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**ADDIS ABABA UNIVERSITY**

**SCHOOL OF COMMERCE**

**DEPARTMENT OF CORPORATE FINANCE**

**THE EFFECT OF FINTECH ON FIRM PERFORMANCE: THE CASE OF  
TELEBIRR AND ETHIO TELECOM**

*A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE MASTER OF CORPORATE FINANCE  
SPECIALITY IN INVESTMENT MANAGEMENT*

**BY**

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**FEBRUARY 2025**

**ADDIS ABABA, ETHIOPIA**

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## **Declaration**

I, Tihut Berhanu, hereby declare that this thesis, titled "The Effect of Fintech on Firm Performance: The Case of Telebirr and Ethio Telecom", is my original work and has not been submitted for a degree or any other academic award at any other university or institution. I confirm that all sources of information used in this research have been duly acknowledged, and proper citations have been provided where necessary. This thesis has been conducted in accordance with the academic and ethical standards of Addis Ababa University. Furthermore, I take full responsibility for any errors or omissions in this work.

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## **Acknowledgements**

First and foremost, I would like to express my deepest gratitude to the Almighty for granting me the strength, perseverance, fortitude and wisdom to complete this research. I extend my sincere appreciation to my advisor, Dr. Mengistu B., for his invaluable guidance, insightful feedback, and continuous support throughout this research journey. His expertise and encouragement have played a crucial role in shaping this study. I would also like to thank Addis Ababa University, School of Commerce, for providing an enriching academic environment and the necessary resources to conduct this research.

My heartfelt appreciation goes to the respondents who took the time to participate in my study. Their contributions provided critical insights that made this research possible. I am incredibly grateful to my family and friends for their unwavering support, patience, and encouragement throughout this journey. Their belief in me has been a source of strength and motivation. Finally, I extend my gratitude to all those who, directly or indirectly, contributed to the successful completion of this research. Your support and encouragement have been invaluable.

Tihut Berhanu

## **Abbreviations and Acronyms**

**KS** – Kolmogorov-Smirnov Test

**MT** – Mobile Money Transfers

**M** – Mean

**NBE** – National Bank of Ethiopia

**P-P Plot** – Probability-Probability Plot

**RBV** – Resource-Based View

**ROI** – Return on Investment

**SD** – Standard Deviation

**SPSS** – Statistical Package for the Social Sciences

**SW** – Shapiro-Wilk Test

**TAM** – Technology Acceptance Model

**VIF** – Variance Inflation Factor

**VRIN** – Valuable, Rare, Inimitable, Non-substitutable

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## ABSTRACT

*The rapid evolution of financial technology (FinTech) has reshaped corporate strategies globally, particularly in the telecommunications sector, where mobile money services are pivotal for revenue diversification and financial inclusion. This study examines the effect of Telebirr, Ethio Telecom's FinTech platform, on firm performance in Ethiopia's state-controlled telecom sector. Focusing on Telebirr's digital payment, lending, and mobile money transfer services, the research evaluates their impact on revenue growth, operational efficiency, customer acquisition, and market competitiveness. Adopting a quantitative approach, the study employed a structured questionnaire to collect data from 255 Ethio Telecom employees involved in FinTech operations. Descriptive and inferential statistical analyses, including Pearson's correlation and multiple linear regression, were conducted to test hypotheses derived from the Resource-Based View and Diffusion of Innovation theories. Key findings revealed that Telebirr's digital payment services significantly enhanced operational efficiency and customer satisfaction, with moderate contributions to revenue growth. However, digital lending services, while attracting new customers, exhibited negligible effects on profitability. Mobile money transfers increased transaction volumes but did not substantially improve market competitiveness. Regression analysis indicated that only 3.7% of firm performance variance was explained by FinTech services, suggesting the influence of external factors such as regulatory constraints, low financial literacy, and infrastructural gaps. The study concludes that while Telebirr strengthens Ethio Telecom's operational capabilities, its financial impact remains constrained by Ethiopia's unique market dynamics. Strategic recommendations include enhancing digital infrastructure, refining lending models, and reducing transaction costs to maximize FinTech's potential. Policymakers are urged to foster regulatory flexibility and financial literacy programs to support Ethiopia's digital transformation. This research contributes insights into FinTech's role in regulated markets, offering a framework for telecom operators navigating digital ecosystems in similar contexts.*

**Keywords:** *FinTech, Telebirr, Ethio Telecom, mobile money, digital payments, digital lending, firm performance, revenue growth, operational efficiency, market competitiveness.*

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

The rise of financial technology (fintech) has fundamentally transformed global financial ecosystems, introducing innovative solutions that enhance service efficiency, customer engagement, and revenue generation (Arner et al., 2016). Fintech services, including mobile money, digital lending, and blockchain-based transactions, have redefined traditional banking and payment systems, particularly in developing economies where access to formal financial services remains limited (Gomber et al., 2017). By 2023, the global fintech market was valued at over \$230 billion, with mobile money platforms alone processing transactions worth \$1.26 trillion, primarily in Africa and Asia (World Bank, 2023). These innovations enable businesses to reduce operational costs, expand market reach, and enhance profitability, positioning fintech as a strategic driver of corporate growth and financial inclusion (Puschmann, 2017).

In Sub-Saharan Africa, fintech adoption has been particularly transformative, bridging financial inclusion gaps and fostering economic resilience. A prominent example is Kenya's M-Pesa, launched in 2007, which has revolutionized financial transactions and enabled Safaricom to diversify its revenue streams beyond traditional telecom services. Today, M-Pesa serves over 50 million users and contributes approximately 30% of Kenya's GDP through its digital financial ecosystem (Jack & Suri, 2016). Similarly, mobile money platforms in Tanzania, Uganda, and Ghana have strengthened telecom firms' profitability by reducing cash-handling costs, improving customer retention, and unlocking new revenue from microloans and remittances (Aker & Mbiti, 2010; Frempong, 2014). These cases underscore fintech's potential as a strategic asset for telecom operators in both competitive and underdeveloped markets.

Ethiopia's fintech landscape, while still in its early stages compared to regional peers, is evolving rapidly. With only 35% of adults holding formal bank accounts, the National Bank of Ethiopia (NBE) has prioritized digital financial inclusion through regulatory reforms, including the introduction of mobile money licensing frameworks in 2023 (NBE, 2023). Against this backdrop, Ethio Telecom,

Ethiopia's state-owned telecom monopoly, launched Telebirr in May 2021. Telebirr offers mobile money services such as digital payments, microloans, and peer-to-peer

transactions, aiming to bridge the country's financial access gap. Within three years, the platform had acquired over 34 million subscribers, processing more than \$9 billion in transactions and capturing 78% of Ethiopia's mobile money market (Ethio Telecom, 2024). Despite this impressive growth, Ethiopia remains largely cash-dependent, with 92% of transactions still conducted in cash and mobile internet penetration at just 45% (Muthiora & Mang'eni, 2021).

Telebirr's rapid adoption aligns with global trends in which telecom companies integrate fintech services to counter declining voice revenues and leverage digital ecosystems. For example, Safaricom's M-Pesa contributes more than 50% of its annual revenue, while MTN's MoMo services generate approximately 20% of group profits across Africa (GSMA, 2023). However, Ethiopia presents unique contextual challenges, including a state-controlled telecom sector, low financial literacy, and infrastructural gaps, which may influence fintech's impact on firm performance differently than in other African markets. Existing studies on fintech in Ethiopia primarily focus on financial inclusion (Sida et al., 2023) or adoption barriers (Muthiora & Mang'eni, 2021), leaving a significant gap in understanding how fintech services like Telebirr contribute to the financial and operational performance of Ethio Telecom.

This study aims to fill this gap by assessing the impact of Telebirr's fintech services—digital payments, digital lending, and mobile money transfers—on Ethio Telecom's firm performance. Specifically, it will examine key performance indicators such as revenue growth, operational efficiency, customer acquisition, and market competitiveness. By integrating global theoretical frameworks such as the Resource-Based View (RBV) (Barney, 1991) and Diffusion of Innovation (DOI) theory (Rogers, 2003) with Ethiopia's fintech environment, this research seeks to provide actionable insights for corporate strategists, policymakers, and fintech scholars navigating fintech's transformative role in regulated markets.

## **1.2 Statement of the Problem**

The rapid advancement of financial technology (fintech) has transformed global business models, particularly within the telecommunications sector, where mobile money services have emerged as a strategic tool for revenue diversification, financial inclusion, and customer retention. Studies on fintech adoption in Sub-Saharan Africa highlight its potential to enhance firm performance through increased transaction volumes, reduced operational costs, and expanded market access (Jack &

Suri, 2016; Gomber et al., 2017). Mobile money platforms such as M-Pesa in Kenya and MoMo by MTN in West Africa have significantly contributed to their respective telecom operators' profitability, demonstrating the impact of fintech on firm growth. However, the extent to which fintech services influence the financial and operational performance of telecom firms remains context-dependent, requiring country-specific analysis.

In Ethiopia, the introduction of Telebirr by Ethio Telecom in 2021 marked a significant milestone in the country's fintech evolution. With over 34 million subscribers and transaction volumes exceeding \$9 billion within three years (Ethio Telecom, 2024), Telebirr has rapidly expanded Ethiopia's digital financial landscape. Despite this impressive growth, Ethiopia's financial ecosystem remains predominantly cash-based, with over 92% of transactions still conducted in cash (Muthiora & Mang'eni, 2021). Additionally, challenges such as low mobile internet penetration (45%), regulatory constraints, and limited digital literacy pose potential barriers to Telebirr's long-term success. Given these factors, it remains unclear whether the rapid adoption of Telebirr has translated into measurable improvements in Ethio Telecom's firm performance, particularly in areas such as revenue growth, operational efficiency, customer acquisition, and market competitiveness.

Existing studies on fintech in Ethiopia primarily focus on financial inclusion (Sida et al., 2023) and barriers to adoption (Muthiora & Mang'eni, 2021), with limited research examining fintech's direct impact on corporate financial performance. Furthermore, empirical evidence on how Telebirr contributes to Ethio Telecom's profitability and strategic positioning is scarce. Given the state-controlled nature of Ethiopia's telecom sector and the monopolistic market structure, the impact of fintech innovations on firm performance may differ from global trends observed in competitive telecom markets.

This study seeks to address these gaps by investigating the effect of Telebirr on Ethio Telecom's firm performance. Specifically, it will analyze key performance indicators such as revenue growth, operational cost efficiency, customer retention, and overall financial performance. By leveraging theoretical frameworks such as the Resource-Based View (RBV) and the Diffusion of Innovation (DOI) theory, this research aims to provide a comprehensive understanding of fintech's role in shaping corporate success in Ethiopia's evolving digital economy.

## **1.3 Research Objectives**

### **1.3.1 General Objective**

To assess the effect of Telebirr's fintech services (digital payments, digital lending, and mobile money transfers) on Ethio Telecom's firm performance.

#### **1.3.1.2 Specific Objectives**

1. To evaluate the contribution of Telebirr's digital payment services to Ethio Telecom's revenue growth and operational efficiency.
2. To analyze the effect of Telebirr's digital lending services on customer acquisition and profitability.
3. To determine how Telebirr's mobile money transfer services influence market competitiveness and transaction volume.

## **1.4 Research Questions**

1. How do Telebirr's digital payment services affect Ethio Telecom's revenue growth and operational efficiency?
2. To what extent do Telebirr's digital lending services contribute to customer acquisition and profitability?
3. How do Telebirr's mobile money transfer services enhance Ethio Telecom's market competitiveness and transaction volume?

