ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

THE EFFECT OF FOREIGN EXCHANGE RATE FLUCTUATION ON THE FINANCIAL PERFORMANCE OF PRIVATE COMMERCIAL BANKS IN ETHIOPIA

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A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS DEPARTMENT OF ACCOUNTING AND FINANCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN ACCOUNTING AND FINANCE

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STATEMENT OF DECLARATION

I, Biruktawit Yohannes, certify that this thesis entitled "The Effect of Foreign Exchange Rate Fluctuation on the Financial Performance of Private Commercial Banks in Ethiopia" submitted in partial fulfillment of the requirements for the Degree of Master of Science in Accounting and Finance, is my original work and I have prepared it independently under supervision of my Advisor Dr. Degefe Durressa. I also certify that all sources of materials used for this study have been properly cited.

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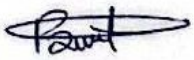
Signature: 

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List of Abbreviation and Acronyms

BS	Bank Size
CPI	Consumer Price Index
ETB	Ethiopia Birr
FX	Exchange Rate
GDP	Gross Domestic Product
INF	Inflation
MNC	Multinational Corporation
NBE	National Bank of Ethiopia
NIM	Net Interest Margin
OLS	Ordinary Least Square
PPP	Purchasing Power Parity
ROA	Return On Asset
ROE	Return On Equity
USD	United States Dollar

Abstract

In an increasingly volatile macroeconomic environment, understanding how foreign exchange rate fluctuations affect banking performance is essential for financial stability. This study examines the effect of foreign exchange rate fluctuations on the financial performance of private commercial banks in Ethiopia over the period from 2010 to 2024 using panel data. The analysis was conducted using STATA 16 software and employed a random effects regression model to analyze the effect of foreign exchange rate fluctuation alongside key macroeconomic (inflation, GDP) and bank-specific factors (bank size, capital adequacy ratio, net interest margin) on Return on Assets (ROA). The findings reveal that foreign exchange rate fluctuation had a negative and statistically significant effect on bank performance, indicating the risks posed by currency instability. Inflation and GDP were found to have a positive and significant effect on ROA, while capital adequacy and bank size also contributed positively. However, Net interest margin was found to be statistically insignificant. These results highlight the importance of effective foreign exchange risk management in mitigating external shocks. Regulatory measures and macroeconomic policies aimed at reducing foreign exchange rate fluctuation and strengthening financial supervision are therefore essential.

Key Words: Foreign exchange rate fluctuations, financial performance, commercial banks, risk management.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In today's highly interconnected global economy, fluctuations in foreign exchange rates have become one of the key challenges affecting the financial stability and performance of banks especially in developing countries like Ethiopia. Understanding how these fluctuations influence banking operations is critical, as their impact extends beyond individual institutions and can affect both the broader economy and national development. Therefore, it is essential to examine the effect of exchange rate fluctuation and the financial performance of banks from both a microeconomic and macroeconomic perspective.

Ethiopia's financial institutions face variety of risks due to the state of the global economy, with multiple macroeconomic. This affects Ethiopia's external position by driving up import costs and stifling exports. Consequently, thereby raises the risks for financial institutions in the country. Furthermore, developments in various foreign exchange markets and the trend towards higher benchmark (policy) interest rates could increase the foreign exchange and interest rate risks that financial institutions face in Ethiopia. Since Commercial banks engage in various foreign-denominated transactions including trade financing, remittances, and foreign borrowing exchange rate Fluctuation can have a direct impact on their financial performance. The persistent depreciation of the Ethiopian Birr, combined with macroeconomic pressures such as inflation and inconsistent GDP growth, has intensified the vulnerability of the banking sector to external shocks (NBE, 2024).

Exchange rate movements affect corporate performance through impacting expected cash flows and profitability. Given banks play an important role in the economy, it is important to examine how the performance of the sector is affected by foreign currency fluctuations. Banks are one of the leading actors in the foreign exchange market; they engage in import and export activities and the transactions must be paid in foreign currencies. Banks also participate in foreign exchange markets as an intermediatory for organizations that operate internationally. Thus, banks' financial performance is affected by exchange rate fluctuations. Exchange rate fluctuations could generate

significant gains or losses, which in turn may produce distorted financial results and give the wrong impression of the financial position of the institution concerned(Elhussein et al., 2019).

The financial performance of commercial banks is a key area of study in developing countries like Ethiopia where the banking sectors play a remarkable role in economic growth and stability. According to National Bank of Ethiopia report the banking sector continued to dominate the financial sector, with its total assets accounting for 96.1 percent of total financial sector assets at the end of June 2024. The report also indicated the stability of the Ethiopian financial system is depends on the health and stability of the banking sector (NBE, 2024). Commercial banks play an Important key role in the economic resource allocation of countries. They channel funds from depositors to investors continuously. They can do so if they generate the necessary income to cover the operational costs they incur in the due course. In order to achieve sustainable intermediation function, banks need to be profitable and beyond the intermediation function, the financial performance of banks has critical implications for economic growth of countries (Varaprasad, A. M., & Rao, K. M., 2019).

Ethiopia has transitioned from a managed floating exchange rate system to a Market-determined exchange rate at the end of July 2024. For close to three decades, Ethiopia has been implementing managed floating' exchange rate regime. The exchange rate industry in Ethiopia has no predetermined path and fluctuated from day to day, with the National bank of Ethiopia occasionally intervening in the foreign exchange market through the buying and selling of currencies. Consequently, the IMF categorizes this exchange rate regime as a crawling-peg arrangement, i.e. not 'managed float'. UN, (2020). The exchange rate has been closely managed to achieve a depreciation path of 5-6% annually relative to the United States (US) dollar in recent years, after the US dollar strengthened the BIRR became increasingly overvalued in real effective terms. In response, the NBE (2018) report BIRR is devalued by 15% in October 2017, the first devaluation since 2010. The devaluation resulted in a 17.3% nominal depreciation in the year to June 2018.

