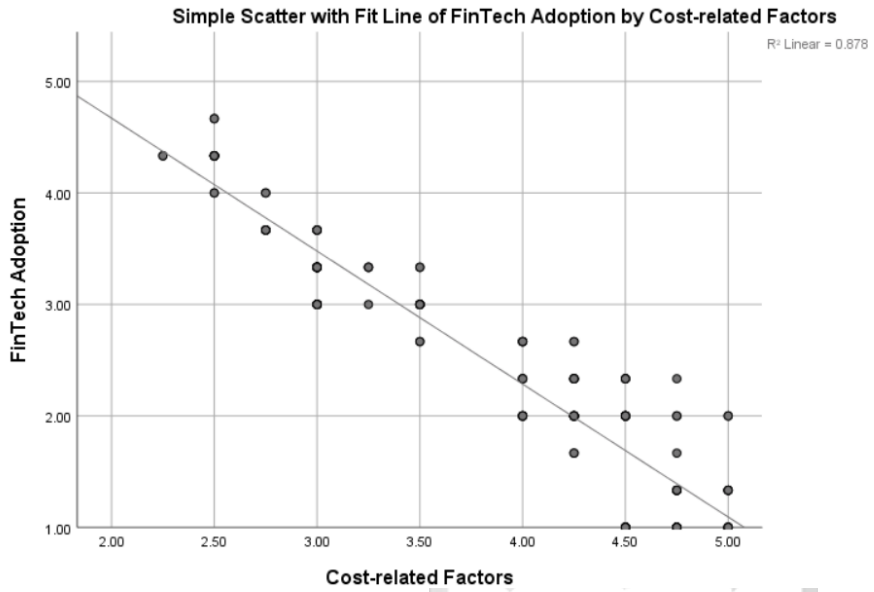
4.5.2 Regression Analysis

A regression analysis was performed to examine the relationship between FinTech adoption as the independent variable and cost-related factor, customers related factors and technology related factors as independent variables, and preparedness for FinTech adoption as the moderator. Prior to the performing the multiple regression analysis, diagnostics were performed to determine if the data violated any assumptions needed for this test and whether appropriate remedies were needed.

4.5.2.1 Diagnostics results

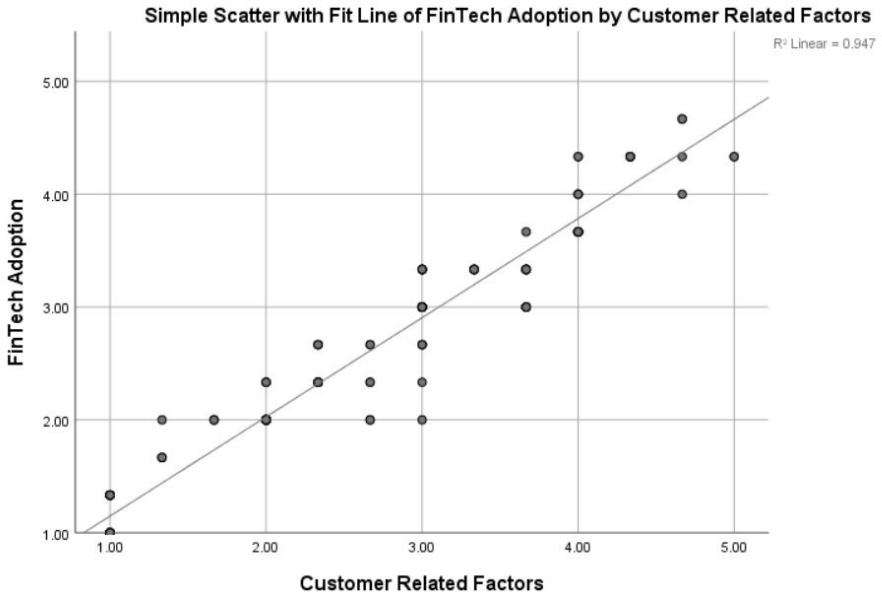
The first diagnostic test for multiple linear regression was to establish linearity – linear relationship between the dependent variables and the independent variables. Linearity can be determined using scatter plots and visually inspecting them to determine if a linear relationship exists between the variables. Figures 4.1 – 4.5 shows the scatter plots between cost-related factors and the adoption of FinTech, customer-related factors and the adoption of FinTech, technology-related factors and the adoption of FinTech, and preparedness and the adoption of FinTech. The scatter plots confirm that the requirement of linearity was met as shown by points in the scatter plot being close to the fit line.

Figure 4.1: Scatter plot – FinTech Adoption and Cost-related factors



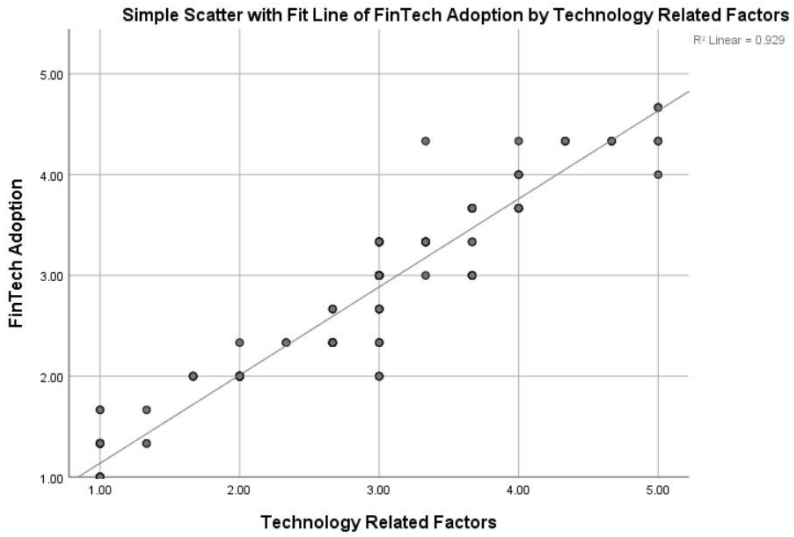
Source: Researcher (2024)

Figure 4.2: Scatter plot – FinTech Adoption and Customer-related factors



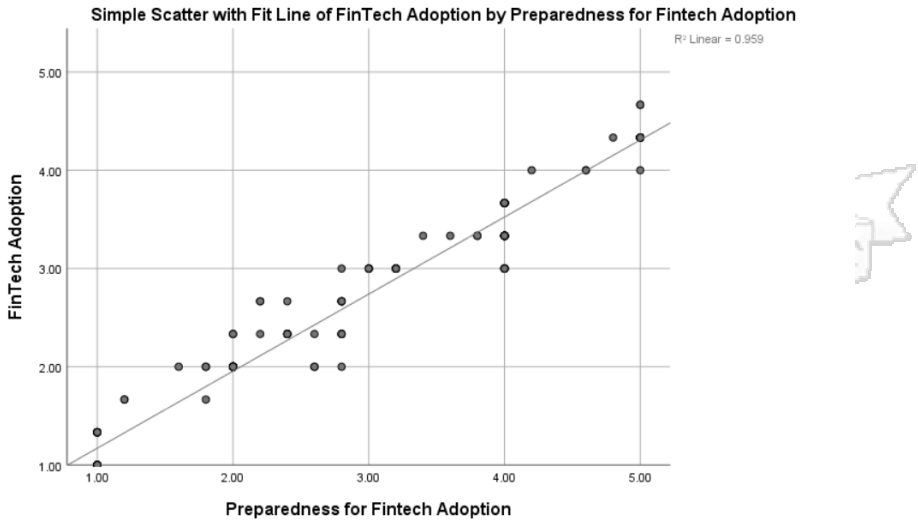
Source: Researcher (2024)

Figure 4.3: Scatter Plot – FinTech Adoption and Technology-related factors



Source: Researcher (2024)

Figure 4.4: Scatter plot – Fintech Adoption and Preparedness



Source: Researcher (2024)

Another important diagnostic test for multiple linear regression is normality, which requires normal distribution of variables. Normality can be tested using the Shapiro-Wilk test – a significance value of <0.05 confirms normality, which are established in Table 4.14. In addition,