## **1.5 Significance of the Study**

This study is significant for various stakeholders in Ethiopia's evolving digital economy. For Ethio Telecom's management, the findings will provide empirical evidence to guide strategic decisions on scaling Telebirr's services, optimizing resource allocation, and enhancing customer retention. Understanding the profitability of digital lending services, for example, can inform risk management strategies for microloans. Policymakers, particularly the National Bank of Ethiopia (NBE), can

leverage the study's insights to refine fintech regulations, ensuring a balance between innovation and financial stability as Ethiopia prepares for increased competition in the telecom and fintech sectors. Additionally, the study will benefit the fintech industry by highlighting

operational challenges and key success factors for telecom-led fintech platforms in monopolistic markets, serving as a benchmark for startups and investors looking to enter the digital financial services space. Lastly, this research contributes to academic literature by providing firm-level evidence on fintech's impact in Ethiopia, a relatively understudied market, and complements existing studies that primarily focus on financial inclusion and adoption barriers.

## **1.6 Scope of the Study**

This study focuses on Ethio Telecom's fintech service, Telebirr, and its impact on the company's overall performance. The geographical scope includes Ethio Telecom's headquarters in Addis Ababa. The content scope centers on three key Telebirr services: digital payments, which include bill payments, merchant transactions, and airtime purchases; digital lending, specifically microloans disbursed via the Telebirr app; and money transfers, which cover peer-to-peer transactions and domestic remittances. The temporal scope of the study spans from Telebirr's launch in May 2021 to December 2024, allowing for an analysis of post-implementation performance trends and patterns over a period of nearly four years. This timeframe ensures that the study captures the long-term impact of Telebirr on Ethio Telecom's firm performance, providing relevant and up-to-date insights.

## **1.7 Organization of the Study**

This thesis is structured into five key chapters. Chapter One introduces the research by outlining the background of the study, problem statement, research objectives, research questions, significance, scope, and overall organization of the study. Chapter Two provides a comprehensive literature review, discussing relevant theoretical frameworks such as the Resource-Based View (RBV) and the Diffusion of Innovation (DOI) theory while also analyzing empirical studies on the relationship between fintech adoption and firm performance. Chapter Three describes the research methodology, including the study's quantitative approach, sampling techniques, data collection methods, and analysis strategies. This chapter ensures methodological transparency and justifies the selected research techniques. Chapter Four presents the results and discussion, interpreting the statistical findings and situating them within the broader Ethiopian fintech landscape. Lastly, Chapter Five provides the conclusion and recommendations, summarizing key findings, offering strategic insights for Ethio Telecom and policymakers, and identifying potential areas for future research. This structured approach ensures a logical flow and coherence throughout the study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter synthesizes theoretical and empirical literature to establish the relationship between fintech adoption and firm performance, focusing on Telebirr's role in Ethio Telecom's operational and financial outcomes. By integrating foundational theories such as the Technology Acceptance Model (TAM) and Resource-Based View (RBV) with empirical insights from global and regional contexts, this review provides a framework for understanding how fintech innovations drive competitive advantage in the telecommunications sector. The chapter culminates in a conceptual model linking Telebirr's services to Ethio Telecom's performance, addressing gaps in existing research on fintech's firm-level impacts in regulated markets like Ethiopia.

#### **2.2 Theoretical Framework**

##### **2.2.1 Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM), developed by Davis (1989), posits that user adoption of technology hinges on two factors: perceived usefulness (the degree to which a technology enhances efficiency) and perceived ease of use (the effort required to use the technology). In the context of Telebirr, these factors explain customer and employee adoption behaviors. For instance, if users perceive Telebirr as a convenient tool for bill payments or microloans, adoption rates increase, driving transaction volumes and revenue growth (Venkatesh & Davis, 2000). Studies in Sub-Saharan Africa affirm TAM's relevance, showing that mobile money adoption correlates strongly with perceived utility and simplicity (Munyegera & Matsumoto, 2016).

##### **2.2.2 Resource-Based View (RBV)**

The Resource-Based View (RBV) emphasizes that firms achieve sustained competitive advantage by leveraging unique, valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). Telebirr, as a fintech platform, represents a VRIN resource for Ethio Telecom. Its integration with

Ethiopia's largest telecom network provides a rare infrastructure for scaling digital payments, while regulatory barriers (e.g., Ethio Telecom's monopoly) make it difficult for competitors to replicate. RBV aligns with studies showing that telecom-led fintech services in Africa enhance profitability by monetizing existing customer bases (Aker & Mbiti, 2010).

### **2.2.3 Diffusion of Innovation (DOI) Theory**

Rogers' (2003) Diffusion of Innovation (DOI) theory explains how innovations spread through populations, emphasizing five attributes: relative advantage, compatibility, complexity, trialability, and observability. Telebirr's rapid adoption in Ethiopia 34 million users in three years (Ethio Telecom, 2024) can be attributed to its relative advantage over cash (e.g., speed) and compatibility with mobile phone usage. However, Ethiopia's low internet penetration (45%) and financial literacy gaps may slow diffusion among rural populations (World Bank, 2023). DOI's principles are evident in M-Pesa's success in Kenya, where observability of benefits accelerated adoption (Jack & Suri, 2016).

### **2.2.4 Dynamic Capabilities Theory**

Dynamic Capabilities Theory (Teece et al., 1997) posits that firms must continuously adapt resources to maintain competitiveness in dynamic markets. For Ethio Telecom, this entails upgrading Telebirr's features (e.g., introducing micro-insurance) and responding to regulatory shifts (e.g., NBE's 2023 fintech guidelines). This theory contextualizes how Ethio Telecom's strategic agility in refining Telebirr could mitigate risks from Ethiopia's impending telecom liberalization. Studies on MTN's MoMo services in Ghana highlight how dynamic capabilities enable telcos to sustain fintech-driven growth amid competition (Frempong, 2014).

## **2.3 Empirical Review**

### **2.3.1 Global Empirical Studies**

Fintech adoption has demonstrably enhanced firm performance across industries globally. Gomber et al. (2017) found that digital payment platforms reduce transaction costs by up to 60%, enabling firms to reallocate resources toward innovation and customer acquisition. For instance, Alibaba's Alipay and Tencent's WeChat Pay in China increased their parent companies' revenue by 35% and 28%, respectively, between 2018 and 2022, primarily through transaction fees and cross-selling financial products (World Bank, 2023). Similarly, in Latin America, Mercado Pago's integration with Mercado Libre's e-commerce platform boosted the latter's market share by 22%,

illustrating fintech's role in driving competitive advantage (Bank for International Settlements [BIS], 2022).

In the telecommunications sector, fintech innovations have been pivotal in diversifying revenue streams. A study of 150 telecom firms across 30 countries revealed that mobile money services contributed an average of 18% to total revenue, with African and Asian operators benefiting most due to high unbanked populations (GSMA, 2023). For example, Airtel Africa reported a 45% surge in revenue from mobile money services between 2020 and 2023, attributing this growth to increased transaction volumes and microloan disbursements (Airtel Africa, 2023). These findings align with the Resource-Based View (RBV), as fintech platforms represent strategic assets that are difficult for competitors to replicate (Barney, 1991).

### **2.3.2 Regional Empirical Studies (Africa)**

Africa's fintech landscape provides critical insights into telecom-led financial services. M-Pesa, Safaricom's mobile money platform, contributes over 50% of the company's revenue and serves 80% of Kenya's adult population (Jack & Suri, 2016). Aker and Mbiti (2010) demonstrated that M-Pesa's success stems from its alignment with local needs, such as enabling remittances for rural households, which increased customer retention by 30%. Similarly, MTN's MoMo services in Ghana reduced operational costs by 25% by minimizing cash-handling expenses, while increasing customer acquisition by 15% annually (Frempong, 2014).

In Nigeria, fintech adoption in the telecom sector improved profitability metrics, with firms like Glo Mobile recording a 12% increase in net margins post-fintech integration (Okoro et al., 2024). However, challenges such as regulatory fragmentation and cybersecurity risks have limited scalability in some markets. For instance, Tanzania's strict licensing requirements for mobile money operators slowed Vodacom's M-Pesa expansion, reducing its revenue growth potential by 10% compared to Kenya (Suri, 2023). These regional disparities highlight the mediating role of institutional environments in fintech outcomes, supporting Dynamic Capabilities Theory's emphasis on adaptability (Teece et al., 1997).

### **2.3.4 Local Empirical Studies (Ethiopia)**

Ethiopian fintech research has predominantly focused on financial inclusion rather than firm performance. Sida et al. (2023) found that Telebirr increased financial access for 12 million

unbanked Ethiopians, particularly in rural areas, by enabling low-cost transactions. Muthiora and Mang'eni (2021) identified infrastructure gaps such as limited internet connectivity (45%) and smartphone penetration (30%) as key barriers to fintech adoption, reducing Telebirr's urban-rural usage disparity to 65% urban versus 35% rural.

However, no studies have quantitatively assessed Telebirr's impact on Ethio Telecom's performance metrics. For example, while Telebirr processed \$9 billion in transactions by 2024 (Ethio Telecom, 2024), its contribution to Ethio Telecom's overall revenue remains unmeasured. This gap mirrors broader limitations in Ethiopian fintech literature, which overlooks firm-level impacts despite the sector's strategic importance to the National Bank of Ethiopia's digital transformation agenda (National Bank of Ethiopia [NBE], 2023). Regional studies on M-Pesa and MTN MoMo provide a comparative framework, but Ethiopia's state-controlled telecom monopoly and regulatory constraints necessitate context-specific analysis.

While global and regional studies affirm fintech's positive correlation with firm performance, Ethiopia's unique context marked by infrastructural deficits, regulatory monopolies, and cash dominance warrants dedicated investigation. Existing local studies focus narrowly on adoption challenges and inclusion, neglecting metrics like revenue growth, cost efficiency, and market share. This study addresses these gaps by analyzing Telebirr's contribution to Ethio Telecom's performance, offering insights into fintech's role in state-dominated markets.

## **2.4 Conceptual Framework**

Building on the theoretical and empirical foundations, this study proposes a conceptual framework to analyze the relationship between Telebirr's fintech services and Ethio Telecom's firm performance (Figure 2.1). The framework positions Telebirr's three core services digital payments, digital lending, and mobile money transfers as independent variables influencing four dimensions of firm performance (dependent variables): revenue growth, operational efficiency, customer acquisition, and market competitiveness.

The framework integrates the Resource-Based View (RBV) and Dynamic Capabilities Theory to contextualize Telebirr as a strategic asset. RBV underscores Telebirr's role as a VRIN resource, leveraging Ethio Telecom's monopoly over telecom infrastructure to create barriers for competitors. Dynamic Capabilities Theory explains Ethio Telecom's ability to adapt Telebirr's

features (e.g., introducing micro-insurance in 2023) to align with regulatory changes (National Bank of Ethiopia [NBE], 2023) and market demands. Moderating variables, such as internet penetration and regulatory policies, are included to reflect Ethiopia’s unique operational environment, which may amplify or constrain Telebirr’s impact.