The Ethiopian Banking sector is influenced by various macro-economic factors like foreign exchange rate fluctuation, inflation in the country, economic growth, and other government policies. Girum (2020) stated that foreign currency Exchange rate movement in Ethiopia especially USD to ETB has been variable with periods of rapid depreciation of the domestic currency

Ethiopia Birr, which adversely affect the Ethiopian economy. The devaluation of Ethiopian birr and access to foreign currency significantly affected company's financial performance and suggested the influence is not only the direct exchange rate changes but also the broader economic stability is shaped by currency availability (Kebede, 2023).

The Ethiopian commercial banks working on the volatile foreign exchange environment which affects their financial performance in several ways and understanding of these factors will be significant for banks, stakeholders and other policy makers. Despite growing concerns about the macro-financial linkages in Ethiopia, empirical research on the direct and combined effects of exchange rate fluctuations on bank performance remains limited. Previous studies have mainly focused on general bank profitability determinants, often giving little emphasis to the fluctuation of foreign exchange and its economic consequences. For example, (Biru, A.M., 2021), (Alemu and Aweke ,2017) explored profitability drivers in Ethiopian banks, identifying variables like loan quality, capital ratios, and asset size, but lacked attention to dynamic macroeconomic shocks, especially exchange rate risk. Therefore, there exists a significant gap in understanding how macroeconomic instability, particularly FX fluctuation, interacts with internal bank metrics to influence financial performance in Ethiopia's banking sector.

Previous empirical studies investigating the effects of foreign exchange rate fluctuation on the financial performance in Ethiopian private commercial banks shows inconsistent results. While some scholars (Kidist , 2018) report a positive and statistically significant effect of exchange rate volatility on profitability, others (Getish, 2023) found a negative and statistically insignificant effect whereas (Girum, 2020) found negative but significant effect. This inconsistency forms a research gap, indicating a lack of consensus on the actual nature and magnitude of the effect. Previous studies on Ethiopian private banks show mixed results, with exchange rate fluctuations having significant or insignificant positive or negative effects on profitability. This study aims to fill the gap by providing detail analysis of how foreign exchange rate fluctuations affect the financial performance of Ethiopian private commercial banks integrating both macroeconomic and bank-specific variables.

The motivation behind this study comes from both academic and real-world concern about the long-term sustainability of the Ethiopian banking sector under continuous exchange rate volatility. Despite increasing policy reforms of foreign exchange rate in Ethiopia, limited empirical research

has analyzed the effect of foreign exchange rate fluctuations on the financial performance of commercial banks in the country. The findings of this study will help banks and stakeholders understand key factors driving currency fluctuations. This study used secondary data from Ethiopian private commercial banks and National Banks of Ethiopia over 15 years period from 2010-2024.

1.2 Statement of the problem

In the context of an increasingly globalized and financially interconnected world, exchange rate fluctuations have become a major source of risk, particularly for commercial banks in developing countries like Ethiopia. Exchange rate volatility refers to the degree of variation in the value of a country's currency in relation to others over a specific period. For banks operating in Ethiopia, where the foreign exchange market is characterized by persistent shortages and periodic devaluations, such volatility poses a direct threat to financial stability and profitability. Ethiopian commercial banks are heavily involved in foreign exchange operations, including remittances, foreign trade finance, and currency conversion, making them directly vulnerable to foreign exchange risks

Foreign exchange rate volatility can affect the performance of banks both directly and indirectly. The direct effect of exchange rate volatility on banks' performance is due to the banks operating in the foreign exchange-related activities. Activities in foreign exchange market require analysis of the exchange rate behavior and the risks arising from exchange rate fluctuations and its impact on the Bank's foreign currency liabilities and the profitability of its banking operations. On the other side, exchange rate volatility affects the behavior and performance of depositors, borrowers and it adversely affects banking risk and its performance (Keshtgar et al., 2020).

While exchange rate fluctuations are central to this discussion, their interaction with other macroeconomic and bank-specific variables must be acknowledged. Inflation and GDP growth are significant macroeconomic factors that jointly influence bank profitability. Inflation affects banks' real returns on assets and liabilities, particularly when there is a time lag in interest rate adjustments. In some cases, banks may benefit from inflation by repricing loans faster than the rising cost of deposits, thus enhancing profitability (Kidist, 2018). GDP growth serves as an indicator of overall economic health, in periods of growth, banks experience lower default risks,

increased credit demand, and greater income stability. Bank-specific variables such as Bank Size (BS), Net Interest Margin (NIM), and Capital Adequacy Ratio (CAR) also play crucial roles. Larger banks often enjoy economies of scale, stronger risk management, and diversified portfolios, which can shield them from market volatility (Girum, 2020).

Despite the theoretical clarity, empirical findings from Ethiopian studies have been inconsistent and inconclusive. For instance, Kidist (2018) found a positive relationship between foreign exchange rate, inflation, GDP, and bank size on ROA, while reporting an insignificant relationship for NIM. Conversely, Alem (2023) reported statistically insignificant but positive effects of exchange rate and inflation, and a negative significant effect for GDP on profitability. Similarly, Getish (2023) found an insignificant relationship between foreign exchange rate and ROE, while identifying a positive association between inflation and bank performance. These mixed findings suggest either methodological shortcomings or omitted variable bias in prior studies, highlighting the need for a more comprehensive and integrated analysis.