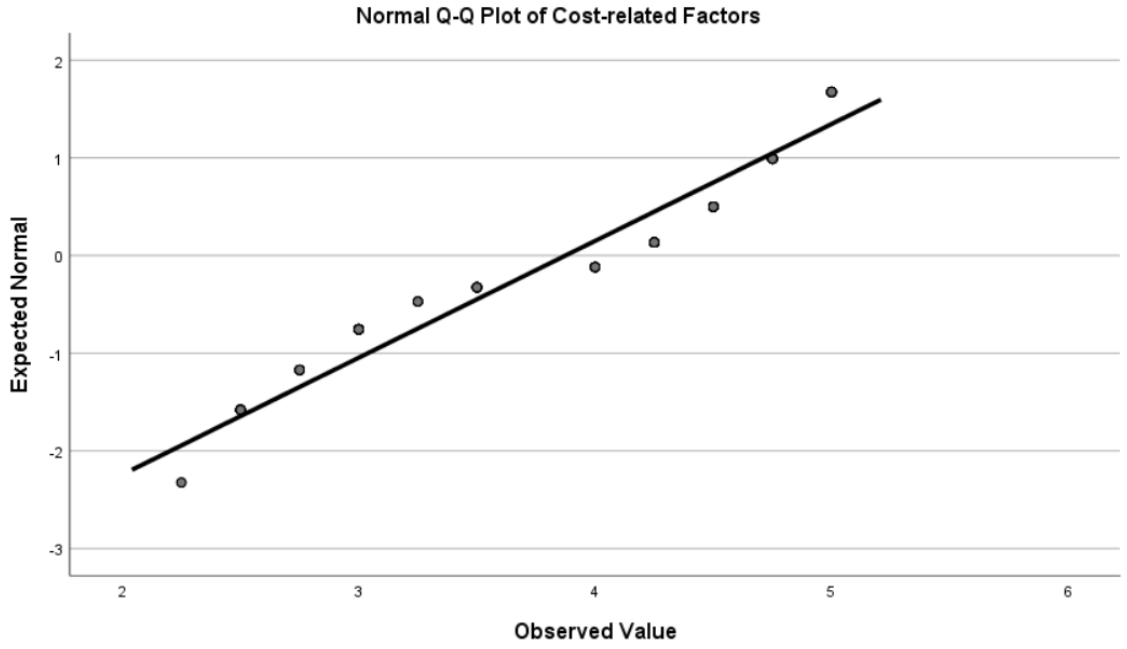
normal Q-Q plots, characterized by the data points being close to the diagonal line, confirm the normality of the data.

Table 4.14: Normality tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cost-related Factors	.180	148	.256	.901	148	.311
Customer Related Factors	.157	148	.301	.914	148	.399
Technology Related Factors	.161	148	.297	.913	148	.385
Preparedness for Fintech Adoption	.151	148	.425	.898	148	.370
FinTech Adoption	.118	148	.298	.933	148	.358

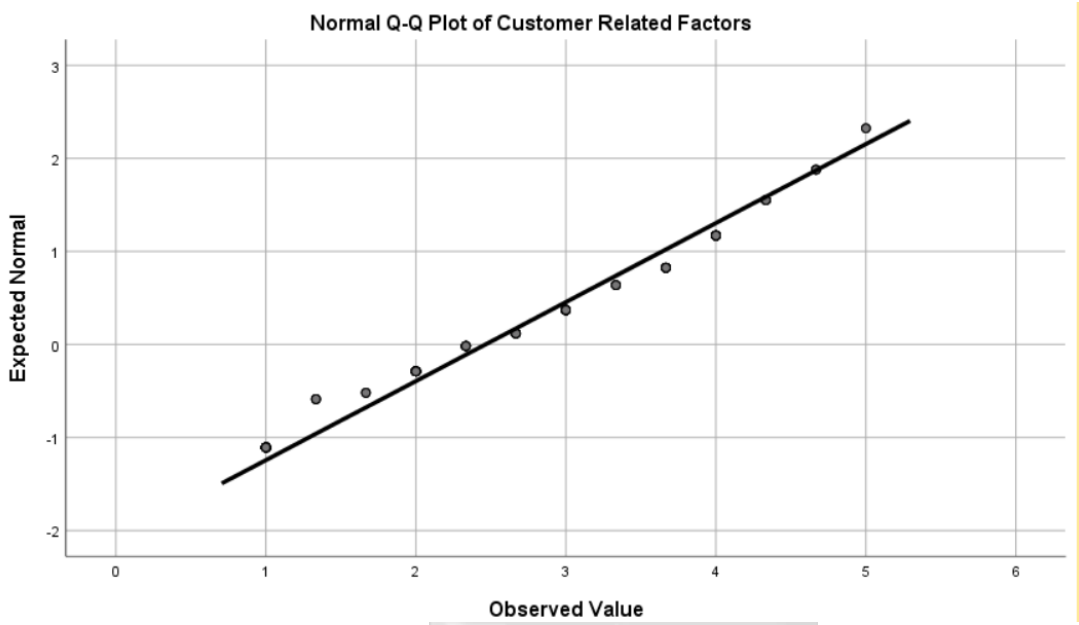
Source: Researcher (2024)

Figure 4.5: Normal Q-Q Plots – cost-related factors



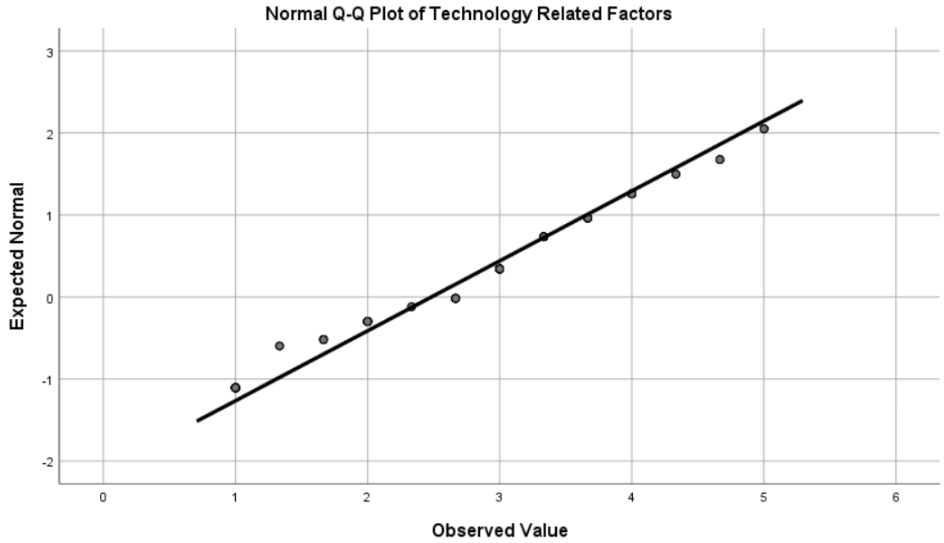
Source: Researcher (2024)

Figure 4.6: Normal Q-Q Plot – Customer-related factors



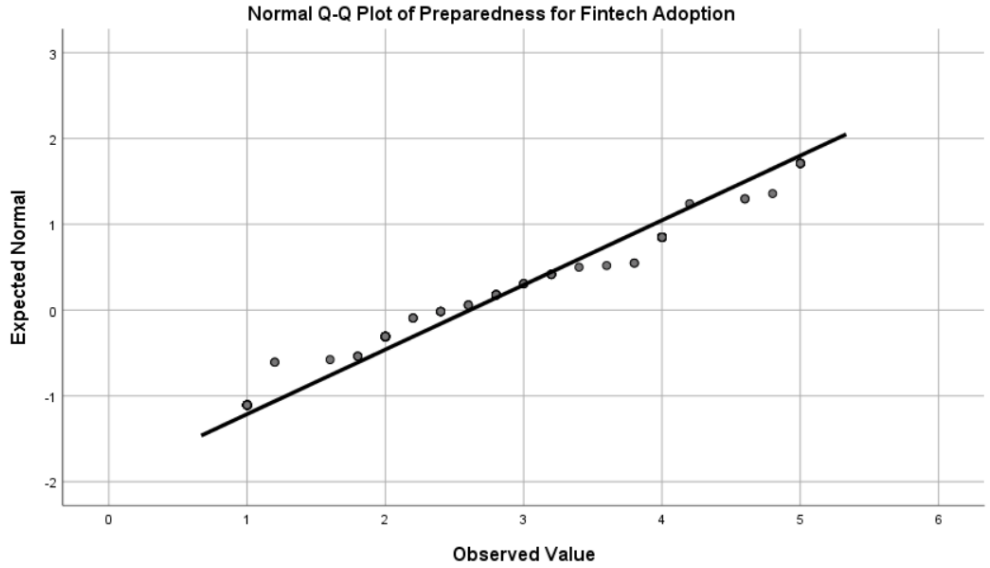
Source: Researcher (2024)