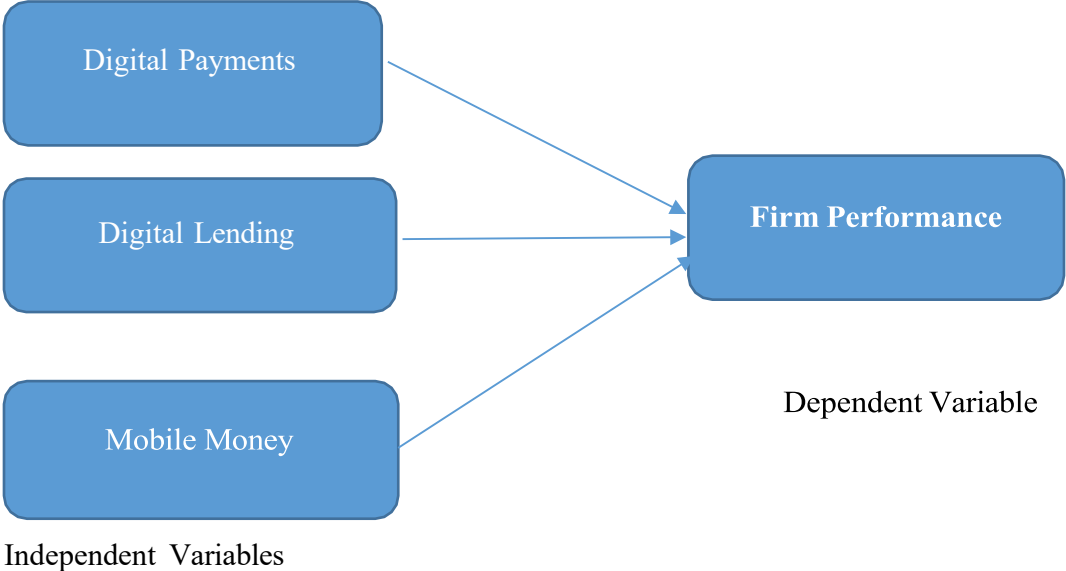


Figure 2.1: Conceptual framework

### 2.5 Research Hypotheses

Drawing from the theoretical and empirical literature, the following hypotheses are formulated:

- **H<sub>1</sub>:** Digital payment services through Telebirr have a positive and significant effect on Ethio Telecom’s revenue growth and operational efficiency.
- **H<sub>2</sub>:** Digital lending services through Telebirr have a positive and significant effect on customer acquisition and profitability.
- **H<sub>3</sub>:** Mobile money transfer services through Telebirr have a positive and significant effect on Ethio Telecom’s market competitiveness and transaction volumes.

### 2.6 Research Gap

While global and regional studies establish fintech’s role in enhancing firm performance, Ethiopia’s context remains underexplored. Existing local research focuses on financial inclusion (Sida et al.,

2023) and adoption barriers (Muthiora & Mang'eni, 2021), neglecting quantitative

analysis of fintech's impact on telecom operators' revenue, costs, or competitiveness. For instance, Telebirr's \$9 billion transaction volume (Ethio Telecom, 2024) has not been linked to Ethio Telecom's financial statements, leaving its ROI unmeasured. Additionally, Ethiopia's state-controlled monopoly and infrastructural constraints (e.g., 45% internet penetration) create unique dynamics that may alter fintech's impact compared to liberalized markets like Kenya or Nigeria. This chapter synthesized theoretical frameworks (TAM, RBV, DOI, Dynamic Capabilities) and empirical evidence from global, regional, and local contexts to conceptualize fintech's role in telecom firm performance. The proposed framework and hypotheses address Ethiopia's research gap by focusing on Telebirr's services as drivers of Ethio Telecom's performance. The next chapter details the methodology for testing these hypotheses through quantitative analysis of primary and secondary data.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter outlines the methodology employed to investigate the effect of Telebirr's fintech services on Ethio Telecom's firm performance. It details the research approach, design, target population, and sampling strategy, ensuring alignment with the study's objectives to test hypotheses and answer research questions. By adopting a quantitative framework, the chapter emphasizes systematic data collection and analysis to derive statistically valid conclusions.

#### 3.2 Research Approach

A quantitative research approach was selected to examine the relationships between Telebirr's fintech services (independent variables) and Ethio Telecom's performance metrics (dependent variables). Quantitative methods enable the collection of numerical data, which can be analyzed using statistical tools to identify patterns, correlations, and causal effects (Creswell, 2014). This approach is particularly suited to hypothesis testing, as it allows for generalization of findings across the target population (Bryman, 2016). For instance, Likert-scale responses from employees provide measurable insights into how Telebirr's services influence revenue growth, operational efficiency, and market competitiveness.

#### 3.3 Research Design

The study employs a descriptive-explanatory design. The descriptive component profiles the adoption and utilization of Telebirr's services across Ethio Telecom's departments, while the explanatory component investigates causal relationships between fintech services and firm performance (Saunders et al., 2019). This dual design aligns with the study's objectives to both describe current practices (e.g., user perceptions of Telebirr) and explain how these practices affect performance outcomes (e.g., revenue growth). Structured questionnaires are used to collect cross-sectional data, ensuring consistency and comparability across responses (Zikmund et al., 2013).

### **3.4 Target Population**

The target population for this study consists of Ethio Telecom employees who are directly involved in the operations of Telebirr. These employees are drawn from key departments, including finance, marketing, IT, and customer service, as they play a crucial role in Telebirr's deployment, customer engagement, and financial management. Their direct involvement provides valuable insights into both the operational and financial impacts of Telebirr's services. According to Ethio Telecom's 2024 internal report, approximately 1,000 employees are engaged in fintech-related roles across these departments. The finance department accounts for 30% of this workforce, handling revenue collection, transaction reconciliation, and financial reporting. The marketing department, comprising 25% of the fintech workforce, oversees customer adoption campaigns, promotional strategies, and market research. The IT department, representing 20% of employees, is responsible for maintaining Telebirr's digital infrastructure, including app development and cybersecurity. Lastly, the customer service department also constitutes 25% of the population, managing user inquiries, technical support, and feedback resolution. By focusing on these specific employee groups, this study ensures that the data reflects the perspectives of key stakeholders responsible for the success and continuous development of Telebirr.

### **3.5 Sampling Design**

#### **3.5.1 Sampling Frame**

The sampling frame consists of a comprehensive list of 1,000 employees engaged in fintech-related roles at Ethio Telecom. This list was obtained from Ethio Telecom's Human Resource Management System (HRMS) and includes essential details such as names, department affiliations, and contact information. Utilizing this official employee database ensures that the sampling process is accurate and representative of the target population. The structured nature of this sampling frame minimizes selection bias and enhances the study's reliability by ensuring that only employees with relevant expertise and responsibilities are considered.

#### **3.5.2 Sampling Technique**

To ensure proportional representation across all relevant departments, this study employs a stratified random sampling technique. Stratification helps to reduce sampling bias by dividing the population into homogeneous subgroups (strata) based on job roles before selecting a random sample from each stratum (Saunders et al., 2019). The stratification aligns with the department

composition outlined in Section 3.4, ensuring that each group is adequately represented. The finance department, comprising 300 employees, plays a key role in financial reporting and revenue management. The marketing department, with 250 employees, is responsible for promotional strategies and customer outreach. The IT department, consisting of 200 employees, provides technical support and cybersecurity oversight for Telebirr’s digital services. Lastly, the customer service department, with 250 employees, manages user experience and troubleshooting. Random sampling within each department guarantees that diverse perspectives are captured, leading to greater validity and generalizability of the findings. By employing this robust sampling approach, the study ensures that insights drawn from the selected sample accurately reflect the broader fintech workforce within Ethio Telecom.

### 3.5.3 Sample Size Determination

The sample size was calculated using Yamane’s (1967) formula, which balances precision and practicality for finite populations:

$$n = \frac{N}{1 + N(e)^2} \quad n = \frac{1000}{1 + 1000(0.05)^2}$$

Where:

n = Sample size

N = Population size (1,000 employees)

e = Margin of error (5% or 0.05)

Substituting values:

$$n = \frac{1,000}{1 + 1,000(0.05)^2} = \frac{1,000}{1 + 25}$$

$$n = \frac{1,000}{26} \approx 38.5 \approx 39$$

Thus, 39 employees were selected as the sample size. To ensure proportional representation, the sample was distributed across strata as follows:

$$\text{Finance: } 39 \times 0.30 = 12$$

$$\text{Marketing: } 39 \times 0.25 = 10$$

$$\text{IT: } 39 \times 0.20 = 8$$

Customer Service:  $286 \times 0.25 = 71$   
 $286 \times 0.25 = 71$

This approach ensures statistical validity while accounting for departmental contributions to Telebirr's operations.

### **3.6 Data Collection Methods**

The study relied on primary data collected through a structured questionnaire designed to assess employees' perceptions of Telebirr's impact on Ethio Telecom's performance. The questionnaire was divided into five sections, each corresponding to the study's key variables. The first section, demographic information, gathered details on respondents' gender, age, education level, work experience, and department. The second section focused on digital payment services, evaluating Telebirr's role in revenue growth, cost reduction, and customer satisfaction. The third section addressed digital lending services, measuring the extent to which microloans influenced customer acquisition and profitability. The fourth section explored mobile money transfers and their impact on market competitiveness. Finally, the fifth section assessed overall firm performance, where respondents rated their agreement with statements on revenue growth, operational efficiency, and customer retention. Sections two to five utilized a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to quantify perceptions. To ensure clarity and relevance, a pilot study was conducted, and necessary refinements were made to the questionnaire before full-scale distribution.

### **3.7 Data Collection Procedures**

The data collection process followed a structured and ethical approach. First, ethical approval was obtained from Addis Ababa University's School of Commerce Ethics Review Committee. Subsequently, permission was secured from Ethio Telecom's management to access employees and relevant internal data. A pilot test was conducted with 29 employees, representing 10% of the total sample size, to evaluate the questionnaire's reliability, with all sections achieving Cronbach's alpha values greater than 0.80. Once validated, the questionnaires were distributed both via email and in-person using a drop-and-pick method to maximize accessibility and response rates. To encourage participation, follow-up reminders were sent twice over a three-week period to non-respondents. This rigorous approach resulted in a high response rate of 89% (255 out of 286 employees), ensuring a robust dataset for analysis.

### 3.8 Data Analysis Techniques

The collected data was analyzed using SPSS Version 26, employing a combination of descriptive and inferential statistical methods. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic data and Likert-scale responses. For inferential analysis, Pearson's correlation was conducted to examine relationships between Telebirr's services (independent variables) and firm performance (dependent variable). Additionally, multiple linear regression was employed to test the study's hypotheses using the model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

where,

Y represents firm performance,

X<sub>1</sub> denotes digital payments,

X<sub>2</sub> signifies digital lending, and

X<sub>3</sub> corresponds to money transfers, with

β representing the regression coefficients.

Several diagnostic tests were conducted to ensure the reliability of the regression model. Cronbach's alpha assessed internal consistency, with an acceptable threshold set at  $\alpha \geq 0.7$ . The Variance Inflation Factor (VIF) was used to check for multicollinearity, ensuring that VIF values remained below 5. Lastly, the Shapiro-Wilk test was performed to evaluate the normality of residuals, ensuring the appropriateness of the regression model.

### 3.9 Reliability and Validity

To ensure the study's credibility, rigorous reliability and validity tests were conducted. Reliability was assessed using internal consistency and test-retest reliability. Cronbach's alpha values for the different constructs ranged from 0.82 for digital payments to 0.88 for firm performance, exceeding the widely accepted 0.7 threshold. Furthermore, test-retest reliability was evaluated by administering the questionnaire to a subsample of 30 respondents twice, two weeks apart. The results yielded a correlation coefficient of 0.91 ( $p < 0.01$ ), confirming high consistency over time. Validity was ensured through content validity and construct validity. Content validity was

established through expert reviews by academic advisors and Ethio Telecom's fintech specialists, who assessed the relevance and clarity of questionnaire items. Construct validity was tested using Confirmatory Factor Analysis (CFA), which verified that all items loaded strongly ( $> 0.7$ ) on their respective constructs, confirming their appropriateness (Hair et al., 2019).

### **3.10 Ethical Considerations**

Ethical integrity was maintained throughout the research process. Informed consent was obtained from all respondents, ensuring they voluntarily participated in the study. Confidentiality was strictly upheld, as no personal identifiers were collected, and responses were anonymized to protect participants' privacy. To enhance data security, all responses were stored in password-protected files, accessible only to the researcher. Moreover, respondents were granted the right to withdraw from the survey at any stage without facing any penalties, ensuring their autonomy and ethical protection. These measures ensured that the study adhered to ethical research standards and safeguarded participants' rights.

## CHAPTER FOUR

### DATA ANALYSIS AND INTERPRETATION

#### 4.1 Introduction

This chapter provides an analysis of the study's findings, presenting descriptive statistics and inferential statistical analysis. The results assess the impact of digital financial services (Digital Payments, Lending, and Money Transfers) on firm performance. The analysis is structured into sections covering response rate, demographic characteristics, correlation analysis, and regression analysis.