One major gap in the literature is the lack of studies that simultaneously incorporate both macroeconomic indicators and bank-specific characteristics to evaluate the full extent of exchange rate volatility on financial performance. Most studies either focus exclusively on macroeconomic dimensions or narrowly analyze a few bank-specific ratios. To address these gaps, this study adopts a more integrated and longitudinal approach by examining panel data from 2010 to 2024 across multiple private commercial banks in Ethiopia. The variables selected—exchange rate, inflation, GDP, bank size, net interest margin, and capital adequacy—are not only theoretically relevant but also empirically validated in prior studies. Exchange rate, inflation, and GDP serve as proxies for macroeconomic conditions, while bank size, NIM, and CAR represent internal management efficiency and stability. These variables jointly provide a robust framework to evaluate how exchange rate fluctuations, directly and through interaction with other factors, affect bank profitability.

Therefore, the central problem that this study addresses is the uncertainty and inconsistency in understanding how foreign exchange rate fluctuations affect the financial performance of private commercial banks in Ethiopia. Specifically, this study aims to determine whether the variation in ROA among banks over the 2010–2024 period can be systematically explained by fluctuations in exchange rates and the interplay of selected macroeconomic and bank-specific variables. The

Banking sector in Ethiopia experienced major macro-economic reforms aimed at enhancing efficiency and stability to the sector. However, these reforms alone do not isolate banks from external shocks and internal risks related to currency fluctuation. By filling this gap, the research will provide insights for banks and regulatory bodies to manage currency risks and improve financial sector resilience.

1.3 Objectives of the Study

1.3.1 General Objectives

The general objective of the study is to examine the effect of foreign currency fluctuation on the financial performance of private commercial banks in Ethiopia.

1.3.2 Specific Objectives

The specific objectives of this study are:

1. To investigate the effect between exchange rate and financial performance of private commercial banks.
2. To examine the effect of Inflation Rate on the financial performance of private commercial banks in Ethiopia.
3. To evaluate the effect of Gross Domestic Product on the financial performance of commercial banks.
4. To assess how bank size affects the financial performance of private commercial banks.
5. To analyze how net interest margin influences the financial performance of private commercial banks.
6. To identify the effect of Capital Adequacy on the financial performance of private commercial banks.

1.4 Hypothesis

The research hypothesis in this study aim to examine the effect of foreign exchange rate fluctuation on financial performance of private commercial banks in Ethiopia by integrating macro-economic and bank specific factors. The hypotheses are formulated based on the theoretical and empirical evidence from prior works in Ethiopia and other countries.

H1: Exchange rate has statistically negative effect on the financial performance of private commercial banks in Ethiopia.

H2: Inflation rate has a statistically significant negative effect on the financial performance of private commercial banks in Ethiopia.

H3: Gross domestic product (GDP) has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

H4: Bank size has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

H5: Net interest margin has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

H6: Capital adequacy ratio has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

1.5. Significance of the study

This study will be relevant to understand how exchange rate fluctuation affects the financial performance of private commercial banks, which is relevant for providing valuable insights for banks and other stakeholders on how foreign exchange rate fluctuation and other bank specific factors affect the financial performance of commercial banks. For regulatory bodies it provides understanding on how macro-economic and internal factors affect the financial performance of commercial banks and the overall financial stability in the banking sector.

Additionally, the research will contribute to the academic literature by filling the gaps regarding foreign currency fluctuation effects on bank performance. This study establishes a historical baseline for assessing the impact of exchange rate fluctuations on private banks before Ethiopia's market-based reform and providing reference points.

1.6. Scope of the Study

The scope of the study focuses on the effect of foreign exchange rate fluctuation on the financial performance of private commercial banks in Ethiopia, specifically covering the period from 2010-2024. The study used Return on Asset as dependent variable and independent variables Birr/USD exchange rate, Bank Size, inflation rate, Gross Domestic Product, Net Interest Margin and capital adequacy ratio. The research used secondary data from private Commercial banks and national bank of Ethiopia published audited annul reports.

1.7. Limitation of the Study

The first limitation of this study is it only focuses on quantitative data derived from annual reports of private commercial banks and national banks of Ethiopia which may limit the generalization of the results due to missing of qualitative data such as managerial decisions, global market conditions and geopolitical events, which may affect the currency rates and financial performance. The second limitation is that the study period selected may not fully capture the study analysis meaning that the period may not encompass all relevant economic cycles in the country.

1.8. Organization of the study

This study is divided into five chapters. The first chapter is an introduction, including the background of the study, statement of problem, research hypotheses, study's objectives, significance & scope of the study. The second chapter includes literature review, summarizing both theoretical and empirical studies. Chapter three presents the research methodology, outlining the research design, population and sampling techniques, types of data and instruments used, sources of data collection, and methods of data analysis. Chapter four includes data analysis and data interpretations. The last chapter presents conclusions, recommendations, and areas for further study.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Introduction

This chapter presents a theoretical literature review about the effect of foreign currency fluctuation on the financial performance of commercial banks and a review of existing literature which are related to the research being studied.

2.2 Theoretical Literature review

To understand the effect of foreign exchange rate fluctuation on the financial performance of banks a theoretical framework is essential that includes economic theories. This literature review presents theoretical perspectives regarding the effect of foreign exchange rate fluctuation on the financial performance of commercial banks.

2.2.1 Foreign Exchange Exposure

Phan (2022) defined exchange rate exposure as the impact from a fluctuating exchange rate on company valuation and is a leading cause of macroeconomic volatility. Exchange rate exposure has its origins in accounting, which is a "balance sheet" technique to specify companies' exposure to exchange rate variance; items included in the balance sheet impacted by exchange rate fluctuation are foreign currency, such as receivables from international clients and debts to foreign financial institutions.

Foreign exchange exposure is categorized into three main types: transaction exposure, translation exposure, and operating or economic exposure. Each type of exposure affects a firm's financial performance differently and it also requires different management strategies.