Figure 4.7: Normal Q-Q Plot – Technology-related factors



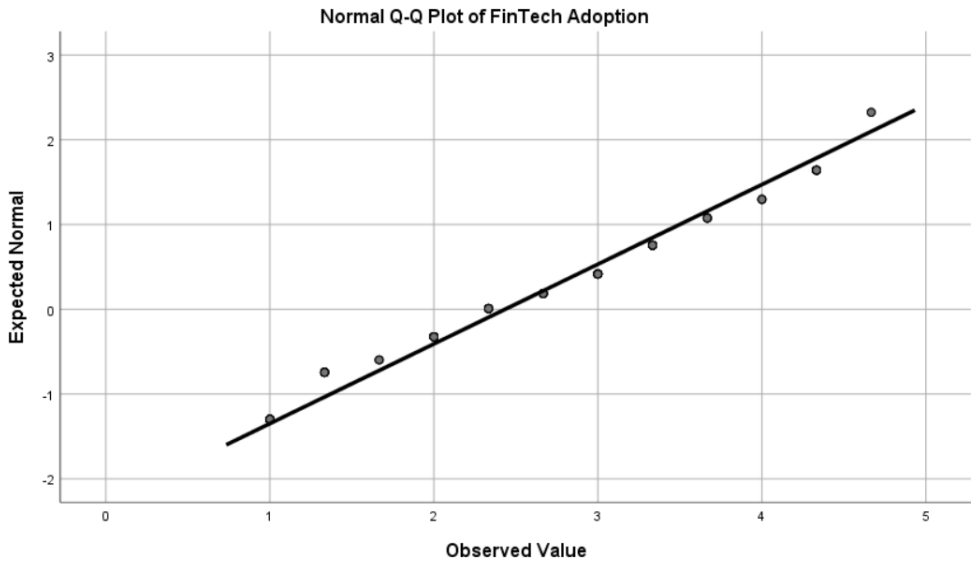
Source: Researcher (2024)

Figure 4.8: Normal Q-Q Plot – Preparedness for FinTech Adoption



Source: Researcher (2024)

Figure 4.9: Normal Q-Q Plot – FinTech Adoption



Source: Researcher (2024)

The independence of observations constitutes another important assumption that must be met for regression analysis. This assumption requires that respondents should be independent of each other, which implies no use of repeated measures. Independence of observations cannot be tested statistically since is a research design issue. Being a descriptive cross-sectional research design, respondents were surveyed once. Taken together, the data satisfied all the assumptions needed to perform a multiple linear regression.

4.5.2.2 Multiple Linear Regression Analysis

A multiple regression analysis was performed to examine the relationship between the adoption of Fintech by commercial banks in Kenya (the dependent variable) and the independent variables consisting of cost-related, customer-related and technology-related factors as well as preparedness. A summary of the regression model is presented in Table 4.15

Table 4.15: Summary of the Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.982[a]	.965	.964	.20304
a. Predictors: (Constant), Preparedness for Fintech Adoption, Cost-related Factors, Technology Related Factors, Customer Related Factors				

The results in Table 4.15 show an R-square of 0.965, suggesting that 96.5% of the variance in the adoption of FinTech by commercial banks in Kenya can be explained by the independent variables incorporated in the model, which include cost-related factors, customer-related factors, technology-related factors and preparedness for FinTech adoption. The value of R-square shows that the model has a good predictive ability; hence, cost-related factors, customer-related factors, technology-related factors and preparedness for FinTech adoption are strong predictors of adoption of FinTech by commercial banks in Kenya. The analysis of variance results for the regression are presented in Table 4.16.

Table 4.16: ANOVA Results for the Regression Model for Determinants

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	160.473	4	40.118	973.158	.000[b]
	Residual	5.895	143	.041		
	Total	166.369	147			

a. Dependent Variable: FinTech Adoption
b. Predictors: (Constant), Preparedness for Fintech Adoption, Cost-related Factors, Technology Related Factors, Customer Related Factors

The analysis of variance results indicated that the value of F-statistics was 973.158 with a p-value of 0.00 ($F(4, 143) = 973.158$, $p < 0.05$. Therefore, the regression model was significant in explaining the adoption of FinTech by commercial banks in Kenya using the independent variables consisting of cost-related factors, technology-related factors, customer-related factors, and preparedness for Fintech adoption. In addition, the collinearity diagnostics suggested that there is no problem of multi-collinearity in the model. VIF values that are greater than 5 indicate severe correlation between the independent variables in the model, which can lead to an unreliable estimated coefficients and p-values. As shown in Table 4.17, the VIF values for the independent variables are 1-5. Table 4.17 also shows the correlation coefficients

Table 4.17: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.442	.341		4.232	.000		
	Cost-related Factors	-.206	.063	-.162	-3.284	.001	.102	2.354
	Customer Related Factors	.040	.122	.044	.324	.746	.014	2.248
	Technology Related Factors	.225	.090	.248	2.499	.014	.025	3.401
	Preparedness for Fintech Adoption	.434	.083	.542	5.209	.000	.023	2.965
a. Dependent Variable: FinTech Adoption								

The results in Table 4.17 showed a constant value of 1.442, which was statistically significant ($p < 0.05$). The results also showed a significant negative effect of cost-related factors on the adoption of Fintech by commercial banks in Kenya ($\beta = 0.206$, $p < 0.05$). Therefore, for every unit change in cost-related factors, there will be an expected unit change in the adoption of Fintech by commercial banks in Kenya by 0.206. These results suggest that reducing cost-related factors can improve the adoption of FinTech by commercial banks in Kenya.

The findings showed an insignificant positive effect of customer-related factors on the adoption of FinTech by commercial banks in Kenya ($\beta = 0.04$, $p > 0.05$).

The results also showed a significant positive effect of technology-related factors on the adoption of Fintech by commercial banks in Kenya (β = 0.225, p <0.05). Therefore, for every unit change in technology-related factors, there will be an expected unit change in the adoption of Fintech by commercial banks in Kenya by 0.225. These results suggest that improving technology-related factors can improve the adoption of FinTech by commercial banks in Kenya.

The results also indicated significant positive effect of preparedness on the adoption of Fintech by commercial banks in Kenya (β = 0.434, p <0.05). Consequently, for every unit change in preparedness, there will be an expected unit change in the adoption of Fintech by commercial banks in Kenya by 0.434. These results suggest enhancing preparedness can improve the adoption of FinTech by commercial banks in Kenya. From these findings, the new regression model is:

$$FT = 1.442 - 0.206\text{COF} + 0.225\text{TF} + 0.434PR$$

Where

FT – FinTech adoption
COF – Cost-related factors
TF – technology related factors
PR - Preparedness

4.5.2.3 Moderation Analysis

A moderated regression analysis was performed to determine the moderating effect of preparedness on the relationship between the adoption of Fintech and the other independent variables. The first step in the moderation analysis was to create standardized values for the variables. Standardizing variables helps in preventing multicollinearity issues. The variables that were standardized included cost-related factors, technology-related factors, customer-related factors and preparedness for FinTech adoption. The next step was to calculate the interaction effect by multiplying the independent and moderator variables followed by performing a linear regression to test the interaction effect using a model that contains the independent variables and the interaction terms. Table 4.18 presents a summary of the regression findings.

Table 4.18: Summary of the Moderated Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.984[a]	.968	.966	.19586
a. Predictors: (Constant), INT (TF*PR), Technology Related Factors, Cost-related Factors, INT (COF*PR), INT (CUF*PR), Preparedness for Fintech Adoption, Customer Related Factors				

The results presented in Table 4.18 show an R-square of 0.968, indicating that the independent variables included in the model explain 96.8% of the variance in the dependent variable, which suggests a strong predictive model. Table 4.20 shows that the R-square change of 0.003 was not significant (P > 0.05).

