FINANCIAL TECHNOLOGY AND PROFITABILITY OF SMALL AND MEDIUM ENTERPRISES IN NAIROBI CITY COUNTY, KENYA

[1]Khadija Kawira Ndia, [2]Job Omagwa, (PhD)

[1]Kenyatta University, School of Business Student

[2]Department of Accounting and Finance, School of Business, Economics and Tourism, Kenyatta University

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Abstract: **Small and medium enterprises are essential to economic growth, wealth generation, and employment in every nation. The manner in which SMEs in Nairobi, Kenya access, manage, and use their finances have been transformed by financial technology. SMEs make up 98 percent of all enterprises, account for 30 percent of annual employment, and make up 3 percent of the country's GDP. However, approximately 400,000, SMEs fail within two years. This has necessitated a rethink of whether these SMEs make profit or not. This research explored the effect of financial technology on Nairobi County's small and medium in size businesses' profitability for the period of 5 years (2019-2023). The objectives of the investigation was to explore the effect of mobile money on the profitability of SMEs, the effect of online banking on the profitability of SMEs, and the effect of agency banking on the profitability of SMEs. The investigation was anchored on technology acceptance, relationship lending and resource dependency theory. Stratified sampling method was utilized in selecting 269 SME representation of the populace. The instrument that was employed to gather data is the questionnaire. Multiple regression analysis was employed and ethical considerations were duly observed. The study found that mobile money services had significant positive effect on profitability; agency banking uncovered an insignificant effect that is positive on profitability as online banking disclosed significant positive effect on the profitability of SMEs in Nairobi City County, Kenya. The government should establish a comprehensive framework that supports the integration and expansion of mobile money services within the SME sector.**

Keywords: **Financial technology, profitability and mobile money, small and medium enterprises, online banking.**

1. INTRODUCTION

1.1 Introduction and Background

Small businesses form the backbone of Kenya's economy. SMEs provide eighty percent of all employment opportunities, contributing to a growing middle class, and meeting the increased demand for new services and products. The bulk of small and medium in size businesses are engaged in the informal sector. Kenya's informal sector is assumed to be responsible for three percent of the country's GDP, thirty percent of employment opportunities, and accounts for ninety-eight percent of the country’s total companies. By 2025, the expansion of Kenya's small and medium in size businesses is projected to account for half of the country's GDP. Over 15 million people work in this expanding sector, with SMEs employing 7 out of 10 people. The biggest barrier to SME expansion in Kenya is still insufficient funds, this prevents SMEs from operating to the fullest extent possible in terms of their capacity to supply services and products, pay taxes, and generate employment (Rotich, 2022).

Financial technology entails the application of the most recent techniques to maximize the provision of financial services at the lowest feasible cost (Feyen, Frost, Gambacorta, Natarajan and Saal, 2021). Financial technology entails innovative ideas aimed at automating and simplifying the offering of banking services. At its centre, finTech refer to the utilization of specialist technologies on computers and smartphones to help businesses, consumers, and entrepreneurs control their finances, operations, and personal lives. Examples of fintech software include mobile money, online banking, and agent banking (Fineksus, 2024). The term "mobile money" or "phone payment" describes the use of cell phones for banking services; money transfers, payments for products and services, and other financial activities. Transacting financial businesses using the internet is known as online banking. Online banking describes the use of the internet for standard financial operations like bill payment, fund transfers, deposits, and balance checks.

Profitability refers to the degree to which a business activity generates financial gain, specifically represented by the net income after expenses are deducted from total revenue. A company's profitability is an indicator of its capacity to generate revenue relative to its costs. When a company's revenue growth outpaces its outlays and operating costs, it is deemed profitable. The profitability of the firm is essential to its long-term sustainability (Codjia, 2024). Evaluation of current and historical profitability is as essential, as its projection of future profitability. While a single year of losses might not have a lasting negative impact on the company, a string of losses or net income that is not high enough to cover costs could threaten the company's sustainability. A company's entire financial resources are finite and ought to be allocated to the most advantageous purposes. The quantity of money accessible for investment in lucrative routes is decreased when significant sums are invested in present assets (Murray, 2022).