2.2.1 Transaction exposure

Transaction exposure can be defined as the sensitivity of "realized" domestic currency values of the firm's contractual cash flows denominated in foreign currencies to unexpected exchange rate changes. Since settlements of these contractual cash flows affect the firm's domestic currency cash flows, transaction exposure is sometimes regarded as a short-term economic exposure. Transaction

exposure arises from fixed-price contracting in a world where exchange rates are changing randomly (Eun & Resnick, 2012). Transaction exposure is cashflow risk caused by the probability that the home value for a payment in the future that denominated in a non-native currency may fluctuate owing to exchange-rate fluctuations. Cash flow sources that might be considered in this sort of risk include foreign currency-denominated trade debtors and creditors, dividends, and loan repayments. This implies that transaction risk encompasses both trading and capital items. Transaction exposure gauges changes in monetary value of outstanding financial commitments. This arises because of fluctuations in exchange rate between the time the contract gets concluded in foreign currency and when settlement is reached. As a result, any rise or reduction in estimated payable or receivable cash flow stemming from movements in exchange rates can be characterized as a foreign currency transaction benefit or drawback. The loss caused by transaction risk will impact the company's financial gearing. Managers should handle this risk. If an export or import firm suffers significant losses on foreign currency receivables or payables, the company may face financial difficulties (Phan, 2022)

2.2.2 Translation exposure

Translation exposure, also frequently called accounting exposure, refers to the effect that an unanticipated change in exchange rates will have on the consolidated financial reports of a MNC. When exchange rates change, the value of a foreign subsidiary's assets and liabilities denominated in a foreign currency change when they are viewed from the perspective of the parent firm. Consequently, there must be a mechanical means for handling the consolidation process for MNCs that logically deals with exchange rate changes. (Eun & Resnick, 2012). Therefore, translation exposure impacts the financial reports of MNC’s companies. It affects liabilities, revenues, expenses, gains and losses which get denominated in foreign currencies are put into parent corporation’s financial statements. The extent of this is dependent on the gap between exposed assets and liabilities, focusing on present measurement of prior events. Furthermore, it has no direct impact on company cashflow as assets along with liabilities appearing in the balance sheet are not going to be liquidated in the foreseeable future (Phan, 2022).

2.2.3 Economic Exposure

Economic exposure can be defined as the extent to which the value of the firm would be affected by unanticipated changes in exchange rates. Any anticipated changes in exchange rates would have been already discounted and reflected in the firm's value (Eun & Resnick, 2012). The value of a firm's cash flow can be affected by exchange rate movements if it executes transactions in foreign currencies, receives revenue from foreign customers, or is subject to foreign competition. The sensitivity of the firm's cash flows to exchange rate movements is referred to as economic exposure (also sometimes referred to as operating exposure). An MNC's cash flows are affected by its transaction exposure. Thus, an MNC's transaction exposure is a subset of its economic exposure. But economic exposure also includes other forms beyond transaction exposure in which a firm's cash flow can be affected by exchange rate movements (Madura, 2012).

2.2.4 Theories of Exchange Rate Determination

The exchange rate is influenced by a number of variables and there are different theories established to forecast the rate of exchange between different currencies.

2.2.4.1 The Purchasing Power Parity Theory

The theory of purchasing power parity states that the exchange rate between two countries' currencies equals the ratio of the countries' price levels. The domestic purchasing power of a country's currency is reflected in the country's price level, the money price of a reference basket of goods and services. The PPP theory therefore predicts that a fall in a currency's domestic purchasing power will be associated with a proportional currency depreciation in the foreign exchange market. Symmetrically, PPP predicts that an increase in the currency's domestic purchasing power will be associated with a proportional currency appreciation. The basic idea of PPP was put forth in the writings of 19th-century British economists, among them David Ricardo (the originator of the theory of comparative advantage). Gustav Cassel, a Swedish economist writing in the early 20th century, popularized PPP by making it the centerpiece of a theory of exchange rates. While there has been much controversy about the general validity of PPP, the theory does highlight important factors behind exchange rate movements (Krugman et al., 2012).

There are two popular forms of PPP theory, each of which has its own implications.

Absolute Form of PPP: The absolute form of PPP is based on the notion that without international barriers, consumers shift their demand to wherever prices are lower. It suggests that prices of the same basket of products in two different countries should be equal when measured in a common currency. If a discrepancy in prices as measured by a common currency exists, the demand should shift so that these prices converge (Madura, 2012).

Relative Form of PPP: The relative form of PPP accounts for the possibility of market imperfections such as transportation costs, tariffs, and quotas. This version acknowledges that because of these market imperfections, prices of the same basket of products in different countries will not necessarily be the same when measured in a common currency. It does state, however, that the rate of change in the prices of the baskets should be somewhat similar when measured in a common currency, as long as the transportation costs and trade barriers are unchanged (Madura, 2012).

2.2.4.2 Interest rate parity theory

In international money markets, the interest rate differential between two currencies approximately equals the percentage spread between the currencies' forward and spot rates. If this is not the case, traders have an opportunity to earn arbitrage profits. Interest rate parity describes a no-arbitrage relationship between spot and forward exchange rates and the two nominal interest rates associated with these currencies. The relationship is called covered interest rate parity. The interest rate parity implies that forward premiums and discounts in the foreign exchange market offset interest differentials to eliminate possible arbitrage that would arise from borrowing the low-interest rate currency, lending the high-interest-rate currency, and covering the foreign exchange risk. Interest rate parity is a critical equilibrium relationship in international finance. Covered interest rate parity maintains that a domestic money market investment and a foreign money market investment have the same domestic currency return as long as the foreign exchange risk in the foreign money market investment is "covered" using a forward contract. Two related theories predict what may happen when exchange rate risk is, by contrast, not hedged. Uncovered interest rate parity maintains that the "uncovered" foreign money market investment, which has an uncertain return because of the uncertainty about the future value of the exchange rate, has the same expected return as the

domestic money market investment. The unbiasedness hypothesis states that there is no systematic difference between the forward rate and the expected future spot rate and that, consequently, the expected forward market return is zero (Bekaert & Hodrick, 2012)