Table 4.19: ANOVA Results for Moderated Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	160.998	7	23.000	599.558	.000[b]
	Residual	5.371	140	.038		
	Total	166.369	147			
a. Dependent Variable: FinTech Adoption						
b. Predictors: (Constant), INT (TF*PR), Technology Related Factors, Cost-related Factors, INT (COF*PR), INT (CUF*PR), Preparedness for Fintech Adoption, Customer Related Factors						

Table 4.20: Summary of Model Change

		Model	
		1	2
R		.982[a]	.984[b]
R Square		.965	.968
Adjusted R Square		.964	.966
Std. Error of the Estimate		.20304	.19586
Change Statistics			
	R Square Change	.965	.003
	F Change	973.158	4.558
	df1	4	3
	df2	143	140
	Sig. F Change	.000	.125
a. Predictors: (Constant), Preparedness for Fintech Adoption, Cost-related Factors, Technology Related Factors, Customer Related Factors			
b. Predictors: (Constant), Preparedness for Fintech Adoption, Cost-related Factors, Technology Related Factors, Customer Related Factors, INT (TF*PR), INT (COF*PR), INT (CUF*PR)			
c. Dependent Variable: FinTech Adoption			

Table 4.21: Coefficients for Moderated Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	1.926	.355		5.421	.000
	Cost-related Factors	-.289	.065	-.227	-4.467	.000
	Customer Related Factors	.053	.131	.058	.401	.689
	Technology Related Factors	.313	.111	.345	2.835	.005
	Preparedness for Fintech Adoption	.280	.094	.349	2.970	.004
	INT (COF*PR)	-.249	.076	-.201	-3.270	.251
	INT (CUF*PR)	-.210	.124	-.178	-1.693	.093
	INT (TF*PR)	-.038	.105	-.034	-.360	.720
a. Dependent Variable: FinTech Adoption						

The findings in Table 4.21 indicate that the moderation effect of preparedness on all the independent variables was not significant ($p > 0.05$). There was no change in the direction of the regression coefficients for the direct determinants. Therefore, it can be concluded that preparedness is not moderator of the effect of cost-related, technology-related and customer-related factors on the adoption of FinTech by commercial banks in Kenya.

4.6 Chapter Summary

This chapter has outlined the results of the study. The response rate attained was 87%. The regression model suggested that 96.5% of the variance in the adoption of FinTech by commercial banks in Kenya can be explained by the independent variables incorporated in the model, which include cost-related factors, customer-related factors, technology-related factors and preparedness for FinTech adoption. The model showed that cost-related factors, technology-related factors and preparedness of Fintech adoption were significant predictors while customer-related factors was an insignificant predictor. In addition, the results indicated that preparedness of Fintech adoption was not a significant moderator of the effect of cost-related factors, customer-related factors, and technology-related factors on the adoption of FinTech by commercial banks in Kenya.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The general objective of this research was to examine the factors that influence the adoption of FinTech by banks in Kenya and the moderating effect of preparedness on the factors that influence adoption. This chapter discusses the key findings of this research. The structure of this chapter is as follows: section 5.2 is the discussion of findings, 5.3 presents the conclusions, 5.4 outlines the recommendations, 5.5 describes the limitation of the present study and the suggestions for further research, and 5.6 is the summary of the chapter.

5.2 Summary of Main Results

The results also showed a significant negative effect of cost-related factors on the adoption of Fintech by commercial banks in Kenya. These results suggest that reducing cost-related factors can improve the adoption of FinTech by commercial banks in Kenya. Cost-related factors, including direct financial costs, switching costs from legacy systems, learning curve costs, and low expected improvements in bank performance hinder the adoption of FinTech by these banks

Secondly, the findings showed an insignificant positive effect of customer-related factors on the adoption of FinTech by commercial banks in Kenya. These results imply that customer-related factors, including technological literacy of customers, awareness of FinTech amongst customers and demographic-based customer segmentation, do not influence the adoption of Fintech by commercial banks in Kenya.

The results also showed a significant positive effect of technology-related factors on the adoption of Fintech by commercial banks in Kenya. These results suggest that improving technology-related factors can improve the adoption of FinTech by commercial banks in Kenya. In this respect, FinTech adoption can be improved by reducing reliance on legacy systems, making FinTech compatible with banking systems and processes, and developing secure FinTech.

The findings also indicated significant positive effect of preparedness on the adoption of Fintech by commercial banks in Kenya. These results suggest enhancing preparedness can improve the adoption of FinTech by commercial banks in Kenya. Preparedness can be enhanced by adopting

digital innovation strategies, improving technical capabilities and human resource capabilities, being agile and adaptable, and partnering with FinTech companies

5.3 Discussion of Findings

This section presents a discussion of the results based on the objectives of this research.

5.3.1 Cost-related Factors and FinTech Adoption

The first objective of this research was to determine the effect of cost-related factors on the adoption of Fintech by commercial banks in Kenya. The cost-related factors that were investigated in this research are direct financial costs, switching costs from legacy systems, learning curve costs, and expected improvements in bank performance. The findings from this study indicated that cost-related factors have a significant negative effect on the adoption of FinTech by commercial banks in Kenya. This result is consistent with the theoretical propositions of Diffusion of Innovation (DOI). According to DOI, the cost of adopting FinTech can lower its relative advantage compared to legacy banking systems.; thus, it can be expected that cost will be negatively associated with FinTech adoption.

In addition, the negative effect of cost-related factors reported in the current study is also consistent with the findings of previous studies. For instance, Yadav et al. (2020) reported that high initial costs and capital investments was one of the significant barriers to the adoption of Blockchain technologies. In the same way, Oliva et al. (2020), demonstrated that cost is a significant barrier to the uptake of sustainable farming technologies. Baumers et al. (2017) also identified cost as factor that hinders the adoption of additive manufacturing technologies, especially 3-D printing. Xu (2020) reported reported that high cost of capital hinders innovation in Chinese banks. Gezu and Sintayehu (2017) observed that high investment costs constituted a significant barrier towards the adoption of e-banking by Ethiopian bank. Iwashita (2022) attributed low FinTech adoption by banks to high switching costs. Therefore, the findings of the current study regarding the negative effect of cost-related factors on the adoption of FinTech is consistent with the findings of past studies.

5.3.2 Customer-related Factors and FinTech Adoption

The second objective of this research was to determine the effect of customer-related factors on the adoption of FinTech by commercial banks in Kenya. The customer-related factors that were examined included technological literacy of customers, awareness of FinTech amongst customers and customer demographics. The findings from this research showed that these customer-related factors did not have a significant effect on the adoption of FinTech by commercial banks in Kenya. These findings are not aligned with the propositions of Technology Acceptance Model (TAM), especially with respect to the concept of perceived usefulness. According to TAM, banks that perceive FinTech as being useful for its target customers are expected to have a higher adoption rate compared to those that view this technology as being unimportant for their customers (Chowdhury & Hussain, 2022). However, this study showed that customer-related factors are insignificant in influencing the decision by banks in Kenya to adopt FinTech.

In addition, previous studies have documented the significant effect of customer-related factors on FinTech adoption. Studies show that demographic characteristics influence attitudes towards FinTech adoption by consumers (Alshari & Lokhande, 2022; Das & Das, 2020; Frost, 2020; Mutiso & Wepukhulu, 2018; Solarz & Swacha-Lech, 2021). These studies suggest that the target customer segments of a bank determine its propensity to adopt Fintech in the delivery of financial services. Studies also indicate demographic differences in the use and awareness of FinTech. For instance, Alshari and Lokhande (2022) reported that the intent to use FinTech was higher among younger, educated and high-income customers. Frost (2020) reported that younger consumers have a higher likelihood of trusting and using FinTech services. Mutiso and Wepukhulu (2018) found that younger bank customers in Kenya were more likely to use online banking compared to older ones. While other studies show that customer-related factors are significant in influencing FinTech adoption.

While this study reported a positive relationship between customer-related factors and FinTech adoption, this relationship was insignificant. A possible explanation for this non-significant finding is that the study might have been underpowered (Bell et al., 2022). Alternatively, this finding can be explained in terms of banks not collecting information regarding the technological literacy and FinTech awareness amongst their customers (Singh et al., 2020). Moreover, there is the possibility that banks do not segment their customers based on demographics (Das & Das,

2020; Frost, 2020). As a result, customer-related factors might not be considered when making the decision to adopt FinTech.

5.3.3 Technology-related Factors and FinTech Adoption

The third objective of this research was to examine the effect of technology-related factors on the adoption of FinTech by commercial banks in Kenya. The technology-related factors that were examined included reliance on legacy systems, compatibility of FinTech and security of FinTech. This study showed that technology-related factors have a significant effect on the adoption of FinTech by commercial banks in Kenya. This finding is aligned with the tenets of DOI, which posits that relative advantage, compatibility, trialability and observability are positively associated with adoption rate whereas complexity is negatively associated with adoption (Lin & Atkin, 2014). In the banking sector, security and privacy are important considerations when adopting innovations (Juita et al., 2022). Innovations that threaten the security and privacy of banks and their customers are less likely to be adopted; however, in this study, respondents had minimal concerns regarding the security of FinTech, which was expected to positively influence adoption. Overall, this study reveals the technological attributes of FinTechs that can encourage their adoption by commercial banks in Kenya.