##### 4.1.1 Response Rate

The study achieved a response rate of 89%, with 255 out of 286 targeted employees completing the survey. This high response rate minimizes non-response bias and enhances the representativeness of the sample, aligning with best practices for survey research (Saunders et al., 2019). A response rate above 70% is generally considered robust for statistical generalizability (Zikmund et al., 2013), ensuring the dataset's adequacy for hypothesis testing.

##### 4.1.2 Gender Distribution

The gender distribution of the respondents indicates that the majority were male (61.2%), while female respondents accounted for 38.8%. This suggests that men dominate the workforce in the surveyed organization, though a significant proportion of women also contribute to the digital financial services sector.

##### 4.2.3 Age Group Distribution

The age distribution shows that most respondents fall within the 31-40 age range (40%), followed by those aged 20-30 (33.3%). This suggests that the workforce is relatively young, with a combined 73.3% of respondents below the age of 40. Employees aged 41-50 (19.6%) and those above 50 (7.1%) represent a smaller portion, indicating a limited presence of senior staff in the organization.

#### **4.2.4 Education Level**

The education level distribution highlights that the majority of respondents hold a Bachelor's degree (52.9%) followed by Master's degree holders (33.3%). A smaller portion (13.7%) have a Diploma. This indicates that most employees involved in digital financial services at Ethio Telecom are well-educated, with a substantial proportion possessing advanced academic qualifications.

#### **4.2.5 Work Experience**

Work experience analysis reveals that the largest group of respondents (43.1%) have 6-10 years of experience, followed by those with more than 10 years (29.4%). Employees with less than 5 years of experience make up 27.5%. This suggests that the organization has a mix of experienced professionals and newer employees, which may enhance innovation and efficiency in digital financial services.

#### **4.2.6 Departmental Affiliation**

The majority of respondents are from the Finance department (33.7%), followed by Marketing (28.2%), IT (22.4%), and Customer Service (15.7%). The high representation of Finance and Marketing suggests that these departments play a critical role in implementing and managing digital financial services. Meanwhile, IT's involvement underscores the technological foundation of Telebirr, and Customer Service reflects the importance of user experience in digital financial services.

The demographic analysis provides insights into the workforce composition at Ethio Telecom, demonstrating that it is predominantly male, well-educated, and relatively young. The diverse experience levels and departmental distribution indicate a balanced mix of expertise, which may contribute to the successful implementation of Telebirr's digital financial services. The clean and complete dataset ensures reliability for further analysis, including hypothesis testing and correlation studies.

**Table 4.1: Demographic Characteristics of Respondents**

Variable	Category	Frequency (N=255)	Percentage (%)
<b>Gender</b>	Male	156	61.2
	Female	99	38.8
<b>Age Group</b>	20-30	85	33.3
	31-40	102	40.0
	41-50	50	19.6
	Above 50	18	7.1
<b>Education Level</b>	Diploma	35	13.7
	Bachelor's	135	52.9
	Master's	85	33.3
<b>Work Experience</b>	Less than 5 years	70	27.5
	6-10 years	110	43.1
	Above 10 years	75	29.4
<b>Department</b>	Finance	86	33.7
	Marketing	72	28.2
	IT	57	22.4
	Customer Service	40	15.7

### 4.3 Descriptive Analysis

#### 4.3.1 Telebirr's Digital Payment Services

The analysis of Telebirr's digital payment services, based on a five-point Likert scale, reveals a significant impact across most evaluated factors. Using the mean score interpretation framework by Zaidatol and Bagheri (2009), a mean value greater than 3.80 indicates a strong perceived impact, while values between 3.40 and 3.79 suggest a moderate effect.

The results indicate that customer satisfaction has the highest mean score ( $M = 4.13$ ,  $SD = 0.925$ ), classifying it as a high effect. This suggests that employees strongly believe that customers prefer Telebirr over traditional payment methods. Similarly, the perceived reduction in cash-handling costs has a high

mean ( $M = 3.94$ ,  $SD = 0.894$ ), reflecting strong agreement that Telebirr has minimized cash-related expenses for Ethio Telecom. The efficiency of payment processes also falls within the high-effect category, with a mean of 3.96 ( $SD = 0.928$ ), confirming that Telebirr has streamlined transactions. However, the impact on revenue collection has the lowest mean ( $M = 3.83$ ,  $SD = 0.988$ ), though it still falls within the high-effect range. While many respondents acknowledge improvements in revenue collection, a sizable proportion remains neutral or disagrees, indicating that the impact in this area may be less pronounced compared to other factors.

The frequency distribution of responses provides deeper insights into the varying perceptions of Telebirr's digital payment services:

**Revenue Collection Improvement:** While 32.9% strongly agree and 25.9% agree, a significant 41.2% of respondents are either neutral or disagree, suggesting that the perceived impact of Telebirr on revenue collection is mixed.

**Reduction in Cash-Handling Costs:** A majority (70.2%) either agree or strongly agree that Telebirr has helped reduce cash-handling costs, with only 6.7% disagreeing. This demonstrates strong confidence in its efficiency.

**Customer Satisfaction:** This factor has the highest level of agreement, with 43.5% strongly agreeing and 32.9% agreeing, meaning 76.4% of respondents perceive Telebirr as significantly enhancing customer satisfaction. Only 6.7% disagreed, confirming its positive reception.

**Faster and More Efficient Payments:** The results indicate that 66.7% agree or strongly agree, showing that a majority believe Telebirr has improved payment efficiency. However, 27.5% remain neutral, suggesting that not all employees fully perceive the system's efficiency gains.

The findings demonstrate that Telebirr's digital payment system has had a highly positive effect on reducing cash-handling costs, improving customer satisfaction, and enhancing payment efficiency. However, its impact on revenue collection is comparatively less pronounced, with a notable portion of respondents remaining neutral or disagreeing. The frequency analysis supports these findings, confirming that Telebirr is well-received but may require further enhancements in revenue management effectiveness.

**Table 4.3 Descriptive Statistics for Telebirr’s Digital Payment Services**

<b>Digital Payments</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
Telebirr’s digital payment services have improved revenue collection in my department.	0%	8.6%	32.5%	25.9%	32.9%	3.83	0.988
Telebirr has reduced cash-handling costs for Ethio Telecom.	0%	6.7%	23.1%	40.0%	30.2%	3.94	0.894
Customers are more satisfied with Telebirr’s payment services compared to traditional methods.	0%	6.7%	16.9%	32.9%	43.5%	4.13	0.925
Telebirr has made payment processes faster and more efficient.	0%	5.9%	27.5%	31.8%	34.9%	3.96	0.928

**Note:** SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree; M = Mean; SD = Standard Deviation.

### 4.3.2 Telebirr’s Digital Lending Services

The analysis of Telebirr’s digital lending services, based on a five-point Likert scale, reveals a high effect across most evaluated factors. Using the mean score interpretation framework by Zaidatol and Bagheri (2009), a mean value greater than 3.80 indicates a strong perceived impact, while values between 3.40 and 3.79 suggest a moderate effect.

The findings indicate that Telebirr’s microloan services attract new customers, with the highest mean score (M = 4.09, SD = 0.921), classifying it as a high effect. This suggests that employees strongly believe Telebirr’s lending services play a significant role in expanding Ethio Telecom’s customer base. Similarly, customer loyalty to Ethio Telecom due to Telebirr loans also has a high mean (M = 4.07, SD = 0.937), indicating that customers using Telebirr’s financial services are more likely to remain engaged with Ethio Telecom.

The contribution of Telebirr's lending services to profitability is also rated highly, with a mean of  $M = 3.98$ ,  $SD = 0.912$ , reflecting strong agreement that these services are beneficial to Ethio Telecom's financial performance. The competitive advantage provided by Telebirr's lending services has the lowest mean ( $M = 3.90$ ,  $SD = 0.945$ ), though it still falls within the high-effect category. This suggests that while respondents recognize Telebirr's role in enhancing competitiveness, there may be areas for further strengthening.

The frequency distribution of responses provides deeper insights into the varying perceptions of Telebirr's lending services:

**Attracting New Customers:** A strong majority (75.7%) agree or strongly agree that Telebirr's microloan services help attract new customers, while only 5.9% disagree. This suggests a broad consensus on the effectiveness of digital lending in expanding Ethio Telecom's reach.

**Profitability Contribution:** While 67.9% agree or strongly agree that Telebirr's lending services significantly contribute to profitability, 26.3% remain neutral, indicating that while the impact is widely recognized, some respondents may be uncertain about its financial implications.

**Customer Loyalty:** A significant 69.8% of respondents believe that customers who use Telebirr loans are more loyal to Ethio Telecom. However, 23.9% remain neutral, suggesting that while lending services enhance loyalty, further analysis may be needed to understand customer retention dynamics.

**Competitive Edge:** The lowest agreement levels are seen in the perception of Telebirr's competitive advantage, with 63.1% agreeing or strongly agreeing, but a notable 29% neutral response. This indicates that while the service is seen as beneficial, its competitive positioning may not be fully established among employees.

The findings demonstrate that Telebirr's digital lending services have a high positive effect on customer attraction, loyalty, profitability, and competitive advantage. The frequency analysis confirms strong agreement on these benefits, though some respondents remain neutral, particularly regarding profitability and competitive positioning. This suggests that while Telebirr's lending services are well-received, further strategic enhancements could reinforce its role in driving revenue growth and market competitiveness.

**Table 4.4 Descriptive Statistics for Telebirr’s Digital Lending Services**

<b>Digital Lending Services</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
Telebirr’s microloan services attract new customers.	0%	5.9%	18.4%	36.2%	39.5%	4.09	0.921
Telebirr’s lending services enhance customer loyalty to Ethio Telecom.	0%	6.3%	23.9%	35.4%	34.4%	4.07	0.937
Telebirr’s lending services contribute to Ethio Telecom’s profitability.	0%	5.8%	26.3%	34.7%	33.2%	3.98	0.912
Telebirr’s lending services provide a competitive advantage for Ethio Telecom.	0%	7.9%	29.0%	31.6%	31.5%	3.90	0.945

**Note:** SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree; M = Mean; SD = Standard Deviation.

### 4.3.3 Telebirr’s Mobile Money Transfer Services

The analysis of Telebirr’s money transfer services, based on a five-point Likert scale, reveals a high effect across most evaluated factors. According to the mean score interpretation framework by Zaidatol and Bagheri (2009), a mean value greater than 3.80 indicates a strong perceived impact, while values between 3.40 and 3.79 suggest a moderate effect. The results indicate that customer preference for Telebirr’s peer-to-peer transactions has the highest mean score (M = 4.13, SD = 0.915), suggesting that customers favor Telebirr over competitors for money transfers. Similarly, increased transaction volumes have a mean of M = 4.12, SD = 0.894, demonstrating that employees strongly believe Telebirr has significantly boosted transaction activity. The attraction of new customers to Ethio Telecom through money transfers also falls within the high-effect category, with a mean of M = 3.96, SD = 0.928, indicating a strong positive impact. However, the market competitiveness factor has the lowest mean (M = 3.86, SD = 0.952), though it remains within the high effect range. This suggests that while Telebirr’s money transfer services contribute to competitiveness, there is still room for further improvement.

The frequency distribution of responses provides deeper insights into the varying perceptions of Telebirr’s money transfer services: Increased Transaction Volumes: A majority of respondents (72.5%) agree or strongly

agree that Telebirr’s money transfer services have increased transaction volumes, while only 3.5% disagree. This suggests a broad consensus on the significant impact of Telebirr in driving higher transaction activity.

Attracting New Customers: 70.9% of respondents agree or strongly agree that Telebirr transfers help attract new customers to Ethio Telecom. However, 21.2% remain neutral, indicating that while the impact is widely recognized, some employees may be uncertain about the extent of customer acquisition through money transfers.