2.2.4.3 The Balance of Payments Theory (BOP)

The balance of payments is a summary of transactions between domestic and foreign residents for a specific country over a specified period of time. It represents an accounting of a country's international transactions for a period, usually a quarter or a year. It accounts for transactions by businesses, individuals, and the government. A balance-of-payments statement can be broken down into various components. Those that receive the most attention are the current account and the capital account. The current account represents a summary of the flow of funds between one specified country and all other countries due to purchases of goods or services, or the provision of income on financial assets. The capital account represents a summary of the flow of funds resulting from the sale of assets between one specified country and all other countries over a specified period of time. Thus, it compares the new foreign investments made by a country with the foreign investments within a country over a particular time period. Transactions that reflect inflows of funds generate positive numbers (credits) for the country's balance, while transactions that reflect outflows of funds generate negative numbers (debits) for the country's balance (Madura, 2012).

2.2.4.4 The Monetary Approach to Rate of Exchange

In this model, the menu of assets is fairly simple. There are distinct demands for non-interest-bearing domestic and foreign currencies. The demand for nominal money arises from the demand for real money balances. That is, people are only concerned with the real value of the nominal money they are holding. The fundamentals in this model are a simple function of relative money supplies and relative real income levels in the two countries. The model implies that the domestic currency weakens if the domestic money supply increases today or if news arrives that leads people to believe that the future domestic money supply will increase. In contrast, the domestic currency strengthens if the foreign money supply increases today or if news arrives that causes people to think that foreign money supplies will be higher in the future. These effects arise directly from the influence an increased supply of money has on prices with the demand for money held constant. Higher prices in turn weaken the currency because PPP is assumed to hold. The domestic currency also weakens if domestic real income falls, if foreign real income rises, or if news arrives that

causes people to expect lower domestic real growth or faster foreign real growth. Real income positively affects the demand for real money balances because the higher the real income, the greater the number of monetary transactions required to support the real transactions of an economy. Hence, a decrease in real income lowers the demand for real balances and given a fixed money supply, causes an increase in prices to lower the real money supply. The increase in prices therefore weakens the currency through the PPP channel (Bekaert & Hodrick, 2012)

2.2.4.5 International Fisher Effect (IFE) Theory

Along with PPP theory, another major theory in international finance is the international Fisher effect (IFE) theory. It uses interest rate rather than inflation rate differentials to explain why exchange rates change over time. The international Fisher effect theory offers a counterargument about how interest rates affect exchange rates, and it uses the purchasing power parity theory to support its argument. The first step in understanding the international Fisher effect is to recognize how a country's nominal (quoted) interest rate and inflation rate are related. The relationship between a country's nominal interest rate and inflation is commonly referred to as the Fisher effect named after the economist Irving Fisher. The Fisher effect suggests that the nominal interest rate contains two components: (1) expected inflation rate and (2) real rate of interest. The real rate of interest represents the return on the investment to savers after accounting for expected inflation and is measured as the nominal interest rate minus the expected inflation rate. If the real rate of interest is constant over time, the nominal interest rate in a country has to adjust over time to changes in expected inflation over time (Madura, 2012).

2.2.2 Impact of Exchange Rate Fluctuation on Bank Financial Performance

Exchange rate fluctuation can have significant impact om financial performance of banks, specially those engage in foreign exchange transactions. Understanding of how exchange rate fluctuations affect bank financial performance is important in order to develop effective risk management strategies.

Bank performance is important both at micro and macro levels of the economy. At the micro level bank profitability is a prerequisite for a successful, competitive institution that can offer a source of funds at a lower cost. On the other hand, at the macro level the profitability of the banking sector

is a buffer that resists negative economic shocks and provides stability of the financial system. Macroeconomic chocks, such as great variability of economic growth, fluctuations of exchange rate and instability of inflation have led to banking crises and bankruptcies. Whether banks perform well or poorly, their action influence expansion or contraction of credit and then leads to amplifies macroeconomic shocks. From the theoretical models developed to assess bank performance and its impact on the economy indicate that there is an interaction between banking performance, solvency risk and macroeconomic indicators, such as gross domestic product, inflation, and exchange rate. Further, these studies conclude that banking crises are very costly for the economy (Elhussein et al., 2019).

Exchange rate volatility affects the performance of banks both directly and indirectly. The direct effect of exchange rate volatility on banks' performance is due to the banks operating in the foreign exchange-related activities. All foreign exchange activities require an examination of the exchange rate behavior and the risks arising from exchange rate fluctuations and its impact on the Bank's foreign currency liabilities and the profitability of its banking operations. Indirectly, exchange rate volatility affects the behavior and performance of depositors and borrowers and adversely affect on banking risk and its performance. On the other hand, the process of supply chain of firms' products is affected by exchange rate volatility. Uncertainty about the level of currency fluctuations for any firm is a type of risk that can affect the firm's activities. In fact, exchange rate volatility affects aggregate demand (net exports) and aggregate supply (costs of imported intermediates, production of goods and services). In general, in the commodity market, positive exchange rate shocks will make imported commodities more expensive and export commodities cheaper, thereby increasing demand for domestic commodities. Therefore, the more risk averse foreign trade factors are and the greater the share of foreign trade in GDP, the fluctuating exchange rate will have a greater impact on lowering output, raising prices and limiting foreign trade (Keshtgar et al., 2020).