In addition, the positive effect of technology-related factors reported in the current study is consistent with the findings of previous studies. For instance, Kyari and Akinwale (2020) showed that an in-house Research and Development activities, acquisition of hardware technology, acquisition of software technology, and collaborating with external companies involved in the development of FinTech innovations was positively associated with adoption. Coetzee (2019) demonstrated that banks that are not risk-averse, conservative and reliant on legacy systems have a higher likelihood of FinTech adoption compared to those that are conservative and depend on their legacy systems. Overall, the findings from these study augment existing evidence on the significant effect of technology-related factors on the adoption of FinTech.

5.3.4 Moderating Effect of Banks' Preparedness on the Relationships between Cost-related Factors, Customer-related Factors and Technology-related Factors and the Adoption of FinTech

The fourth objective of this research was to determine the moderating effect of banks' preparedness on the relationships between cost-related, customer-related and technology-related factors and the adoption of FinTech by commercial banks in Kenya. The aspects of preparedness that were examined included the digital innovation strategies, technical capabilities, human resource capabilities, adaptability and agility, and partnering with FinTech companies. The findings from this study showed that preparedness for FinTech adoption is a not a moderator. This finding is aligned with the propositions of the extended TAM model, which outlines the organizational characteristics, including preparedness that influences adoption. According to this theory, Banks that are better prepared to adopt FinTech are expected to have higher rates of adoption compared to those with low preparedness perceptions. The findings from the current study supported this proposition by providing evidence showing the positive effect of preparedness on the adoption of FinTech.

Previous studies also support the positive effect of preparedness on the adoption of FinTech. Ndungu and Moturi (2020) demonstrated the positive effect of capability of IT infrastructure, availability of FinTech implementation strategy (digital-led strategies), adequacy of resources for FinTech implementation (an annual IT budget for acquiring technology infrastructure and new FinTech solutions), and having competent and skilled staff for implementing and maintaining FinTech solutions, on the adoption of FinTech in micro-finance institutions. Other elements of preparedness, such as having digital-led strategies, technical capabilities, human resource capabilities, and partnering with FinTech companies have been reported to have a positive impact on the adoption of FinTech (Coffie et al., 2021; Elsaid, 2021; Matsepe & van der Lingen, 2022; Rahman et al., 2021; Khatun & Tamanna, 2020; Islam et al., 2021). In addition, Dehghani et al. (2022) and Dawood et al. (2022) reported that the availability of technical knowledge influenced organization's decision to adopt financial technologies. The findings from the current study augment existing literature to show the positive effect of preparedness on the adoption of FinTech.

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5.4 Recommendations

5.4.1 Policy Recommendations

The results of this study offer useful insights that can assist policymakers develop policies to enhance the adoption of FinTech by banks in Kenya. First, policymakers and regulators need to come up with technology standards for FinTech, especially with respect to their compatibility with banking systems and security. Regulations to make FinTech compatible with banking systems and secure can increase the adoption of FinTech by banks. In addition, to address the barriers posed by costs in adopting FinTech, policymakers can consider tax incentives on FinTech, such as capital investment allowances on FinTech purchases or acquisitions, to lessen the costs associated with acquiring and using FinTech.

5.4.2 Managerial Recommendations

Managerial recommendations can be formulated from the findings for managers of banks to help them increase the adoption of FinTech and be better prepared to mitigate the disruption that FinTech companies might pose. First, technology-related factors can be improved to enhance adoption of FinTech. This can be achieved by reducing dependence on legacy systems and processes. Legacy systems are often built on outdated technology that might not be compatible with modern FinTech systems, which can lead to challenges, such as data migration. Migrating into modern platforms can make it easy for banks to adopt FinTech. Secondly, managers can enhance the preparedness of their banks by adopting digital innovation strategies, improving technical capabilities and human resource capabilities, being agile and adaptable, and partnering with FinTech companies.

5.4.3 Theoretical Recommendations

The findings from this study contributes to existing theory on the adoption of FinTech. Notably, the results obtained from this research validate TAM and DOI as theories that can be used to inform the adoption of FinTech as a form of innovation. Specifically, this study makes theoretical contributions regarding the variables that could potentially affect the adoption of FinTech, which include cost-related factors, technology-related factors and preparedness of banks. Cost-related factors, such as direct financial costs, switching costs from legacy systems, and learning curve

costs, are not explicitly outlined in TAM and DOI. Additionally, aspects of preparedness, such as adopting digital innovation strategies, improving technical capabilities and human resource capabilities, being agile and adaptable, and partnering with FinTech companies, can be used to enhance existing theories on FinTech adoption.

5.5 Study Limitations and Suggestions for Further Research

The primary limitation of this study stems its descriptive cross-sectional research design, which cannot be employed to examine cause and effect relationships. Another limitation of this study is that the use of primary data collected using questionnaires makes it difficult to ascertain the truth of the information provided by respondents. Bias from socially desirable responses is a potential limitation. Besides methodological limitations, conceptual limitations existed in this research. In particular, this study only focused on commercial banks in Kenya.

From these limitations, further research is heeded using other research designs, like causal comparative research design, to provide a more accurate understanding of the factors that explain the variations in FinTech adoption across banks. Consequently, future studies could employ secondary data to compare FinTech adoption across banks. Future studies can also evaluate FinTech adoption in other financial institutions, such as insurance companies, investment banks, credit unions and investment companies.

5.6 Chapter Summary

This chapter has presented the discussion and conclusion of this research. The chapter has also outlined the recommendations derived from the findings of this study as well as the limitations and recommendations for future studies.

REFERENCES

Abdul-Rahim, R., Bohari, S. A., Aman, A., & Awang, Z. (2022). Benefit–Risk Perceptions of FinTech Adoption for Sustainability from Bank Consumers' Perspective: The Moderating Role of Fear of COVID-19. *Sustainability*, *14*(14), Article 14. https://doi.org/10.3390/su14148357

Acar, O., & Çıtak, Y. E. (2019). Fintech integration process suggestion for banks. *Procedia Computer Science*, *158*, 971-978. https://doi.org/10.1016/j.procs.2019.09.138

Ali, M., Raza, S. A., Khamis, B., Puah, C. H., & Amin, H. (2021). How perceived risk, benefit and trust determine user Fintech adoption: A new dimension for Islamic finance. *Foresight*, *23*(4), 403–420. https://doi.org/10.1108/FS-09-2020-0095

Alshari, H. A., & Lokhande, M. A. (2022). The impact of demographic factors of clients' attitudes and their intentions to use FinTech services on the banking sector in the least developed countries. *Cogent Business & Management*, *9*(1), 2114305. https://doi.org/10.1080/23311975.2022.2114305

Alushula, P. (2021). M-Shwari deposits hit Sh571.1bn on increased savings. *Business Daily.* Retrieved from https://www.businessdailyafrica.com/bd/corporate/companies/m-shwari-deposits-hit-sh571-1bn-increased-savings-3581266

Anagnostopoulos, I. (2018). Fintech and regtech: Impact on regulators and banks. *Journal of Economics and Business*, *100*, 7-25. https://doi.org/10.1016/j.jeconbus.2018.07.003

Ateik, A. H. A., Bardai, B. B., & Alzubi, M. M. (2020a) Factors That Influence the Intention to Adopt Fintech by Yemeni Microfinance Business. *International Journal of Research and Scientific Innovation (IJRSI),* 2(3).

Ateik, A. H. A., Bardai, B. B., & Alzubi, M. M. (2020b). The Mediating Effect of Technology Competency In The Intention To Adopt Fintech By Microfinance Businesses In Yemen. *International Journal of All Research Writings*, *2*(10), 11-19.

Bambore, P. L., & Singla, V. (2017). Factors affecting e-banking adoption and its impact on customer satisfaction: a case study of Ethiopian banks. *International Journal of Marketing & Business Communication*, *6*(1), 16-28.

Baumers, M., Beltrametti, L., Gasparre, A., & Hague, R. (2017). Informing additive manufacturing technology adoption: total cost and the impact of capacity utilisation. *International Journal of Production Research*, *55*(23), 6957-6970. https://doi.org/10.1080/00207543.2017.1334978

Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford university press.