A small and medium enterprise (SME) in Kenya with yearly sales of less than one million Kenyan shillings, is considered to be an SME. Small businesses employ 10–49 people, while medium-sized businesses employ 50–99. A third of Kenya's GDP is made up of the more than 7.4 million SMEs that employ almost 14.9 million Kenyans across a variety of economic sectors. Despite their enormous contributions, SMEs face the risk of failing in the initial few months of operation due to a variety of factors, including little cash, restricted market access, subpar infrastructure, a lack of expertise and skills, and the quick advancement of technology. It has also been observed that, despite the fact that a majority of SMEs expand quickly after beginning, only a small proportion grow continuously and consistently throughout the course of their existence. Thus, it has been suggested that approximately 400,000 micro, small, and medium-sized businesses fail within two years in Kenya (Kenya National Bureau of Statistics, 2022). This raises questions about the viability and profitability of this important industry (Financial Investment Outlook, 2024).

1.2 Research Problem

A key component of Kenya's economy are small and medium enterprises. Generally, they make up more than 90% of the labour force, which helps to expand the economy and lessen poverty. SMEs are a vital conduit for Kenyans' entrepreneurial spirit as well as a source of innovation and competitiveness. SMEs are a vital part of Kenya's economy, making a substantial contribution to the creation of jobs, economic expansion, and development. SMEs boost market vibrancy and provide an abundance of new skills and ideas to the economy (Rotich, 2022**)**. Additionally, they are accountable for numerous creations as well as breakthroughs that disrupt markets and enhance the quality of life of customers nationwide. The industry's profitability is crucial to its existence and economic contribution. If the industry's profit is not encouraging, firms may find it difficult to fulfil their obligations, which would restrict their opportunities to contribute to the economy and perhaps cause abrupt declines in both overall performance and profitability (Wasike, 2023).

Extensive empirical investigations have been conducted on financial technology and profitability of firms. Ndung'u (2021) explored the impact of mobile money on the expansion of SMEs in Kenya's Kiambu County and found that mobile money has a notable and favourable influence on SMEs' growth. Musa and Njeru (2023) studied the effect of mobile banking on financial success of SMEs in Nairobi County, and no statistically noteworthy relationships exist between mobile banking and Small and Medium Enterprises' financial result. Gilbert and Emmanuel (2020) investigated the effect of agency banking on non-financial effectiveness of Rwandan commercial banks and established that a notable and favourable impact on Rwanda's money deposit banks' financial performance. Gloria (2022) studied SMES in Nansana Masitoowa, Ugandain an effort to explore the influence of agency banking on financial inclusion and found that agent banking has an advantageous and noteworthy impact on SMEs. The mentioned investigations were carried out in different countries, organizations and some other parts of Kenya. The combined effects of different financial technologies on the profitability of SMEs have not been thoroughly evaluated in prior research. Comprehending their combined consequences is essential to knowledge advancement. Additionally, inconsistent results from the literature already in existence have left a vacuum in the current research since there are mix findings in the various investigations. Therefore, the investigation sought to ascertain the effect of financial technology on profitability of small and medium in size enterprises (SMEs) in Nairobi City County, Kenya.

1.3 General Objective

The overall objective of the study was to assess the effect of financial technology on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

1.4 Specific Objectives

The investigation was guided by the specific objectives listed below:

i. To examine the effect of mobile money on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

ii. To assess the effect of agency banking on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

iii. To explore the effect of online banking on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

1.5 Research Hypotheses

The study tested the following null hypotheses:

$H_{01:}$ Mobile money has no significant effect on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

$H_{O2:}$ Agency banking has no significant effect on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

$H_{03:}$ Online banking has no significant effect on profitability of Small and Medium Enterprises in Nairobi City County, Kenya.