On the other hand, a change in the exchange rate can change the competitive position of domestic producers. As the exchange rate rises, the price of imported commodities in terms of national currency rise’s and the demand for foreign goods declines. Moreover domestic goods become relatively cheaper abroad. Foreign exchange volatility also has a negative impact on the return on banks' assets. Banks are exposed to a variety of risks due to foreign exchange volatility including

transaction risk, conversion risk, credit risk, interest rate risk, and inflation risk, thereby reducing the profitability of the banks. Exchange rate volatility is an important factor in explaining the ratio of non-performing loan to total lending of the banks and create credit risk for the banks, which in turn increases the non-performing loan of the banks (Keshtgar et al., 2020).

2.2.3 Determinants of Bank Financial Performance

The performance of commercial banks is significantly influenced by various macroeconomic factors. Understanding these influences is crucial for bank management, policymakers, and investors. This review explores the impact of key macroeconomic variables—exchange rates, inflation rates, interest rates, economic growth, bank size and capital adequacy, and non-performing loans—on bank financial performance.

2.2.3.1 Exchange Rate

Exchange rate fluctuations can have profound effects on the financial performance of banks, especially in economies with significant foreign trade exposure. A study by Gachua (2011) highlights that changes in exchange rates affect banks' transaction costs and the value of foreign currency-denominated assets and liabilities. Banks with substantial foreign currency exposure may experience volatility in their earnings due to exchange rate movements, impacting their overall profitability (Keshtgar et al., 2020). The relationship between exchange rates and bank performance is particularly critical in developing countries like Ethiopia, where currency fluctuations can lead to increased risks associated with lending and investment activities (Bereket, 2021).

2.2.3.2 Inflation Rates

Banks play a key role in intermediating credit with the interest rate being closely tied to expected inflation. The value of a bank’s assets and liabilities is highly sensitive to interest rate changes. Over the short term, bank profitability, and possibly solvency, can be pressured by inflation because inflation-induced higher interest rates will reduce the value of the bank’s existing fixed-income assets and necessitate greater provisioning in anticipation of more defaults. On the other hand, over the longer term, banks should benefit from higher interest rates through larger net interest margins (the average difference in bank lending and borrowing rates), especially as interest rates rise significantly above the zero lower bound. Banks can also be affected by macroeconomic

changes that are associated with higher inflation; for instance, if productivity declines are causing higher inflation, rising nonperforming assets, slowing fee revenue, and slowing loan growth will likely reduce bank revenue and increase bank losses (Converse, N., & Jain, A. K. ,2024).

Inflation is generally the increase of prices in an economy over a period of time. When the price of goods and services increase, one unit of the local currency will buy fewer goods and services. Several factors cause inflation. It can be caused by too much money supplied into the market by the government through the purchase of bonds or by commercial banks when they issue loans to the public. The excessive growth of money supplied in the economy compared to the economic growth will cause high inflation rate, when there is high inflation, businesses and consumers increasingly fear that it will erode their future purchasing power. A low rate of inflation is favorable since it enables businesses and consumers to make long-range plans as they know the purchasing power of their money and that it will not be steadily eroded. The measure of price inflation is called the rate of inflation annualized percentage change of the general price index (CPI) over time. The CPI measures the change in prices of a fixed basket of consumer goods and services (Moyo et al., 2020).

2.2.3.3. Net Interest Margin

Higher net interest margins can make lower banking sector efficiency, marked by higher costs due to inefficient control of operating expenses, and have a negative impact on financial developments, resulting in lower investments and slower economic activity. When we look in to the other side lower net interest margins usually mark deeper and more developed financial markets, encourage investment activities and support economic growth (Dumicic and Ridzak, 2013).

2.2.3.4 Economic Growth

Economic growth is positively correlated with bank performance. As economies expand, the demand for banking services increases, leading to higher loan volumes and improved profitability for banks (Mutwiri, 2014). Research conducted by Epaphra and Kazungu (2021) indicates that GDP growth serves as a significant predictor of bank performance in East Africa. In contrast, economic downturns can lead to reduced lending activities and increased non-performing loans (NPLs), adversely affecting banks' financial stability.

2.2.3.5 Bank Size

The size of a bank can influence its ability to manage risks associated with macroeconomic fluctuations effectively. Larger banks often benefit from economies of scale that allow them to operate more efficiently and reduce costs (Gikombo & Mbugua, 2018). A study by Saeed (2015) indicated that larger banks tend to have better capital adequacy ratios and lower NPL ratios compared to smaller institutions. This advantage enables larger banks to withstand economic shocks more effectively and maintain higher profitability levels.

Bank size is widely recognized as a critical determinant of bank profitability across different countries and banking environments. The size of a bank, commonly measured by total assets or the logarithm of total assets, reflects its capacity to achieve economies of scale, diversify risk, and leverage technological and managerial resources, which can enhance financial performance (Sritharan, 2015; Aladwan, 2015).

2.2.3.6 Capital Adequacy

Capital adequacy ratios are essential indicators of a bank's financial health and its ability to absorb losses from non-performing loans or adverse market conditions. A higher capital adequacy ratio correlates positively with improved financial performance (Kinyuma, 2013). Banks with robust capital reserves are better positioned to manage risks associated with fluctuations in macroeconomic conditions, thereby enhancing their resilience during periods of economic instability.

2.2.4 Ethiopian Banking and Exchange Rate Regimes in Ethiopia

Understanding the theoretical underpinnings of exchange rate regimes and their implications for bank performance is essential for grasping the current economic landscape. This review explores the exchange rate regimes in Ethiopia, the banking industry and the broader implications for financial performance.