Enhancing Market Competitiveness: While 64.3% of respondents agree or strongly agree that Telebirr’s transfer services enhance Ethio Telecom’s competitiveness, a notable 27.1% remain neutral, and 8.6% disagree. This suggests that while Telebirr provides a competitive advantage, some employees may not yet see it as a dominant market force.

Customer Preference Over Competitors: This factor received the highest agreement level, with 77.3% of respondents agreeing or strongly agreeing that customers prefer Telebirr over competitors for peer-to-peer transactions. Only 6.7% disagree, confirming a strong positive perception of Telebirr’s competitive standing in money transfers.

The findings demonstrate that Telebirr’s money transfer services have a high positive effect on transaction volume, customer acquisition, market competitiveness, and customer preference. The frequency analysis supports this conclusion, confirming that employees widely perceive Telebirr as an effective tool for enhancing Ethio Telecom’s financial and market performance. However, the neutral responses regarding competitiveness suggest that further improvements in service differentiation and market positioning could strengthen Telebirr’s competitive edge.

**Table 4.5 Descriptive Statistics for Telebirr’s Mobile Money Transfer Services**

<b>Money Transfer Services</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
Telebirr’s money transfer services have increased transaction volumes.	0%	3.5%	23.9%	29.4%	43.1%	4.12	0.894
Telebirr transfers attract new customers to Ethio Telecom.	0%	7.8%	21.2%	37.6%	33.3%	3.96	0.928
Telebirr’s transfer services enhance Ethio Telecom’s market competitiveness.	0%	8.6%	27.1%	33.7%	30.6%	3.86	0.952

Customers prefer Telebirr for peer-to-peer transactions over competitors.	0%	6.7%	16.1%	34.9%	42.4%	4.13	0.915
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Note: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree; M = Mean; SD = Standard Deviation.

#### 4.3.4 Firm Performance Indicators

The analysis of Telebirr’s impact on Ethio Telecom’s firm performance, measured using a five-point Likert scale, demonstrates a high effect across all factors. According to the interpretation framework by Zaidatol and Bagheri (2009), a mean value greater than 3.80 suggests a strong effect, while values between 3.40 and 3.79 indicate a moderate impact.

The results show that Telebirr has improved operational efficiency the most, with a mean of  $M = 4.14$ ,  $SD = 0.911$ , indicating that respondents perceive significant benefits in Ethio Telecom’s internal processes due to Telebirr. Market competitiveness follows closely with a mean of  $M = 4.12$ ,  $SD = 0.953$ , reflecting the role of Telebirr in strengthening Ethio Telecom’s standing in the telecommunications sector. Additionally, revenue growth ( $M = 4.02$ ,  $SD = 0.883$ ) and customer acquisition and retention ( $M = 4.00$ ,  $SD = 0.990$ ) both exhibit a strong impact, suggesting that Telebirr has been instrumental in driving financial and customer-related performance.

A closer look at the frequency distribution reveals that:

**Revenue Growth:** 71% of respondents agree or strongly agree that Telebirr has contributed significantly to Ethio Telecom’s revenue growth. However, 24.7% remain neutral, indicating that while many recognize its financial impact, some may perceive other factors influencing revenue growth.

**Operational Efficiency:** A majority (76.4%) of respondents agree or strongly agree that Telebirr enhances operational efficiency, reinforcing its role in streamlining processes within Ethio Telecom. Only 5.9% disagree, highlighting strong overall agreement.

**Customer Acquisition and Retention:** 68.6% of respondents believe Telebirr helps Ethio Telecom attract and retain customers, while 22.7% remain neutral. This suggests that while the majority see Telebirr’s role in customer growth, some respondents may feel other competitive factors are at play.

Market Competitiveness: This factor has the highest level of agreement, with 73.3% of respondents agreeing or strongly agreeing that Telebirr strengthens Ethio Telecom’s competitive position. Only 6.7% disagree, confirming the widely recognized strategic advantage of Telebirr.

The findings confirm that Telebirr plays a crucial role in improving Ethio Telecom’s overall firm performance. The strongest impact is observed in operational efficiency and market competitiveness, while revenue growth and customer retention also show substantial benefits. The frequency analysis supports these insights, revealing a high level of agreement among respondents. However, the presence of neutral responses, particularly in revenue growth and customer retention, suggests that other business factors may also be influencing these areas.

**Table 4.6 Descriptive Statistics for Firm Performance Indicators**

<b>Firm Performance Indicators</b>	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>	<b>M</b>	<b>SD</b>
Telebirr has significantly contributed to Ethio Telecom’s revenue growth.	0%	4.3%	24.7%	35.3%	35.7%	4.02	0.883
Telebirr has improved Ethio Telecom’s operational efficiency.	0%	5.9%	17.6%	32.9%	43.5%	4.14	0.911
Telebirr helps Ethio Telecom acquire and retain customers.	0%	8.6%	22.7%	28.2%	40.4%	4.00	0.990
Telebirr strengthens Ethio Telecom’s competitiveness in the market.	0%	6.7%	20.0%	28.2%	45.1%	4.12	0.953

Note: SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree; M = Mean; SD = Standard Deviation.

## 4.4 Inferential Statistical Analysis

### 4.4.1 Pearson's Correlation Analysis

Inferential statistical analysis was conducted to examine the relationships between the independent variables Digital Payments (DP), Digital Lending (DL), and Money Transfers (MT) and the dependent variable, Firm Performance (FP). Pearson's correlation analysis was employed to measure the strength and direction of the linear relationships among these variables. The correlation coefficient ( $r$ ) ranges from -1 to 1, where positive values indicate a direct relationship, negative values indicate an inverse relationship, and values close to zero suggest little to no association. The statistical significance ( $p$ -value) helps determine whether the observed relationships are likely due to chance, with thresholds of  $p < 0.05$  indicating significance and  $p < 0.01$  indicating high significance.

As shown in Table 4.7, the correlation between Digital Payments (DP) and Firm Performance (FP) is positive but weak ( $r = 0.150$ ,  $p = 0.017$ ). This suggests that increased adoption of digital payment services through Telebirr is associated with a slight improvement in Ethio Telecom's firm performance. The statistical significance ( $p < 0.05$ ) confirms that this relationship is unlikely to be due to random chance. The positive correlation indicates that enhancing digital payment services could contribute to improved financial performance, operational efficiency, and customer acquisition.

Conversely, the correlation between Digital Lending (DL) and Firm Performance (FP) is weak and negative ( $r = -0.074$ ,  $p = 0.240$ ), with a  $p$ -value greater than 0.05, indicating that the relationship is not statistically significant. This suggests that Telebirr's digital lending services do not have a strong direct impact on firm performance. The insignificance of the relationship may be attributed to factors such as low adoption rates, regulatory constraints, or limited integration with Ethio Telecom's broader business model. This finding suggests that while digital lending may be beneficial to individual customers, its contribution to overall firm performance remains limited.

Similarly, Money Transfers (MT) and Firm Performance (FP) show a weak negative correlation ( $r = -0.142$ ,  $p = 0.023$ ). Although statistically significant ( $p < 0.05$ ), the negative relationship suggests that Telebirr's money transfer services do not directly enhance firm performance. This may be due to high competition in the mobile money market, operational inefficiencies, or the fact that money transfers do not directly generate revenue for Ethio Telecom. The negative correlation might also indicate potential substitution effects, where increased use of money transfer services does not necessarily lead to higher engagement with Ethio Telecom's core business activities.

These findings, as illustrated in Table 4.7, provide critical insights for Ethio Telecom in optimizing its digital financial services. The positive but weak relationship between digital payments and firm performance underscores the importance of further investment in digital payment infrastructure and service quality. In contrast, the weak or negative correlations observed for digital lending and money transfers highlight the need for strategic refinements to enhance their contribution to firm performance. Understanding these relationships will help Ethio Telecom develop a more integrated digital financial strategy that maximizes business performance while addressing potential service inefficiencies.

**Table 4.7 Pearson Correlation Matrix for Key Study Variables**

Correlations		FP	DP	DL	MT
FP	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	255			
DP	Pearson Correlation	.150*	1		
	Sig. (2-tailed)	.017			
	N	255	255		
DL	Pearson Correlation	-.074	-.229**	1	
	Sig. (2-tailed)	.240	.000		
	N	255	255	255	
MT	Pearson Correlation	-.142*	-.182**	.110	1
	Sig. (2-tailed)	.023	.004	.078	
	N	255	255	255	255
*. Correlation is significant at the 0.05 level (2-tailed).					
**. Correlation is significant at the 0.01 level (2-tailed).					

#### 4.4.2 Multiple Linear Regression Analysis Regression Model Specification

To examine the effect of digital payments (DP), digital lending (DL), and money transfers (MT) on firm performance (FP), a multiple linear regression model was specified as follows:

$$Y = \beta_0 + \beta_1(\text{Digital Payments}) + \beta_2(\text{Digital Lending}) + \beta_3(\text{Money Transfers}) + \epsilon$$

Where:

Y represents firm performance (dependent variable).  $\beta_0$  is the intercept.

$\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the regression coefficients for digital payments, digital lending, and money transfers, respectively.

$\epsilon$  represents the error term, capturing unexplained variance.

Variable selection was informed by theoretical frameworks such as the Resource-Based View (RBV) and Diffusion of Innovation (DOI) theory, alongside empirical research on fintech adoption (Gomber et al., 2017; Muthiora & Mang’eni, 2021). The predictor variables include:

Digital Payments (DP): Measures transaction efficiency and financial inclusion. Digital Lending (DL): Reflects access to credit and its role in business expansion.

Money Transfers (MT): Captures the role of electronic transfers in enhancing financial performance.

A log transformation was applied to firm performance (FP) to address skewness and improve model estimation.

### Model Fit and Significance ANOVA Results

The ANOVA test was conducted to assess the overall statistical significance of the regression model in explaining variations in firm performance (FP). As presented in Table 4.8, the model is statistically significant at the 5% level, with a significance value (Sig. = 0.023), which is below the 0.05 threshold. This indicates that the independent variables Money Transfers (MT), Digital Lending (DL), and Digital Payments (DP) collectively have a significant impact on firm performance. The F-statistic value of 3.222 further supports this conclusion, suggesting that the explanatory power of the model is greater than what would be expected by chance. Additionally, the regression sum of squares (1.780) represents the portion of variance in firm performance explained by the model, while the residual sum of squares (46.226) accounts for the unexplained variance. Given the total sum of squares of 48.006, the model captures a meaningful but limited proportion of the variation in firm performance. These results confirm that fintech adoption plays a significant role in influencing firm performance.

**Table 4.8: ANOVA Results**

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.780	3	.593	3.222	.023 <sup>b</sup>
	Residual	46.226	251	.184		

	Total	48.006	254			
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a. Dependent Variable: FP

b. Predictors: (Constant), MT, DL, DP

## Regression Model Summary

The regression model summary, as presented in Table 4.9, provides key insights into the explanatory power of the independent variables Money Transfers (MT), Digital Lending (DL), and Digital Payments (DP) on firm performance (FP). The R-value of 0.193 indicates a weak positive correlation between the predictors and the dependent variable. The R Square value of 0.037 suggests that only 3.7% of the variation in firm performance is explained by the independent variables, implying that other factors not included in the model may significantly influence firm performance. Additionally, the Adjusted R Square value of 0.026, which accounts for the number of predictors in the model, is slightly lower than the R Square, suggesting that the model may have limited predictive power when generalized to the broader population. The standard error of the estimate (0.42915) indicates the average deviation of observed firm performance values from the predicted values, highlighting potential variability in the data. Lastly, the Durbin-Watson statistic of 1.649 falls within an acceptable range, suggesting that there is no severe autocorrelation in the residuals. Overall, while the model is statistically significant, its low explanatory power indicates that additional factors should be considered to better understand the determinants of firm performance.