Bian, W., Wang, S., & Xie, X. (n.d.). How valuable is FinTech adoption for traditional banks? *European Financial Management*, *n/a*(n/a). https://doi.org/10.1111/eufm.12424

Bothma, M., & Mostert, L. (2023). Adopting the technology acceptance model: A Namibian perspective. *South African Journal of Information Management*, *25*(1), 1-10.

Bruno, V., & Shin, H. S. (2015). Cross-border banking and global liquidity. *The Review of Economic Studies*, *82*(2), 535-564. https://doi.org/10.1093/restud/rdu042

Central Bank of Kenya (CBK). (2023). *Bank Supervision Annual Report 2022*. https://www.centralbank.go.ke/uploads/banking_sector_annual_reports/1376276635_2022%20Annual%20Report.pdf

Chowdhury, N. H., & Hussain, N. (2022). Using technology acceptance model for acceptance of FinTech in Bangladesh. *International Journal of Internet Technology and Secured Transactions*, *12*(3), 250-264.

Clohessy, T., & Acton, T. (2019). Investigating the influence of organizational factors on blockchain adoption: An innovation theory perspective. *Industrial Management & Data Systems*, *119*(7), 1457-1491.

Coetzee, J. (2018). Strategic implications of Fintech on South African retail banks. *South African Journal of Economic and Management Sciences*, *21*(1), 1-11. Retrieved from https://hdl.handle.net/10520/EJC-1212b529f0

Coetzee, J. (2019). Risk Aversion and the Adoption of Fintech by South African Banks. *African Journal of Business and Economic Research*, *14*, 133–153. https://doi.org/10.31920/1750-4562/2019/14n4a6

Coffie, C. P. K., Hongjiang, Z., Mensah, I. A., Kiconco, R., & Simon, A. E. O. (2021). Determinants of FinTech payment services diffusion by SMEs in Sub-Saharan Africa: evidence from Ghana. *Information Technology for Development*, *27*(3), 539-560.

Cohn, T. H., & Hira, A. (2020). Global political economy: Theory and practice. Routledge.

CSI. (2022). *Industry-Leading Perspective on Banking in 2022*. Retrieved from https://why.csiweb.com/2022-banking-priorities/

Das, A., & Das, D. (2020). Perception, adoption, and pattern of usage of FinTech services by bank customers: Evidences from Hojai District of Assam. *Emerging Economy Studies*, *6*(1), 7-22. https://doi.org/10.1177/2394901520907728

Dawood, H., Liew, C. Y., & Rajan, M. E. S. (2022). Factors Affecting Financial Institutions to Adopt Mobile Peer-to-Peer Platforms. *Cuadernos de Economía*, *45*, 132-144.

Dehghani, M., Kennedy, R. W., Mashatan, A., Rese, A., & Karavidas, D. (2022). High interest, low adoption. A mixed-method investigation into the factors influencing organisational adoption of blockchain technology. *Journal of Business Research*, *149*, 393-411.

Deloitte. (2022). *2023 banking and capital markets outlook*. Retrieved from https://www2.deloitte.com/us/en/insights/industry/financial-services/financial-services-industry-outlooks/banking-industry-outlook.html

Ekdale, B., Singer, J. B., Tully, M., & Harmsen, S. (2015). Making change: Diffusion of technological, relational, and cultural innovation in the newsroom. *Journalism & Mass Communication Quarterly*, *92*(4), 938-958.

Elsaid, H. M. (2021). A review of literature directions regarding the impact of fintech firms on the banking industry. *Qualitative Research in Financial Markets*, (ahead-of-print).

Firmansyah, E. A., Masri, M., Anshari, M., & Besar, M. H. A. (2023). Factors Affecting Fintech Adoption: A Systematic Literature Review. *FinTech*, *2*(1), Article 1. https://doi.org/10.3390/fintech2010002

Frost, J. (2020). The economic forces driving fintech adoption across countries. *The technological revolution in financial services: how banks, fintechs, and customers win together*, *70*. Retrieved from https://www.bis.org/publ/work838.pdf

Gezu, G., & Sintayehu, T. (2017). Determinants of E-Banking Services Adoption among Commercial Banks in Ethiopia: Analysis of Banks' Customers Perspectives. *International Journal of Scientific and Engineering Research*, *8*.

Herdinata, C., Wiradinata, T., Christian, S., & Setiobudi, A. (2019). Effect of organizational competence, organizational support, and organizational productivity towards adoption of financial technology.

Hu, Z., Ding, S., Li, S., Chen, L., & Yang, S. (2019). Adoption intention of fintech services for bank users: An empirical examination with an extended technology acceptance model. *Symmetry*, *11*(3), 340. Retrieved from https://www.mdpi.com/423566

Hussain, M., Nadeem, M. W., Iqbal, S., Mehrban, S., Fatima, S. N., Hakeem, O., & Mustafa, G. (2021). Security and Privacy in FinTech: A Policy Enforcement Framework. In *Research Anthology on Concepts, Applications, and Challenges of FinTech* (pp. 372-384). IGI Global.

Islam, N., Mubassira, Q. N., Huda, R. B., & Fuad, M. A. (2021, December). Adoption of FinTech by Financial and Investment Companies of Bangladesh. In *16th South Asian Management Forum 2021* (pp. 16-18).

Iwashita, N. (2022). Why fintech is not changing Japanese banking. *Asian Economic Policy Review*. https://doi.org/10.1111/aepr.12390

Jin, C. C., Seong, L. C., & Khin, A. A. (2019). Factors affecting the consumer acceptance towards fintech products and services in Malaysia. International Journal of Asian Social Science, 9(1), 59-65.

Jugurnath, B., Bissessur, R., Ramtohul, P., & Mootooganagen, R. (2018, April). Fintech and digital banking: Perception and usage in Mauritius, a logistic regression approach. In *The 5th IBSM International Conference on Business, Management and Accounting* (pp. 19-21).

Juita, V., Roza, H., & Rahayu, R. (2022). Impact, benefits, security, and privacy of fintech adoption in Indonesia: A literature review. *Operations Management and Information System Studies*, *2*(3), 141-151. https://doi.org/10.24036/omiss.v2i3.74

Kenya Bankers Association (KBA). (2021). *Survey: Mobile Apps Top Bank Customers' Digital Banking Feature Preferences.* Retrieved from https://www.kba.co.ke/survey-mobile-apps-top-bank-customers-digital-banking-feature-preferences/

Kenya Bankers Association (KBA). (2022). *State of the Banking Industry Report 2022*. Retrieved from https://www.kba.co.ke/wp-content/uploads/2022/05/KBA%20SBIR%202022.pdf

Kenya Institute for Public Policy Research and Analysis (KIPPRA). (2020). *Overcoming Hurdles to Sustain Growth of Financial Technology in Kenya*. https://kippra.or.ke/overcoming-hurdles-to-sustain-growth-of-financial-technology-in-kenya/

Khatun, N., & Tamanna, M. (2020). Factors affecting the adoption of Fintech: a study based on the financial institutions in Bangladesh. *Copernican Journal of Finance & Accounting*, *9*(4), 51-75.

Kurniasari, F., Tajul Urus, S., Utomo, P., Abd Hamid, N., Jimmy, S. Y., & Othman, I. W. (2022). Determinant factors of adoption of Fintech Payment Services in Indonesia using the UTAUT approach. *Asian-Pacific Management Accounting Journal*, *17*(1), 97-125.

Kusimba, S. (2021). Reimagining Money: Kenya in the Digital Finance Revolution. Stanford University Press.

Kyari, A., & Akinwale, Y. (2020). *AN ASSESSMENT OF THE LEVEL OF ADOPTION OF FINANCIAL TECHNOLOGY BY NIGERIAN BANKS*. *1*, 118–130.

Lin, C. A., & Atkin, D. J. (Eds.). (2014). *Communication technology and social change: Theory and implications*. Routledge.

Marangunić, N., & Granić, A. (2015). Technology acceptance model: a literature review from 1986 to 2013. *Universal access in the information society*, *14*(1), 81-95.

Mascarenhas, A. B., Perpétuo, C. K., Barrote, E. B., & Perides, M. P. (2021). The influence of perceptions of risks and benefits on the continuity of use of fintech services. *BBR. Brazilian Business Review*, *18*, 1-21.