Ethiopia’s exchange rate regime is classified by the authorities as managed float while by the IMF as crawl-like due to stability of the exchange rate and NBE’s intervention policy. According to the NBE, the exchange rate has no predetermined path and thus it is allowed to fluctuate from day to day, with the authorities occasionally intervening in the foreign exchange market through buying

and selling currencies. However, the fairly stable movements in the exchange rate and the NBE's interventionist stance has led the IMF to categorize the exchange rate regime as a crawl-like arrangement. The nominal exchange rate is determined in an interbank foreign exchange market. The NBE supplies foreign exchange to the interbank market based on supply and demand estimates established at the beginning of a year. However, despite the role played by the interbank market, the exchange rate has been primarily supply-side determined. For this reason, the nominal exchange rate has been largely unresponsive to changes in macroeconomic fundamentals and external shocks. The birr is closely managed against the USD, which serves as the nominal anchor of Ethiopia's exchange rate policy. It should be noted that managed exchange rate regimes could be sustained only if adjustments are made for significant changes in the exchange rates and inflation rates of the anchor currency country (Fiseha Haile, 2019).

The significant reforms were initiated in July 2024, transitioning to a floating exchange rate regime. This shift allows market forces to determine currency values, reducing central bank intervention in daily currency transactions. Ethiopian Economics Association , 2024 states that the previous fixed exchange rate system exacerbated imbalances between foreign currency supply and demand, creating a significant gap that fueled the proliferation of a parallel market. The artificially fixed exchange rate failed to accurately reflect economic realities, leading to overvaluation of the domestic currency. This, in turn, discouraged foreign exchange inflows, while simultaneously stimulating demand for foreign currency, particularly for imports. The resulting scarcity and premium placed on foreign exchange created a fertile environment for the black market to thrive.

The adoption of a floating exchange rate is expected to improve liquidity in the foreign exchange market and alleviate chronic shortages of foreign currency. It also aligns with broader macroeconomic reforms aimed at enhancing the competitiveness of the banking sector and attracting foreign direct investment (ENA, 2024). The new regime is expected to enhance competition among banks by allowing them to engage freely in foreign exchange transactions. This increased competition can lead to improved services for customers and potentially higher profitability for banks that effectively manage their foreign currency exposure (ENA, 2024).

Generally Ethiopian banking sector is at a pivotal moment due to recent reforms in its foreign exchange regime. However, these reforms alone do not prevent banks from external shocks and

internal risks related to foreign currency fluctuation. As Ethiopian banks navigate this new reform, effective risk management strategies will be essential for maintaining profitability and stability.

2.2.5 Risk Management Strategies in Banking

Effective risk management strategies are essential for mitigating the adverse effects of exchange rate volatility on bank performance. Goh and Ewe (2017) emphasized the importance of hedging strategies in reducing foreign exchange risk for Malaysian banks. Their research demonstrated that implementing robust risk management frameworks could safeguard against potential losses arising from currency fluctuations.

Taiwo and Adesola (2013) examined Nigerian banks' risk management practices and concluded that effective monitoring systems significantly enhance a bank's resilience to exchange rate volatility. They argued that comprehensive risk management frameworks should include both quantitative models and qualitative assessments to navigate complex market conditions.

Additionally, Alsharif et al. (2020) explored how different risk management techniques affect bank performance during periods of high volatility. Their findings indicated that banks employing advanced risk management tools were better positioned to cope with adverse market conditions.

2.3 Empirical Review

2.3.1 Studies in Ethiopia

Daniel (2023) studied the determinant of foreign exchange rates on the financial performance of private commercial banks in Ethiopia. The study reveals a significant negative relationship between foreign exchange rates and the financial performance of these banks. This highlights the importance of effectively managing foreign exchange risks for banks operating in Ethiopia and recommendation to increase exports and foreign direct investment in order to enhance foreign currency inflows. By doing so, the study suggested that the impact of fluctuations in foreign exchange rates on banks' profitability could be reduced. This recommendation aligns with the goal of improving the overall financial performance of private commercial banks in Ethiopia. Another finding of the study was a positive and significant relationship between bank size and financial performance. This implies that larger banks may have better risk management capabilities and are more capable of capitalizing on opportunities compared to smaller banks. Generally, the study

reveals a significant and negative relationship between interest rate spreads and financial performance. This finding was unexpected because wider interest rate spreads would generally be expected to benefit banks.

Isayas (2022) investigate the key firm-specific and macroeconomic determinants of profitability of commercial banks in Ethiopia. The empirical analysis was carried out using the generalized method of moments (GMM) estimation of dynamic panel data from 14 banks covering 12 years of operation from 2008 to 2019. A quantitative approach and explanatory design were employed to realize the stated objectives. Secondary data were collected from annual audited financial statements of sampled banks for the stated period. The model results of the study revealed that firm size, liquidity ratio, asset tangibility, capital adequacy, leverage and real GDP growth rate have a positive and statistically significant effect on the profitability of banks, while firm age and the inflation rate have a negative but statistically insignificant effect on the profitability of banks in Ethiopia.

Henok (2021) conducted research aimed to examine the of foreign currency exchange fluctuation on financial performance of private Commercial Banks in Ethiopia. It attempts to identify how foreign exchange rate along with interest rate spread , inflation rate and bank size affects financial performance measured by return to Equity (ROE). The study used quantitative research approach by adopting purposive sampling technique and explanatory type of research design. The samples used for this study were secondary data for a period of 20 years starting from 2000 through 2019 for a cross section of 6 private commercial banks; these data were mined from the audited annual financial statement of banks, NBE annual bulletins and ministry of trade. The study tested the assumptions of CLRM. Random Effect Regression model has been used to analyze the results. The result of the study indicated the existence of a negative and significant relationship between foreign exchange rates and financial performance of private commercial Banks, a positive and significant relationship between bank size and financial performance of private commercial banks. The study concluded that there was insignificant relationship among interest rate spreads and inflation rates with the financial performance of private commercial banks in Ethiopia in the study period. The study recommends that the Government should put up more measures to increase the country's exports and foreign direct investment and the National Bank of Ethiopia should adequately put measures to safeguard the value of the domestic currency.