1.6 Scope of the Study

This investigation's primary focus was on how financial technology (such as mobile money, agency banking, and online banking) affects the profitability of SMEs in Nairobi City County for the period of 5years (2019-2023). The inquiry covered SMEs across various sectors including manufacturing, trade, construction, agriculture, and service industries. To gather a sample of the SMEs that participated in the investigation, stratified random sampling was used and the sample size of the study achieved was 269 SMEs. Theoretical underpinnings of resource dependency theory, relationship lending, and technological acceptability supported the study. Consequently, cross-section regression approaches were employed in this work.

1.7 Value of the Study

This study is important in showing how FinTech adoption has changed various operations of SMEs hence giving evidence that can educate policy decisions. Policymakers, this research will enable them create better environment for FinTech adoption like digital literacy programs and facilitating access to affordable internet services. Value of the review to practice will provide insights into adopting FinTech tools in improving financial management and increase profitability. This study will contribute to the broader field of financial technology by studying its specific effect on the profitability of SMEs. The study may inspire future research on the broader economic effect of FinTech.

The results of the study will inform financial institutions on the evolving needs of SMEs and the need to collaborate to provide excellent FinTech solutions. This investigation will provide crucial information to SMEs on the advantages and disadvantages of FinTech hence helping them optimize their financial operations. The study will inform financial institutions on the evolving needs of SMEs and the need to collaborate to provide excellent FinTech solutions. The findings will also add to the existing body of literature on adoption of FinTech and its impact on SMEs especially in Kenya.

2. REVIEW OF LITERATURE

2.1 Theoretical Review

This section explains the several ideas that have been created to explain how different financial technology components affect an organization's financial performance. Three major theories serve as the foundation for this study's theoretical review: Profit Maximization Theory, Relationship Lending Theory, and Technology Acceptance Model (TAM).

2.1.1 Profit Maximization Theory

Smith (1958) is the founder of the profit maximization theory. According to the theory, because they are bound by contracts with other owners, each business owner would work in their own best interests to maximize profit, enhancing society's general benefit. This theory is anchored to the profitability of SMEs since it provides bases for evaluating how FinTech solutions can enhance profitability. The idea behind profit maximization theory is that every business should run to increase earnings. Successful companies can achieve this via boosting sales, increasing the pricing at which they offer their services or products, as well as lowering production costs. They may choose to do so because they have more favourable access to resources than other groups may. According to this hypothesis, an organization would select the path of action that would provide the highest profit. Even when there are other options that could have a higher overall cost or greater overall benefit, a company would choose the one with the lowest production cost. This theory is anchored to the profitability of SMEs since it provides bases for evaluating how FinTech solutions can enhance profitability. This theory is pertinent to this present investigation as it assists SMEs to decide on how to produce goods on minimum cost in order to maximize profit. The theory therefore supports profitability of SMEs.

2.1.2 Technology Acceptance Theory

Davis (1989) is the proponent of Technology Acceptance Model theory (TAM). The theory concentrates on the acquisition and application of technology by people. It places a strong emphasis on how usability and perceived utility affect users' attitudes and real usage. Technological Acceptance Model characterizes technology adoption as a three-step procedure in which exogenous components (properties of the entire system layout) inspire Cognitive actions (perceived utility and simplicity of use), which afterwards combine to create a successful response (intention/attitude toward adopting technology), influencing usage behaviour (Davis, 1989). TAM is useful for researching SMEs' opinions of financial technology breakthroughs. The theory is connected to the online banking and mobile money variable in this study. The theory applies to the current investigation because it helps explain how financial technology affects SMEs in Nairobi by evaluating user attitudes and their opinions about the utility and usability of technology.