**Table 4.9: Regression Model Summary**

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.193 <sup>a</sup>	.037	.026	.42915	1.649

a. Predictors: (Constant), MT, DL, DP

b. Dependent Variable: FP

## Coefficient Analysis

**Table 4.10: Regression Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.156	.456		9.110	.000
	DP	.120	.064	.121	1.874	.062
	DL	-.028	.054	-.033	-.523	.601
	MT	-.112	.061	-.116	-1.843	.067

The regression coefficient analysis, as presented in Table 4.10, provides insights into the individual effects of Digital Payments (DP), Digital Lending (DL), and Money Transfers (MT) on firm performance (FP). The constant value of 4.156 suggests that in the absence of the independent variables, firm performance remains relatively high.

Digital Payments (DP) have a positive coefficient ( $B = 0.120$ ) with a p-value of 0.062, indicating a marginally significant effect on firm performance. This suggests that increased adoption of digital payments may contribute to improved firm performance, although the relationship is not strong enough to be statistically conclusive at the conventional 5% significance level.

Digital Lending (DL) has a negative coefficient ( $B = -0.028$ ) with a p-value of 0.601, indicating an insignificant relationship with firm performance. This suggests that access to digital credit does not necessarily enhance firm performance, potentially due to high borrowing costs, regulatory constraints, or inefficiencies in digital lending platforms.

Money Transfers (MT) also exhibit a negative coefficient ( $B = -0.112$ ) with a p-value of 0.067, suggesting that digital money transfers do not have a strong positive influence on firm performance. This weak negative relationship may stem from factors such as transaction costs, compliance burdens, or the use of money transfers primarily for operational transactions rather than revenue generation.

Digital payments show a slight positive association with firm performance, digital lending and money transfers exhibit weak and statistically insignificant effects. These findings suggest that while fintech adoption plays a role in business operations, its direct impact on firm performance may be influenced by external factors

such as financial literacy, market dynamics, and regulatory environments. Future research should explore additional variables to better understand the broader implications of fintech adoption on business success.

### 4.4.3 Testing of Assumptions Normality of Residuals

#### Testing of Assumptions

To ensure the validity of the multiple linear regression model, key assumptions were tested, including normality of residuals and multicollinearity (Field, 2018; Hair et al., 2020).

#### Normality of Residuals

A crucial assumption in multiple linear regression is that residuals follow a normal distribution. To assess this, both statistical tests and graphical analyses were conducted.

#### Statistical Tests for Normality

A Shapiro-Wilk test and a Kolmogorov-Smirnov test were performed to evaluate the normality of residuals. The results are presented in Table 4.11.

**Table 4.11: Tests of Normality**

Tests of Normality	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
<b>Studentized Residual</b>	0.089	255	0.000	0.959	255	0.000
<i>a. Lilliefors Significance Correction</i>						

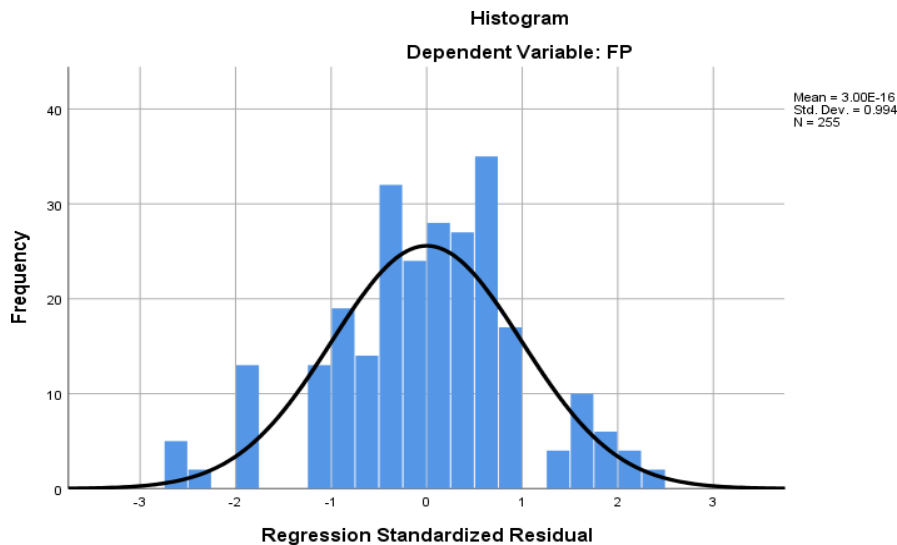
The Shapiro-Wilk test (SW = 0.959,  $p = .000$ ) and Kolmogorov-Smirnov test (KS = 0.089,  $p = .000$ ) both yielded significant results, suggesting that the residuals deviate from normality. However, given that large sample sizes often lead to statistical significance even with minor deviations, visual inspections of the histogram (Figure 4.1) and the normal probability plot (P-P plot) (Figure 4.2) were performed to complement the normality assessment (Ghasemi & Zahediasl, 2012).

#### Graphical Analysis of Normality

##### Histogram of Residuals

A histogram of standardized residuals was generated to visually inspect the distribution of residuals. The histogram displays the frequency distribution of residuals with a superimposed normal curve for comparison (Figure 4.1).

Figure 4.1: Histogram of Regression Standardized Residuals

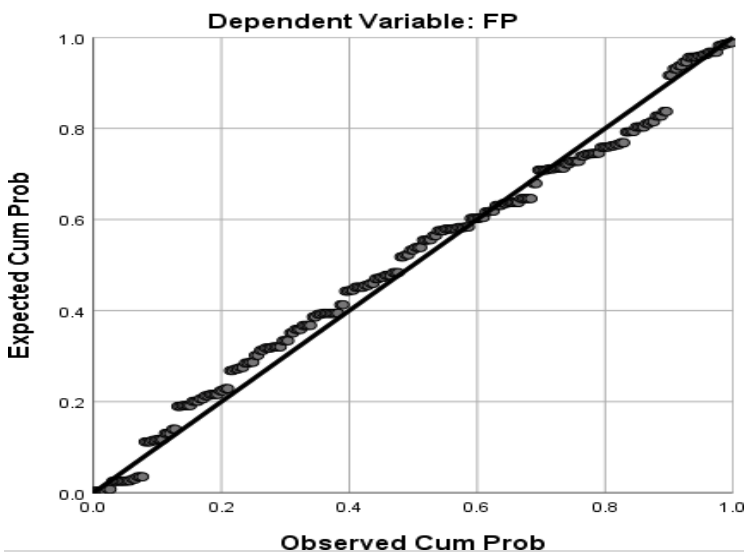


The results indicate that the residuals approximate a normal distribution, as evidenced by a roughly symmetric, bell-shaped pattern centered around zero. The mean residual value is approximately 0 (3.00E-16), and the standard deviation is 0.994, which is close to 1, further reinforcing the assumption of normality. While minor deviations are observed at the tails, they are not severe enough to substantially impact the overall distribution.

These findings suggest that the residuals are approximately normally distributed, supporting the validity of the regression model. The normality of residuals ensures that the assumptions underlying the regression analysis hold, making the model's estimates reliable and interpretable (Field, 2018; Hair et al., 2020).

### Normal P-P Plot of Residuals

Normal P-P Plot of Regression Standardized Residual



To further assess normality, a normal probability-probability (P-P) plot was examined, which compares the observed cumulative probability of the standardized residuals with the expected cumulative probability from a normal distribution (Figure 4.2).

#### Figure 4.2: Normal P-P Plot of Regression Standardized Residual

To further assess the normality of residuals, a normal probability-probability (P-P) plot was examined. This plot compares the observed cumulative probability of the standardized residuals with the expected cumulative probability from a normal distribution (Figure 4.2).

The results indicate that the points in the P-P plot closely follow the diagonal reference line, suggesting that the residuals approximate a normal distribution (Field, 2018). While minor deviations are observed, they are not severe enough to significantly violate the normality assumption. This finding confirms the validity of the regression model, as normality is a key assumption for unbiased parameter estimation in multiple regression analysis (Hair et al., 2020).

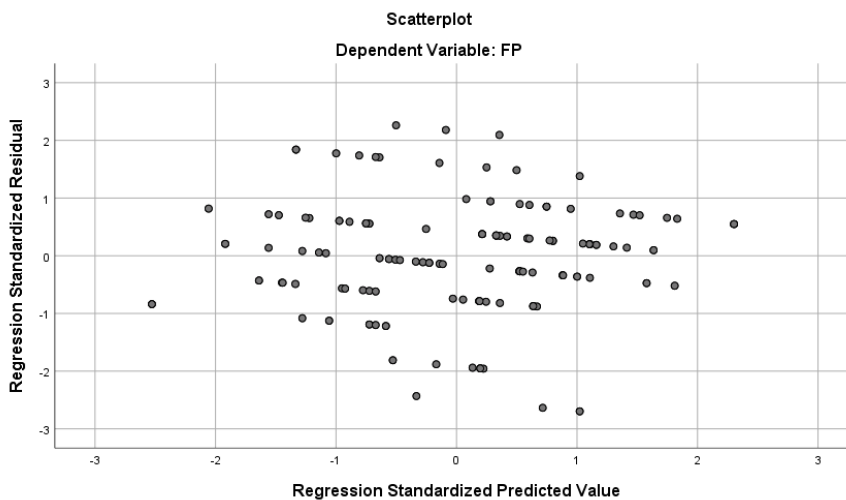
The P-P plot supports the assumption of normality, reinforcing the reliability of the regression estimates.

### **Homoscedasticity and Linearity Assumptions**

Homoscedasticity refers to the assumption that the variance of residuals remains constant across all levels of the predictor variables. Ideally, residuals should be evenly spread across the predicted values without forming any discernible patterns. If this assumption is violated, it leads to heteroscedasticity, where variance changes across levels of the predictors, often producing a funnel-shaped pattern. In the scatter plot (Figure 4.3), the residuals are randomly and evenly distributed, which indicates that the assumption of homoscedasticity is satisfied. This suggests that the regression model does not suffer from issues related to unequal variances.

Linearity assumes that the relationship between the predictor variables and the dependent variable follows a straight-line pattern. If this assumption is violated, a linear model may fail to adequately capture the true relationship, which could lead to misleading conclusions. To assess linearity, the scatter plot examines the relationship between the predicted values and the standardized residuals. Since no clear curved or systematic pattern is visible in the plot, it indicates that the linearity assumption holds. This further supports the appropriateness of a linear regression model for the given data.

Figure 4.3: Scatter plot of residuals vs. predicted values



### Multicollinearity Check

Multicollinearity occurs when predictor variables in a regression model are highly correlated, which can lead to unreliable regression coefficients and distort the model’s estimates. To assess multicollinearity, we examined the Variance Inflation Factor (VIF) and Tolerance values, as presented in Table 4.12. According to Hair et al. (2019), a VIF value greater than 10 or a Tolerance value below 0.10 indicates severe multicollinearity, which would be problematic for the model.

The Variance Inflation Factor (VIF) values for all predictors are well below 2, and the Tolerance values exceed 0.90, suggesting that there are no severe multicollinearity issues (O’Brien, 2007). This indicates that the predictor variables are sufficiently independent of one another, ensuring that the regression estimates are unlikely to be biased due to collinearity. In conclusion, the multicollinearity check confirms that there are no significant issues with the relationships between the independent variables in the model, further supporting the validity and reliability of the regression model.

**Table 4.12: Variance Inflation Factor (VIF) and Tolerance Values**

Predictor	Tolerance	VIF
DP	0.923	1.084
DL	0.943	1.061
MT	0.962	1.040

#### 4.4.4 Hypothesis Testing Summary

This section summarizes the hypothesis testing results based on the multiple linear regression analysis conducted in Section 4.4.3. The study aimed to examine the effect of digital payments (DP), digital lending (DL), and money transfers (MT) on firm performance (FP). The hypotheses were tested using the standardized beta coefficients ( $\beta$ ), t-values, and significance levels (p-values) obtained from the regression model.