Matsepe, N. T., & van der Lingen, E. (2022). Determinants of emerging technologies adoption in the South African financial sector. *South African Journal of Business Management*, *53*(1), 2493.

McKinsey. (2018). *Synergy and disruption: Ten trends shaping fintech.* https://www.mckinsey.com/industries/financial-services/our-insights/synergy-and-disruption-ten-trends-shaping-fintech

Misati, R., Kamau, A, Kipyegon, L. & Wandaka, L. (2020). *Is the Evolution of Fintech Complementary to Bank Performance in Kenya?* Retrieved from https://www.kba.co.ke/wp-content/uploads/2022/05/WPS-46-2020.pdf

Muriithi, S.M. & Louw, L. (2017). The Kenyan Banking Industry: Challenges and Sustainability. In: Ahmed, A. (eds) *Managing Knowledge and Innovation for Business Sustainability in Africa*. Palgrave Studies of Sustainable Business in Africa. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-41090-6_11

Mutiso, J. & Wepukhulu, J. M. (2018). *Determinants of the Adoption of Online Banking in Commercial Banks in Kenya.* Retrieved from https://strategicjournals.com/index.php/journal/article/view/943

Mwenda, E. (2022). Kenyans top global uptake of mobile money-based app loans. *Business Daily*. https://www.businessdailyafrica.com/bd/markets/capital-markets/kenyans-top-global-uptake-of-mobile-money-based-app-loans-3821234

Nangin, M. A., Barus, I. R. G., & Wahyoedi, S. (2020). The effects of perceived ease of use, security, and promotion on trust and its implications on fintech adoption. *Journal of*

Consumer Sciences, *5*(2), 124-138. Retrieved from https://journal.ipb.ac.id/index.php/jcs/article/view/31524

Ndungu, J. M., & Moturi, C. A. (2020). Determinants of mobile Fintech uptake in Kenyan microfinance sector. *Current Journal of Applied Science and Technology*, *39*(28), 102-114.

Nugraha, D. P., Setiawan, B., Nathan, R. J., & Fekete-Farkas, M. (2022). Fintech Adoption Drivers for Innovation for SMEs in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4), 208.

Oliva, P., Jack, B. K., Bell, S., Mettetal, E., & Severen, C. (2020). Technology adoption under uncertainty: Take-up and subsequent investment in Zambia. *Review of Economics and Statistics*, *102*(3), 617-632. Retrieved from https://direct.mit.edu/rest/article-abstract/102/3/617/96771

Opati, T. Z., & Gachukia, M. K. E. (Eds.). (2019). *Impact of Mobile Payment Applications and Transfers on Business*. IGI Global.

Ozatac, N., & Gokmenoglu, K. (2019). *Global Issues in Banking and Finance*. Springer International Publishing.

Pennington, A. (2016). *The Customer Experience Book: How to design, measure and improve customer experience in your business*. Pearson UK.

Phadke, S. (2020). *FinTech future: the digital DNA of finance*. Sage Publications Pvt. Limited.

Polas, M. R. H., Jahanshahi, A. A., Kabir, A. I., Sohel-Uz-Zaman, A. S. M., Osman, A. R., & Karim, R. (2022). Artificial Intelligence, Blockchain Technology, and Risk-Taking Behavior in the 4.0 IR Metaverse Era: Evidence from Bangladesh-Based SMEs. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), 168.

Rahman, M., Ming, T. H., Baigh, T. A., & Sarker, M. (2021). Adoption of artificial intelligence in banking services: an empirical analysis. *International Journal of Emerging Markets*, (ahead-of-print).

Riikkinen, M., & Pihlajamaa, M. (2022). Achieving a strategic fit in fintech collaboration–A case study of Nordea Bank. *Journal of Business Research*, *152*, 461-472.

Ryu, H.-S. (2018). *Understanding Benefit and Risk Framework of Fintech Adoption: Comparison of Early Adopters and Late Adopters*. http://hdl.handle.net/10125/50374

Saleem, A. (2021). Fintech Revolution, Perceived Risks and Fintech Adoption: Evidence from Financial Industry of Pakistan. *International Journal of Multidisciplinary and Current Educational Research*, *3*, 191-205. Retrieved from https://www.ijmcer.com/wp-content/uploads/2021/05/IJMCER_W0330191205.pdf

Saunders, M., & Lewis, P. (2017). *Doing research in business and management*. Pearson.

Schulte, P., & Liu, G. (2017). FinTech is merging with IoT and AI to challenge banks: how entrenched interests can prepare. *The Journal of alternative investments*, *20*(3), 41-57. https://doi.org/10.3905/jai.2018.20.3.041

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. john wiley & sons.

Shibeika, A., & Harty, C. (2015). Diffusion of digital innovation in construction: a case study of a UK engineering firm. *Construction management and economics*, *33*(5-6), 453-466.

Singh, S., Sahni, M. M., & Kovid, R. K. (2020). What drives FinTech adoption? A multi-method evaluation using an adapted technology acceptance model. *Management Decision*, *58*(8), 1675-1697.

Solarz, M., & Swacha-Lech, M. (2021). D*eterminants of the adoption of innovative fintech services by millennials*. Retrieved from https://dspace5.zcu.cz/handle/11025/45451

Statista (2022a). Market share of major commercial banks in Kenya as of 2021. https://www.statista.com/statistics/1231563/market-share-of-major-commercial-banks-in-kenya/

Statista. (2022b). *East Africa: Largest banks by assets 2022*. (n.d.). Statista. Retrieved September 6, 2023, from https://www.statista.com/statistics/1245912/largest-banks-in-east-africa-by-assets/

Statista. (2023). *Retail & Commercial Banking—Global | Market Forecast*. (n.d.). Statista. Retrieved September 6, 2023, from https://www.statista.com/outlook/fmo/retail-commercial-banking/worldwide

Stewart, H., & Jürjens, J. (2018). Data security and consumer trust in FinTech innovation in Germany. *Information & Computer Security*.

Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia manufacturing*, *22*, 960-967.

Torfing, J., & Triantafillou, P. (Eds.). (2016). *Enhancing public innovation by transforming public governance*. Cambridge University Press.

Urumsah, D., Ispridevi, R. F., Nurherwening, A., & Hardinto, W. (2022). Fintech adoption: Its determinants and organizational benefits in Indonesia. *Jurnal Akuntansi dan Auditing Indonesia*, 88-101.

Wakarima, L. (2022). *Bank ATM Visits Decline by 9.8% as Mobile Banking Continues to Reign - KBA*. Retrieved from https://kenyanwallstreet.com/bank-atm-visits-decline-by-9-8/

Wewege, L., & Thomsett, M. C. (2019). The digital banking revolution: how fintech companies are transforming the retail banking industry through disruptive financial innovation. Walter de Gruyter GmbH & Co KG.

Wonglimpiyarat, J. (2017). FinTech banking industry: a systemic approach. *Foresight*, *19*(6), 590-603.

Wonglimpiyarat, J. (2017). FinTech banking industry: A systemic approach. *Foresight*, *19*(6), 590–603. https://doi.org/10.1108/FS-07-2017-0026

Xie, J., Ye, L., Huang, W., & Ye, M. (2021). Understanding FinTech Platform Adoption: Impacts of Perceived Value and Perceived Risk. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), Article 5. https://doi.org/10.3390/jtaer16050106

Xie, J., Ye, L., Huang, W., & Ye, M. (2021). Understanding FinTech platform adoption: impacts of perceived value and perceived risk. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1893-1911.

Xu, Z. (2020). Economic policy uncertainty, cost of capital, and corporate innovation. *Journal of Banking & Finance*, *111*, 105698. https://doi.org/10.1016/j.jbankfin.2019.105698

Yadav, V. S., Singh, A. R., Raut, R. D., & Govindarajan, U. H. (2020). Blockchain technology adoption barriers in the Indian agricultural supply chain: an integrated approach. *Resources, Conservation and Recycling*, *161*, 104877.

Zanello, G., Fu, X., Mohnen, P., & Ventresca, M. (2016). The creation and diffusion of innovation in developing countries: A systematic literature review. *Journal of Economic Surveys*, *30*(5), 884-912.

Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. *Journal of International Money and Finance*, *122*, 102552. https://doi.org/10.1016/j.jimonfin.2021.102552

APPENDICES

Appendix I: Letter of Introduction

I am Master of Business Administration at Strathmore University Business School. I am conducing a research titled, "Determinants of FinTech Adoption by Commercial Banks in Kenya," that entails collecting data for writing and completing a final dissertation as part of the program's requirements. The aim of the research is to examine the factors that influence the adoption of FinTech by commercial banks in Kenya. If you agree to participate, you will complete a questionnaire that will take about 5-10 minutes of your time. The information obtained from your participation will be used for academic purposes only and will be treated confidentially. Your decision to participate is in this study is voluntary. Your participation is greatly appreciated.