2.1.3 Relationship Lending Theory

Phyle (1977) put forth this theory. According to the theory, information flows between borrowers and lenders increase with the length of their connection. This theory forecasts technology lending across several nations with varying institutional configurations, including differing legal, social, and fiscal frameworks. Financial institutions (FI) have developed a growing interest in relationship financing, especially for smaller organizations. Relationship lending theory is pertinent to this investigation since it focuses on the exchange of pertinent data regarding the borrower's prospects and creditworthiness over an extended period of time. Especially in tiny entities. In this study, it would help explain how digital lending platforms that uses data-driven perspectives to assess creditworthiness can affect SME’s ability to acquire financing hence affecting their profitability. The theory therefore supports agency banking variable.

2.2 Empirical Review

The study reviews various empirical studies which are captured hereunder.

2.2.1 Agency Banking and Profitability

Gilbert and Emmanuel (2020) investigated how agency banking influence the non-financial success of Rwandan commercial banks. Multiple regression estimation technique was employed in addition to descriptive and correlative analysis in the investigation. The investigation's findings demonstrated a noteworthy and favourable influence on Rwanda's commercial banks' financial performance, particularly KCB Rwanda. The investigation concluded that commercial banks' financial performance would increase if they provide extensive extension agency banking services to other secondary cities in Rwanda. Olango, Museve, and Wu'Adongo (2023) examined how agent banking affected the productivity of small-scale manufacturers in Kenya's Kisumu County. SMEs that have been in business for at least five years and operate in Kisumu County made up the targeted demographic. For the investigation, a sample size of 384 was chosen. Business documents, interview schedules, and questionnaires were utilized to gather primary data. The result revealed a negligible favourable link among SME performance and agent banking. The results of the investigation established that the performance of Kisumu County's small-scale manufacturing businesses and agency banking were statistically unrelated. Manufacturing SMEs in Kisumu County Kenya served as the primary focus for the aforementioned analysis. Hence, the latest investigation focused on profitability of SMEs in Nairobi, Kenya.

How agent banking affects financial effectiveness of SMEs in Nairobi City Centre, Kenya, was investigated by Musa and Njeru (2023). The data collected from the target group, which included SME owners in the retail sector based in Nairobi City centre, was analysed using a descriptive study approach. In order to ensure businesses are adequately represented in relation to their size and sector, a simple random sampling procedure was utilized to choose the 300 SMEs that made up the sample. Surveys were employed to gather primary data. The findings showed that there were no notable correlations among the financial performance of SMEs and agent banking. These results suggested that SMEs might not realize appreciable gains in their financial outcomes by using agent banking services alone, as there is no statistically significant correlation between agent banking and financial success.

2.2.2 Mobile Money and Profitability

The impact of mobile money adoption on the operations of micro family businesses in the state of Ekiti was studied by Isaac and Ogundipe (2021). The study's questionnaire was completed by 150 people, chosen by means of an intentional and coincidental sampling strategy. Descriptive statistics was utilized to assess the data that were collected. The investigation outcome indicated that the use of mobile money by family businesses has a favourable and notable impact on their performance in Nigeria's Ekiti State. The study established that the effectiveness of the chosen family businesses were highly impacted by the use of mobile money. The investigation's main focus was on micro family businesses in the state of Ekiti during Covid-19 lockdown which didn't fully capture the broader effects of mobile money adoption on other types of SMEs or different regions. Profitability of Nairobi, Kenya's SMEs was the subject of this study.

Hassan (2023) examined how Zambian informal enterprises performed after adopting mobile money. The World Bank Group's 2019 Zambia Informal Sector Business Survey, which included a sample of 914 businesses, provided the statistics. The data were analysed using an instrumental variable bivariate probit model. The study discovered that mobile money greatly enhances the effectiveness of unofficial enterprises. The study concluded that enhancing informal business performance requires the usage of digital technology like mobile money. The aforesaid investigation majorly on the basis of how Zambian informal enterprises performed. Therefore, the recent investigation was based on profitability of Nairobi, Kenya's SMEs.