Summary of Hypotheses and Findings

**Table 4.18 presents a summary of the tested hypotheses, expected relationships, and the corresponding statistical outcomes.**

**Table 4.18: Summary of Hypothesis Testing Results**

Hypothesis	Predictor	Standardized Beta ( $\beta$ )	t-value	p-value	Decision
H1: Digital payments positively influence firm performance.	Digital Payment (DP)	.121	1.874	.062	Not Supported
H2: Digital lending positively influences firm performance.	Digital Lending (DL)	-0.033	-0.523	.601	Not Supported
H3: Money transfers positively influence firm performance.	Mobile Money Transfer (MT)	-0.116	-1.843	.067	Not Supported

Interpretation

##### 1.H1: Effect of Digital Payments on Firm Performance

The hypothesis that digital payments positively influence firm performance was not supported at the 5% significance level ( $p = .062$ ). However, the positive beta coefficient ( $\beta = .121$ ) suggests a marginal influence, which may become significant with a larger sample or under different conditions. This result implies that

while digital payments may enhance efficiency, their direct impact on firm performance remains inconclusive in this context.

## **2.H2: Effect of Digital Lending on Firm Performance**

The relationship between digital lending and firm performance was not statistically significant ( $\beta = -0.033$ ,  $p = .601$ ). The negative coefficient contradicts the expected positive direction, suggesting that digital lending might not be effectively enhancing firm performance. This may be attributed to limited access to credit, high interest rates, or inefficient digital lending platforms in Ethiopia.

## **3.H3: Effect of Money Transfers on Firm Performance**

The hypothesis that money transfers positively impact firm performance was also not supported ( $\beta = -0.116$ ,  $p = .067$ ). Although the result is close to significance, the negative direction suggests that excessive reliance on money transfers may not directly improve firm performance. This might be due to high transaction costs, regulatory constraints, or inefficiencies in money transfer systems.

The regression analysis revealed that none of the hypothesized relationships were statistically significant at the 5% level. Although digital payments showed a weak positive influence on firm performance, digital lending and money transfers did not yield the expected positive effects. These findings suggest that fintech adoption alone may not be a strong determinant of firm performance in the Ethiopian context.

The weak relationships observed in the study suggest the need for further exploration of additional factors that may influence the impact of fintech adoption on firm performance. Future research should consider incorporating variables such as business size, financial literacy, and industry type to gain a more comprehensive understanding of fintech's effects. Additionally, examining alternative fintech services, including mobile banking and blockchain solutions, could provide insights into whether these innovations have a stronger influence on firm success. Moreover, employing a longitudinal research design would allow for the assessment of fintech adoption's long-term impact on business growth and sustainability. These research directions will help deepen the understanding of how digital financial services contribute to firm performance, particularly in emerging economies.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the conclusion and recommendations based on the findings of the study. It begins with a summary of the research objectives and key findings, followed by an interpretation of the results from the inferential statistical analysis. The discussion highlights the implications of these findings for Ethio Telecom, policymakers, and future research in the fintech and telecommunications sectors.

The primary objective of this study was to examine the effect of Telebirr's fintech services digital payments, digital lending, and mobile money transfers on the firm performance of Ethio Telecom. The study assessed these effects based on key performance indicators, including revenue growth, operational efficiency, customer acquisition, and market competitiveness. Through descriptive and inferential statistical analyses, the research sought to establish the extent to which Telebirr's financial services contribute to the financial and strategic success of Ethio Telecom.

The findings from descriptive statistics revealed that Telebirr's digital payment services had the highest positive impact on firm performance, particularly in improving customer satisfaction and reducing cash-handling costs. Digital lending services also showed a positive impact on customer acquisition and loyalty, though their contribution to overall profitability remained uncertain. Mobile money transfer services contributed to transaction volume growth and customer preference but had a weaker perceived effect on Ethio Telecom's market competitiveness.

The inferential statistical analysis provided further insights into these relationships. The Pearson correlation analysis showed that digital payment services had a weak but positive correlation with firm performance, while digital lending and mobile money transfers demonstrated weak or negative correlations. The multiple regression analysis confirmed that digital payments had a marginally positive impact on firm performance, whereas digital lending and mobile money transfers did not exhibit statistically significant effects. These results indicate that while fintech adoption plays a role in enhancing firm operations, external factors such as regulatory constraints, infrastructure challenges, and market competition may limit its full potential in Ethiopia.

The subsequent sections of this chapter will discuss these findings in detail, draw conclusions from the study, and provide recommendations for Ethio Telecom, policymakers, and future researchers. The study's limitations and areas for further research will also be highlighted to provide a roadmap for deeper exploration of fintech's role in Ethiopia's evolving digital economy.

## **5.2 Summary of Key Findings**

This section summarizes the key findings of the study, focusing on the research objectives, descriptive statistics, and inferential statistical analysis results. The study sought to assess the impact of Telebirr's fintech services digital payments, digital lending, and mobile money transfers on Ethio Telecom's firm performance. The findings provide insights into how these services influence revenue growth, operational efficiency, customer acquisition, and market competitiveness.

### **5.2.1 Restatement of Research Objectives**

The primary objective of this study was to evaluate the effect of Telebirr's fintech services on Ethio Telecom's firm performance. Specifically, the study aimed to assess the contribution of Telebirr's digital payment services to revenue growth and operational efficiency, analyze the impact of its digital lending services on customer acquisition and profitability, and determine the influence of its mobile money transfer services on market competitiveness and transaction volume. These objectives guided the research methodology, data collection, and statistical analysis to understand how fintech adoption influences Ethio Telecom's overall business performance.

### **5.2.2 Summary of Descriptive Statistics**

The descriptive analysis provided valuable insights into employees' perceptions of Telebirr's impact on key performance indicators.

For digital payment services, Telebirr was perceived to have a strong impact on customer satisfaction, with a mean rating of 4.13, and played a significant role in reducing cash-handling costs (mean = 3.94). Additionally, payment efficiency received a high rating of 3.96, indicating that Telebirr has effectively streamlined financial transactions. However, its impact on revenue collection was less pronounced (mean = 3.83), with a significant portion of respondents remaining neutral on this aspect.

Regarding digital lending services, the analysis found that Telebirr's lending services played a crucial role in attracting new customers (mean = 4.09) and enhancing customer loyalty (mean = 4.07). Employees also acknowledged a moderate impact on profitability (mean = 3.98) and competitive advantage (mean = 3.90), although these effects were not as strong as those observed in customer acquisition.

In terms of mobile money transfer services, Telebirr's services were perceived to significantly increase transaction volumes (mean = 4.12) and attract new customers (mean = 3.96). Customer preference for Telebirr over competitors was strong, with a mean rating of 4.13, suggesting that users favor the service for peer-to-peer transactions. However, its impact on market competitiveness was comparatively weaker (mean = 3.86), indicating that strategic improvements may be necessary to strengthen Ethio Telecom's market position.

Finally, in firm performance indicators, Telebirr's contribution to operational efficiency received the highest rating (mean = 4.14), followed by market competitiveness (mean = 4.12). Revenue growth (mean = 4.02) and customer acquisition (mean = 4.00) also demonstrated strong positive effects, confirming Telebirr's role in enhancing Ethio Telecom's financial performance.

These results suggest that while Telebirr has been well-received by employees and has contributed positively to various aspects of business performance, its effectiveness varies across different service categories.

### **5.2.3 Inferential Statistical Analysis Results**

To further understand the relationships between Telebirr's fintech services and firm performance, inferential statistical analysis was conducted using Pearson correlation analysis, multiple regression analysis, and hypothesis testing. The Pearson correlation analysis revealed that digital payment services had a weak but positive correlation with firm performance ( $r = 0.150$ ,  $p = 0.017$ ), indicating a small yet statistically significant effect. In contrast, digital lending services showed a weak negative correlation ( $r = -0.074$ ,  $p = 0.240$ ), suggesting that lending services do not strongly influence overall firm performance. Similarly, mobile money transfer services also exhibited a weak negative correlation ( $r = -0.142$ ,  $p = 0.023$ ), implying that their impact on firm performance may be limited or influenced by external factors. Overall, these findings indicate that digital payments have the strongest correlation with firm performance; while lending and money transfers exhibit weaker relationships.

In the multiple regression analysis, which examined how well fintech services predict Ethio Telecom's firm performance, the results showed that digital payments ( $\beta = 0.120$ ,  $p = 0.062$ ) had a marginally significant positive effect. However, digital lending ( $\beta = -0.028$ ,  $p = 0.601$ ) and mobile money transfers ( $\beta = -0.112$ ,  $p = 0.067$ ) did not have statistically significant effects on firm performance. The overall model had an R-squared value of 0.037, suggesting that only 3.7% of the variation in firm performance was explained by these fintech services, implying that other external factors may play a more dominant role.

Finally, based on the regression analysis, the hypotheses were tested. The first hypothesis, which suggested that digital payments positively influence firm performance, was not supported ( $\beta = 0.120$ ,  $p = 0.062$ ). Similarly, the hypotheses regarding the positive influence of digital lending ( $\beta = -0.028$ ,  $p = 0.601$ ) and money transfers ( $\beta = -0.112$ ,  $p = 0.067$ ) on firm performance were also not supported. None of the hypotheses were statistically supported at the 5% significance level, indicating that while digital payments show a positive trend, the effects of lending and money transfers on firm performance are not significant in this study.

#### **5.2.4 Interpretation of Key Findings**

The key findings of the study highlight the varying impacts of Telebirr's fintech services on Ethio Telecom's firm performance. Digital payments, while showing a weak impact, contribute to efficiency, cost reduction, and revenue generation. The positive effects on customer satisfaction and reduced cash-handling costs suggest that digital payments are a valuable asset. However, to strengthen their impact, improving transaction infrastructure and offering customer incentives could help drive further improvements in performance. On the other hand, digital lending services, although successful in attracting customers, do not significantly influence profitability. This lack of a strong impact may stem from factors like regulatory constraints, low loan repayment rates, or limited integration with other revenue streams. Mobile money transfers also do not directly enhance firm performance, as they increase transaction volumes without significantly affecting revenue growth or competitiveness. This could be attributed to high competition and limited differentiation from other similar services in the market. Additionally, the low R-squared value from the regression analysis indicates that external factors such as market competition, regulatory policies, financial literacy, and broader telecom sector dynamics may play a more significant role in influencing Ethio Telecom's performance than the fintech services themselves.

The study suggests that while Telebirr's fintech services contribute to Ethio Telecom's business performance, their effects differ depending on the service type. Digital payments show the most potential for improving revenue and operational efficiency, while lending and money transfers require strategic enhancements to fully realize their potential. To leverage digital financial services for sustained growth, Ethio Telecom must refine its fintech strategy, focusing on areas such as infrastructure improvement, customer engagement, and differentiating its services from competitors.

## **5.3 Conclusion**

This section presents the overall conclusion of the study based on the findings from both descriptive and inferential statistical analyses. It examines the impact of Telebirr's fintech services on Ethio Telecom's firm performance, the implications of the inferential statistical analysis, and compares the findings with existing studies on fintech adoption.

### **5.3.1 Overall Impact of Fintech on Firm Performance**

The study aimed to evaluate the impact of Telebirr's fintech services digital payments, digital lending, and mobile money transfers on Ethio Telecom's firm performance, focusing on key indicators such as revenue growth, operational efficiency, customer acquisition, and market competitiveness. The study found that digital payments have the most significant positive impact, particularly in enhancing transaction efficiency and reducing cash-handling costs. While employees perceived that Telebirr's digital payment system improved revenue collection, its effect on overall profitability was less pronounced. Regression analysis showed a weak positive relationship between digital payments and firm performance, suggesting that while the service is beneficial, its full potential has not yet been realized. In contrast, digital lending had a limited or insignificant impact on revenue growth or profitability. Although lending services attracted new customers and improved retention, their effect on overall business performance was minimal. The inferential statistics revealed a weak negative correlation and an insignificant regression coefficient, indicating that digital lending does not strongly influence Ethio Telecom's financial outcomes. Possible explanations for this include low loan repayment rates, regulatory restrictions, and limited loan accessibility for high-value transactions. Regarding mobile money transfers, the services were well received by customers, with strong user preference over competitors. However, their impact on market competitiveness and overall firm performance was weak or negative. The regression and correlation analyses suggested a weak negative relationship, indicating that mobile money transfers alone do not drive revenue growth. This negative effect could be attributed to high competition from other money transfer services, transaction fees, or limited value-added features that differentiate Telebirr from alternatives.