If you have any queries, you can call me on 0712886572 or email steven.omamo@strathmore.edu

Appendix II: Participant Information and Informed Consent

DETERMINANTS OF FINTECH ADOPTION BY COMMERCIAL BANKS IN KENYA

SECTION 1: INFORMATION SHEET

Investigator: Steven Oduor Omamo

Institutional affiliation: Strathmore Business School (SBS)

SECTION 2: INFORMATION SHEET–THE STUDY

2.1: Why is this study being carried out?

The aim of this research is to determine the factors that influence the adoption of FinTech by commercial banks in Kenya

.

2.2: Do I have to take part?

No. Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you will be asked to complete a questionnaire to get information on the effect of digital marketing strategies on your decision to enroll at your university. If you are not able to answer all the questions successfully the first time, you may be asked to sit through another informational session after which you may be asked to answer the questions a second time. You are free to decline to take part in the study from this study at any time without giving any reasons.

2.3: Who is eligible to take part in this study?

- Managers working in banks in Kenya, including branch, information technology, business development, operations, marketing and research and human resources managers
- Those aged 18 and above

2.4: Who is not eligible to take part in this study?

- Managers in non-bank institutions
- Those aged below 18 years

2.5 : What will taking part in this study involve for me?

You will be approached by Steven Omamo and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you will be asked to sign the informed consent form (this form) and then taken through a questionnaire to complete.

2.6 : Are there any risks or dangers in taking part in this study?

There are no risks in taking part in this study. All the information you provide will be treated as confidential and will not be used in any way without your express permission.

2.7 : Are there any benefits of taking part in this study?

The information will be used to improve the marketing initiatives by private universities

2.8 : What will happen to me if I refuse to take part in this study?

Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

2.9 : Who will have access to my information during this research?

All research records will be stored in securely locked cabinets. That information may be transcribed into our database but this will be sufficiently encrypted and password protected. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

2.10 : Who can I contact in case I have further questions?

You can contact me, Steven Omamo, at SBS, or by e-mail (steven.omamo@strathmore.edu), or by phone (0712886572). You can also contact my supervisor, Dr. Albert Ochieng, at the Strathmore Business School, Nairobi, or by e-mail (aochieng@strathmore.edu).

If you want to ask someone independent anything about this research please contact:

The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email ethicsreview@strathmore.edu Tel number: +254 (0)703 034 418

I, _____, have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please tick the boxes that apply to you;

Participation in the research study

☐ I AGREE to take part in this research

☐ I DON'T AGREE to take part in this research

Storage of information on the completed questionnaire

☐ I AGREE to have my completed questionnaire stored for future data analysis

☐ I DON'T AGREE to have my completed questionnaire stored for future data analysis

Participant's Signature:

_____

Date: _____/_____/_____

DD / MM / YEAR

Participant's Name:

_____

(Please print name)

Time: _____/_____

HR / MN

I, _____(Name of person taking consent) certify that I have followed the SOP for this study and have explained the study information to the study participant named above, and that s/he has understood the nature and the purpose of the study and consents to the participation in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

Investigator's Signature:

_____

Date: _____/_____/_____

DD / MM / YEAR

Investigator's Name:

_____

(Please print name)

Time: _____/_____

HR / MN

Appendix III: Ethical Approval and NACOSTI License

Strathmore UNIVERSITY

27 March 2024

Dear Mr. Steven Omamo

RE: Determinants of FinTech Adoption by Commercial Banks in Kenya

This is to inform you that SU-ISERC has reviewed and Approved your above research proposal. Your application reference number is SU-ISERC2053/24. The approval period is valid for exactly **one year** from today.

This approval is subject to compliance with the following requirements:

1. Only approved documents including (informed consents, study instruments, MTA) will be used.
2. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
3. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
4. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
5. Clearance for the export of biological specimens must be obtained from relevant institutions.
6. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
7. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from the National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **171602**

Date of Issue: **17/April/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Steven Oduor Omamo of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Busia, Embu, Kericho, Kiambu, Kisumu, Machakos, Mombasa, Nairobi, Nakuru, Siaya on the topic: DETERMINANTS OF FINTECH ADOPTION BY COMMERCIAL BANKS IN KENYA. for the period ending : 17/April/2025.

License No: **NACOSTI/P/24/34411**

171602

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix IV: Research Questionnaire

Section 1: Basic Information (Please tick in the appropriate box)

1. What is your age?

18-25	
26-35	
36-45	
46-55	
56 and above	

2. What is your gender

Male	
Female	

3. What is the highest level of education you attained?

Bachelor's degree	
Master's Degree	
PhD	

4. What is your department?

Branch manager	
HR manager	
Operations manager	
IT Manager	
Business Development	
Marketing and research	

Section 2: Cost-related Factors

How does your bank perceive level of the following types of costs associated with adopting FinTech? (Please tick appropriate box) [1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree]

	1	2	3	4	5

The financial cost of acquiring and maintaining FinTechs is high					
It will be costly to switch from our legacy systems to adopt FinTech					
The costs of training our personnel on FinTechs is high					
The expected improvement in bank performance after adopting FinTech is low					

Section 3: Customer-related Factors

To what extent does your bank target the following segments of customers

(Please tick the appropriate box)

	Yes	No
Our customers have a high technological literacy		
Our customers are aware of FinTechs		
We segment our customers based on demographics		

Section 4: Technology-related Factors

Rate the following statements regarding the technological characteristics of Fintech as they relate to your bank

Please tick appropriate box) [1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high]

	1	2	3	4	5
We are a conservative bank that is extremely reliant on our legacy systems					
FinTech might not be compatible with our systems and processes					
The security of FinTech is a major concern for our bank					

Section 5: Preparedness for FinTech Adoption

Rate the following statement in terms of how your bank is prepared to implement FinTech.

(please tick the appropriate box [1 – strongly disagree, 2 – disagree, 3 – neither disagree nor agree, 4 – agree, 5 – strongly agree]

	1	2	3	4	5
We have a digital innovation strategy – the bank envisions a future of digital banking					
Technical capabilities – technical infrastructure needed to implement FinTech is available					

Human resource capabilities – the bank has adequate skilled staff for FinTech					
Adaptable and agile – the bank can rapidly adapt to changes in the market					
Partnering with FinTech – the bank has partnered with or acquired FinTech companies					

Section 6: FinTech Adoption

Rate the extent to which your bank incorporated FinTech in the following functions:

Please tick appropriate box) [1 – very low, 2 – low, 3 – moderate, 4 – high, 5 – very high]

	1	2	3	4	5
Payments					
Lending					
Personal banking					

Appendix V: List of Commercial Banks in Kenya

1. ABSA Bank Kenya PLC
2. Access Bank (Kenya) PLC
3. African Banking Corporation Limited
4. Bank of Africa Kenya Limited
5. Bank of Baroda (Kenya) Limited
6. Bank of India
7. Citibank N.A Kenya
8. Commercial International Bank (CIB) Kenya Limited
9. Consolidated Bank of Kenya Limited
10. Cooperative Bank of Kenya Limited
11. Credit Bank PLC
12. Development Bank of Kenya Limited
13. Diamond Trust Bank Kenya Limited
14. DIB Bank Kenya Limited
15. Ecobank Kenya Limited
16. Equity Bank Kenya Limited
17. Family Bank Limited
18. Guranty Trust Bank (K) Ltd
19. Guardian Bank Limited
20. Gulf African Bank Limited
21. Habib Bank A.G Zurich
22. I&M Bank Limited
23. KCB Bank Kenya Limited
24. Kingdom Bank Limited
25. Middle East Bank (K) Limited
26. M-Oriental Bank Limited
27. National Bank of Kenya Limited
28. NCBA Bank Kenya PLC
29. Paramount Bank Limited
30. Premier Bank Kenya Limited

31. Prima Bank Limited
32. SBM Bank Kenya Limited
33. Sidian Bank Limited
34. Spire Bank Ltd
35. Stanbic Bank Kenya Limited
36. Standard Chartered Bank Kenya Limited
37. UBA Kenya Bank Limited
38. Victoria Commercial Bank PLC