2.2.3 Online Banking and Profitability

How online banking affects financial success of banks listed on the IDX from 2014-2020 was examined by Medyawati, Yunanto, and Hegarini (2021). Regression analysis using panel data was utilized in the study. 44 commercial banks that were registered with the Financial Services Authority (Otoritas Jasa Keuangan) made up the research population. Purposive sampling was employed to choose them between 2014 and 2020. A sample of six banks was chosen. The findings demonstrated that online banking had a beneficial impact on ROA. Results from the investigation indicated that online banking had an influence on bank profitability. The aforementioned investigation considered banks listed on the IDX while this present investigation focused on SMEs in Nairobi, Kenya.

How internet banking affects SMEs in Kenya's Kabati market was investigated by Muthengi (2022). The investigation utilized a descriptive cross-sectional methodology, based on a stratified random sampling method with a sample size of 223 companies to examine every merchant and distributors in the Kabati market, which had a total sum of 502 SMEs. Primary data for the study were gathered through questionnaires. The investigation indicated that the financial inclusion of SMEs in Kenya's Kabati market was positively and significantly impacted by internet banking. The study concluded that in Kenya's Kabati market, online banking makes financial services more quickly, conveniently, and effectively available. SMEs in Kenya's Kabati market were adopted for research while SMEs in Nairobi, Kenya was utilized for the current study.

3. METHODOLOGY

In the present investigation, it has been determined that an explanatory cross-sectional strategy would be better suitable for tackling the topics under investigation (Kothari, 2008). This explanatory research design is used to describe a research problem that has little or no previous study relating to the research study. The goal of explanatory research is to determine the cause-and-effect link amongst variables (Cooper & Schindler, 2009). Thus, explanatory research approach was applied in line with the investigation's specific objectives which seek to explore the effect of financial technology on profitability of SMEs in Nairobi City County, Kenya. To gather a sample of the SMEs that participated in the investigation, stratified random sampling was used. The sectors that was most affected is Kenya's manufacturing, construction, trade, agriculture, and service sectors. To account for fluctuations in the dependent variables, multiple regressions combine several independent variables. Multiple regression model below was used to ascertain the link amongst the variables:

$$\mathbf{P = \beta_0 + \beta_1 MM_i + \beta_2 AB_i + \beta_3 OB_i + \varepsilon_i}$$

Where:

P = Profitability

MM= Mobile Money

AB= Agency Banking

OB = Online Banking

β_0= Constant Term

β_1-β_4= Beta Coefficients

ε **=** Error term

i = subscript for SMEs

The multiple regression specified in equation above was estimated following cross-sectional procedure. The aim of multiple regression analysis is to determine the extent to which fluctuations in the dependent variable may be explained by changes in the independent variables. The study relied exclusively on primary data. Thus, questionnaires are the most appropriate data collection instrument to be used in this investigation. The most effective ways to collect data are through study questionnaires, claims Bolarinwa (2015)

4. RESULTS AND FINDINGS

This chapter examined the results of the investigation, utilizing both descriptive and inferential statistical methods for analysis. The findings are systematically aligned with the initial research objectives, presenting a comprehensive overview of the perceptions gained.

The observed coefficients of the multiple regression analysis are documented in Table below.

Table 1: Regression Results

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	.409	.362		1.130	.260
	Mobile Money	.258	.112	.215	2.314	.022
	Agency Banking	.139	.082	.145	1.686	.093
	Online Banking	.426	.132	.265	3.228	.001

Source: Field Survey (2024)

The outcome uncovered noted a constant term of 0.409 which connotes a baseline level of profitability when all other variables are held constant. Among the financial technology variables, mobile money showed an unstandardized coefficient of 0.258 with a significance level of 0.022. This outcome suggests that increased adoption of mobile money services by a percentage would amount to improvement in the profitability by 0.258 percent. This implies that mobile money has a significant effect on the profitability of these SMEs hence implying that the null hypothesis is declined leading to the conclusion that mobile money has a significant effect on the SMEs profitability.