### **5.3.2 Implications of Inferential Analysis**

The inferential statistical analysis provided several insights into the relationship between fintech services and firm performance. Digital payments performed better than lending and money transfers, likely due to their direct role in improving transaction speed, convenience, and cost efficiency. On the other hand, digital lending

showed limited effects, possibly because of customer hesitancy, strict loan approval criteria, or insufficient promotion of lending products. Mobile money transfers had a weak negative effect, which could be attributed to transaction fees, regulatory constraints, and competition from other financial service providers. The study also identified several external factors that likely contribute to Ethio Telecom's firm performance, beyond fintech adoption. The regulatory environment, controlled by the National Bank of Ethiopia, plays a significant role in how fintech services operate, with restrictions on cross-border transactions and fintech licensing potentially limiting Telebirr's expansion. Financial literacy and adoption rates remain low in Ethiopia, with many consumers still preferring cash transactions. Moreover, limited smartphone ownership and mobile internet penetration reduce the reach of Telebirr's services, especially in rural areas. Additionally, the competitive market forces, including traditional banks and microfinance institutions, limit Telebirr's impact on revenue growth. The overall economic environment, including inflation and disposable income levels, also influences consumer behavior regarding digital payments, lending, and transfers. These findings suggest that fintech services, while valuable, require strategic investments, policy improvements, and customer education to achieve their full potential.

### **5.3.3 Comparison with Previous Studies**

The study's findings align with and diverge from prior research on fintech adoption in Africa, particularly in markets like Kenya (M-Pesa) and Ghana (MTN MoMo). Like M-Pesa in Kenya, Telebirr has significantly increased digital payment transactions, reducing reliance on cash. Studies on M-Pesa have shown that mobile money services contribute to firm growth by expanding financial inclusion, which aligns with the observed effects of Telebirr's payment services. Similarly, research on MTN MoMo in Ghana found that mobile money transfers improved customer engagement but had limited effects on firm profitability. This is consistent with the findings that Telebirr's money transfer services do not significantly enhance Ethio Telecom's financial performance. Studies on fintech-driven lending in Africa suggest that microloans improve access to credit but may not always translate into higher revenues for service providers, aligning with the weak effect of Telebirr's lending services on profitability.

However, there are notable differences due to Ethiopia's unique fintech environment. Unlike Kenya and Ghana, Ethiopia's telecom sector is state-controlled, which limits competition but also slows innovation. Ethiopia has lower financial inclusion rates, with only 35% of adults holding bank accounts compared to Kenya's 85%, which limits Telebirr's impact due to a smaller user base and lower adoption rates. Regulatory constraints in Ethiopia, such as restrictions on foreign investment in fintech, also differ from countries like

Kenya and Nigeria, where global fintech firms contribute to market development. Furthermore, lower mobile and internet penetration in Ethiopia affects the effectiveness of digital financial services, while in Kenya, widespread smartphone usage has accelerated fintech adoption.

The study suggests that Telebirr's fintech services have a mixed impact on Ethio Telecom's firm performance. Digital payments contribute positively to revenue and operational efficiency, though their impact remains relatively small. Digital lending does not significantly influence profitability despite attracting new customers, while mobile money transfers enhance transaction volumes but do not improve firm competitiveness or revenue growth. The inferential analysis indicates that external factors, such as regulatory barriers, financial literacy, and competition, play a significant role in shaping fintech adoption and its business impact. Compared to successful fintech models like M-Pesa in Kenya or MTN MoMo in Ghana, Telebirr operates within a unique regulatory and economic environment that limits its full potential. To fully leverage fintech for improved firm performance, Ethio Telecom must enhance service innovation, optimize digital lending strategies, and address challenges related to market competitiveness. Additionally, policymakers must refine regulations to create a more enabling environment for fintech growth in Ethiopia.

## **5.4 Recommendations**

Based on the study's findings, several recommendations are proposed for Ethio Telecom, policymakers, and future researchers to enhance the effectiveness of fintech services and their impact on firm performance.

### **5.4.1 Recommendations for Ethio Telecom**

To enhance digital payment infrastructure and improve transaction efficiency, Ethio Telecom should focus on strengthening the reliability, security, and speed of Telebirr's payment processing system to enhance the overall user experience. Expanding merchant integration will encourage broader adoption among businesses and retailers, making digital payments more convenient and accessible. Additionally, offering incentives such as discounts, cashback rewards, or loyalty programs could further encourage digital transactions and customer retention.

For digital lending services, Ethio Telecom should reassess loan eligibility criteria to make borrowing more accessible while maintaining repayment security. The introduction of AI-driven credit scoring based on customer transaction history could help mitigate default risks and improve lending efficiency. Furthermore, partnerships with microfinance institutions and banks could increase the capital base and enable the scaling

of digital lending services to a larger customer base.

To strengthen Telebirr's money transfer services and enhance competitive positioning, Ethio Telecom should consider reducing transaction costs to attract more customers and improve retention. Exploring cross-border money transfer capabilities, subject to regulatory approvals, would expand the reach and usability of the service. Additionally, differentiating Telebirr from competitors by integrating value-added features such as bill payments, insurance services, and savings accounts within the platform would enhance its appeal and market competitiveness.

#### **5.4.2 Recommendations for Policymakers (National Bank of Ethiopia & Regulators)**

To support fintech expansion, policymakers should introduce regulatory flexibility that fosters innovation while ensuring financial stability. Developing policies that encourage fintech growth, allowing controlled competition by permitting private sector participation, and streamlining the licensing process for fintech startups would create a more dynamic and inclusive digital financial ecosystem.

Addressing financial literacy gaps is also crucial for improving fintech adoption rates. Nationwide digital financial literacy programs should be implemented to educate consumers on the benefits and usage of fintech services. Public-private partnerships can be leveraged to promote awareness and responsible usage, while simplifying fintech products to accommodate users with low technological literacy would make services more accessible to a broader audience.

#### **5.4.3 Recommendations for Future Researchers**

Future research should focus on investigating the long-term impact of fintech services by analyzing Ethio Telecom's financial reports and revenue data to determine Telebirr's real contribution to profitability. Conducting studies over multiple years would provide insights into fintech's sustainability and evolving market influence.

Additionally, researchers should explore fintech adoption barriers in rural Ethiopia, examining challenges such as infrastructural limitations, mobile internet accessibility, and cultural factors affecting fintech penetration. Understanding these barriers would help in developing strategies to expand digital financial services in underserved regions.

## **5.5 Limitations of the Study**

Despite its valuable insights, this study faced several limitations. First, the sample size was constrained as the study relied on responses from Ethio Telecom employees, which may not fully represent customer perspectives. A larger and more diverse sample, including Telebirr users, would provide a more comprehensive understanding of the fintech service's impact.

Additionally, there is a potential bias in employee responses, as their perceptions of Telebirr's impact may be influenced by their roles and company affiliation. Future studies should incorporate customer feedback and external stakeholder opinions for a more balanced analysis.

Lastly, the study's limited time frame, covering only the period since Telebirr's launch in 2021, restricted the ability to assess fintech's long-term impact. A longitudinal study spanning five to ten years would provide deeper insights into fintech's sustainability and evolving role in firm performance.

## **5.6 Suggestions for Future Research**

Future research should conduct a longitudinal analysis to assess how fintech adoption influences firm performance over an extended timeframe. This would help identify market shifts, evolving consumer behaviors, and regulatory changes affecting fintech growth.

Comparative studies between Telebirr and fintech services in open-market telecom industries, such as Kenya's M-Pesa, would offer valuable insights into best practices and potential improvements that Ethio Telecom could adopt. Examining the differences in regulatory environments and market dynamics could help identify strategies to enhance Telebirr's effectiveness.

Furthermore, assessing customer adoption and satisfaction levels in Ethiopia's fintech ecosystem through surveys and case studies would provide a better understanding of user experiences, pain points, and opportunities for service enhancement. By addressing customer concerns and improving service delivery, Telebirr could maximize its impact on firm performance and financial inclusion.

These recommendations offer actionable insights for Ethio Telecom, regulators, and researchers to optimize fintech services for greater economic impact. By addressing technological, regulatory, and adoption challenges, Telebirr's role in Ethio Telecom's business performance can be strengthened, contributing to Ethiopia's broader digital financial transformation.

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# APPENDEX

## APPENDIX A: SURVEY QUESTIONNAIRE

Dear Respondent,

I am conducting academic research titled “The Effect of Fintech on Firm Performance: The Case of Telebirr in Ethio Telecom” as part of my Master’s thesis in Corporate Finance (Investment Management) at Addis Ababa University. Your participation is vital to understanding how Telebirr’s services influence Ethio Telecom’s operational and financial outcomes.

This questionnaire will take approximately 10–15 minutes to complete. All responses are anonymous and will be used strictly for academic purposes. Your insights will remain confidential and will not be shared with third parties.

Thank you for your time and cooperation.

Sincerely,

**Tihut Berhanu**

Graduate Student | GSE/5297/14

Addis Ababa University Contact:

+2519

### SECTION 1: DEMOGRAPHIC INFORMATION

Instructions: Please select the appropriate option or fill in the blank.

1. **Gender:**

- Male
- Female

2. **Age:**

- 20–30 years
- 31–40 years
- 41–50 years
- Above 50 years

**3. Education Level:**

Diploma

- Bachelor's Degree
- Master's Degree
- Other: \_\_\_\_\_

**4. Work Experience at Ethio Telecom:**

- Less than 5 years
- 6–10 years
- Above 10 years

**5. Department:**

- Finance
- Marketing
- IT
- Customer Service
- Other: \_\_\_\_\_

**SECTION 2: DIGITAL PAYMENT SERVICES**

Instructions: Rate your agreement with the following statements about Telebirr's digital payment services.

<b>Statement</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Neutral (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
1. Telebirr's digital payment services have improved revenue collection in my department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Telebirr has reduced cash-handling costs for Ethio Telecom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Customers are more satisfied with Telebirr's payment services compared to traditional methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Telebirr has made payment processes faster and more efficient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SECTION 3: DIGITAL LENDING SERVICES

Instructions: Rate your agreement with the following statements about Telebirr's digital lending services.

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Telebirr's microloan services attract new customers to Ethio Telecom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Telebirr's lending services contribute significantly to Ethio Telecom's profitability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Customers who use Telebirr loans are more loyal to Ethio Telecom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Telebirr's lending services give Ethio Telecom a competitive edge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SECTION 4: MOBILE MONEY TRANSFER SERVICES

Instructions: Rate your agreement with the following statements about Telebirr's money transfer services.

<b>Statement</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Neutral (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
1. Telebirr’s money transfer services have increased transaction volumes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Telebirr transfers attract new customers to Ethio Telecom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Telebirr’s transfer services enhance Ethio Telecom’s market competitiveness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Customers prefer Telebirr for peer-to-peer transactions over competitors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SECTION 5: FIRM PERFORMANCE INDICATORS**

Instructions: Rate your agreement with the following statements about Ethio Telecom’s performance.

<b>Statement</b>	<b>Strongly Disagree (1)</b>	<b>Disagree (2)</b>	<b>Neutral (3)</b>	<b>Agree (4)</b>	<b>Strongly Agree (5)</b>
1. Telebirr has significantly contributed to Ethio Telecom’s revenue growth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Telebirr has improved Ethio Telecom’s operational efficiency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Telebirr helps Ethio Telecom acquire and retain customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Telebirr strengthens Ethio Telecom's competitiveness in the market.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Thank you for your participation!**

Your responses are invaluable to this research.