Agency banking also presented an interesting result, with an unstandardized coefficient of 0.139 and a significance level of 0.093. While this coefficient indicates a positive effect on profitability, the significance level suggests that it is not statistically significant at conventional levels ($p < 0.05$). Therefore, agency does not have a significant effect on the SMEs profitability resulting in the null hypothesis being upheld. This signifies that an increase in the agency banking adoption by one percent would result in an incremental change of 0.139 percent in profitability of the SMEs. In contrast, online banking demonstrated a strong positive effect on profitability with an unstandardized coefficient of 0.426 and a highly significant p-value of 0.001. This result implies that an improvement in the adoption of online banking by a percentage would lead to the SMEs profitability increase of 0.426 percent in Kenya. This output implies that online banking has a substantial impact on the profitability of SMEs thereby leading to the rejection of the null hypothesis thus, concluding that online banking has a significant effect on the profitability of SMEs.

5. CONCLUSION

Drawing from the unique objective regarding the effect of mobile money on the profitability of small and medium enterprises (SMEs) in Nairobi City County, Kenya, the study reveals that mobile money significantly enhances the profitability of these enterprises. This highlights mobile money's transformative role in enhancing operational efficiency by enabling quick transactions and better cash flow management, which helps businesses respond effectively to market demands. Corroborating with the survey objective that aimed to determine the effect of agency banking on the profitability of small and medium enterprises (SMEs), the findings reveal an insignificant positive effect on the profitability of these enterprises. This conclusion indicates that agency banking does not play a major role in enhancing the financial performance of SMEs in Nairobi City County. Noticeably, the effect of online banking on the profitability of small and medium enterprises (SMEs) reveals a significant positive effect, indicating that online banking is a crucial driver in improving the financial performance of these businesses. Conclusively, online banking significantly enhances profitability by increasing operational efficiency and accessibility for SMEs.

6. RECOMMENDATIONS

Based on the survey findings, the following recommendations are proposed.

The government should establish a comprehensive framework that supports the integration and expansion of mobile money services within the SME sector. This framework should include initiatives to enhance financial literacy among SME owners regarding the benefits of mobile money, focusing on its role in improving cash flow management and operational efficiency. Additionally, the management of these SMEs should actively integrate mobile money solutions into their operations by partnering with mobile service providers to streamline payment processes and improve customer engagement. Additionally, businesses could leverage mobile money analytics to gain insights into customer preferences and spending behaviours, allowing them to tailor their offerings and marketing strategies effectively. By implementing these recommendations, stakeholders can maximize the potential of mobile money to drive profitability and growth among SMEs in Nairobi.

The government should focus on enhancing the effectiveness and relevance of agency banking services to better meet the needs of these businesses. This could involve conducting targeted assessments to identify the specific barriers SMEs face when utilizing agency banking, such as service accessibility, quality of support, or the range of financial products offered. The management of these SMEs should actively engage with their banks to advocate for tailored services that address their unique financial needs, such as more accessible credit facilities or improved transaction processes through agency banking. By adopting these recommendations, stakeholders can work towards enhancing the effectiveness of agency banking as a tool for improving SME profitability in Nairobi City County.

The government should work closely with financial institutions to ensure that online banking platforms are user-friendly, secure, and tailored to meet the specific needs of SMEs. This could involve providing training programs and resources that help business owners understand how to effectively utilize online banking tools for managing finances, streamlining operations, and enhancing cash flow. Also, the management of these SMEs should actively adopt online banking solutions to streamline their financial operations, reduce transaction costs, and enhance cash flow management. Training programs should be implemented to educate SME owners and employees on effectively using online banking tools for invoicing, payments, and financial tracking. By implementing these recommendations, stakeholders can leverage online banking to enhance the profitability and sustainability of SMEs in Nairobi City County.

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