Kidist (2018) examined the effect of change in exchange rate on the financial performance (ROE) of private commercial banks in Ethiopia. Financial statements of a sample of eight (8) Private commercial banks were used for a period of fifteen years (2002-2016) with the total of 112 observations. The Data was analyzed on quantitative basis using explanatory and regression analysis. The empirical findings of this study suggest that exchange rate has statistically significant negative impact on the profitability of commercial banks. The result of the model estimated to examine the impact of exchange rate on profitability of private commercial banks in Ethiopia showed that exchange rate has statistically significant positive impact on the financial performance of banks in Ethiopia. It examined variables such as exchange rate, inflation, gross domestic product, net interest margin and bank size in relation to return on asset (ROA). The key findings from the study are; there was a significant positive relationship between variables including exchange rate, inflation, GDP and bank size and the performance of private commercial banks. Whereas, there was insignificant and negative relation between net interest margin and performance of commercial banks. The study recommends government's fiscal and monetary policy making department needs to consider the rate change effects on companies' performance and make sure to avail appropriate strategy to reduce its adverse effect on the profitability of their bank.

2.3.2 International Studies

Comparative studies provide valuable insights into how varying economic contexts influence the relationship between exchange rate volatility and bank performance. For example, Gumbo et al., 2022 studied the effect of exchange rate fluctuations on bank profitability in Zimbabwe, the general objective of this study was to determine the effects of exchange rate fluctuations on banks' profitability. The study sample included 13 commercial banks and 1 savings bank in Zimbabwe for the period 2016 to 2021. Panel data was analyzed using E-views package. The research findings indicated there is significant negative relationship between exchange rates and banks profitability that is the depreciation of the Zimbabwean currency has a negative significant relationship with bank profitability. The study concluded that deposit to assets ratio has a negative significant relationship with bank profitability. Economic growth represented by (GDP) had a positive significant relationship whilst inflation had a negative significant relationship with bank profitability.

Elhussein et al., 2019 also examined fluctuations in the exchange rate affect the financial performance of Sudanese banks and detecting the direction of the causal relationship relation between exchange rate and banks' performance. The study targets a total population of 37 working banks in Sudan and covers the period 2002-2017. The sample comprises of the total set of the population. Based on secondary data, which is collected from consolidated financial reports of commercial banks and other official publications and documents. To test the hypotheses and accuracy and validity of models and data, a set of methods of data analysis are employed, namely, Ordinary Least Squared (OLS), Generalized Least Squares (GLS), Autoregressive Distributed Lag (ARDL) and several Diagnostic Tests. The study documents that foreign exchange rate fluctuations, contrary to empirical research findings, have a weak negative effect on Sudanese banks' financial performance. This may be attributed to the tight economic embargo against Sudan during the period of this study, which isolates the country from the international financial system and adversely affects its ability to engage in cross border activities. Consequently, the banking sector in Sudan is insulated from the effect of international currency movements and its exposure to currency risk that may create unpredictable profits and losses is minimal.

A study conducted by Elizabeth Majok, 2015 adopted a descriptive research design to study the effects of exchange rate fluctuations on financial performance of commercial banks in Kenya. The target population comprised all 43 commercial banks operating in Kenya as of December 2014. For this study, all the 43 banks were included because the target population was small, and the data was easily accessible from the Central Bank of Kenya. Secondary data was collected from the banks' consolidated financial statements as well as Central Bank of Kenya offices. The study used Statistical Package for Social Sciences Version 21.0 to aid in data analysis. The study findings revealed there was a positive relationship between foreign exchange rate fluctuations and the financial performance of banks as measured by the returns on assets ratio. The study concluded that there is a weak relationship between foreign exchange rate fluctuations and the performance of commercial banks in Kenya in the study period. Additionally, the Kenyan shilling exchange rates against the United States Dollar was observed to be high during the study period. The study recommended relevant authorities for instance; the Central Bank of Kenya should adequately put measures to safeguard the value of the domestic currency.

The hypotheses are formulated based on the theoretical and empirical evidence from prior works in Ethiopia and other countries.

Exchange rate imposes significant risks for banks in economic environments with foreign currency exposure. There are several study findings that confirm the increase in exchange rate negatively affect banks financial performance. For instance, Keshtgar et al., (2020) analyzed financial performance of banks in Iran and found out that exchange rate has a negative and statistically significant effect on banks' capital return ratio. Foreign Exchange rate also leads to uncertainty, as it increases the financial gap and creates the credit risk. In Ethiopia there are also studies confirms these finding. A study on private commercial banks findings indicated there is a significant negative relationship between exchange rate fluctuations measured by ROE (Henok, 2021) and (Daniel, 2023). Thus, higher exchange rate fluctuation affects banks' financial performance.

H1: Exchange rate has statistically negative effect on the financial performance of private commercial banks in Ethiopia.

Inflation affects profitability by altering real interest rates, operational costs and borrowers' repayment capacity. High inflation increases credit risk and negatively impacts financial performance. In the contrary some studies find a positive effects of inflation on banks profitability. In the Ethiopia context a study finding of (Isayas, 2022) indicated that inflation negatively affects financial performance.

H2: Inflation rate has a statistically significant negative effect on the financial performance of private commercial banks in Ethiopia.

Economic growth of a country expands business activities which increases the demand for credit and improves borrowers' financial health, and these activities can enhance the financial performance of banks. There are several studies confirm a positive relationship between GDP and banks Ethiopia (Kidist, 2018).

H3: Gross domestic product (GDP) has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

Bank size is usually positively correlated with the financial performance of banks because of economies of scale, strong capital bases and diversification of risk portfolios. Larger banks can use their resources in order to achieve operational efficiencies and better to absorb unexpected shocks. Several studies in Ethiopia finding support this hypothesis (Kidist, 2018; Bereket 2020)

H4: Bank size has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

Net interest measures the difference between interest income and interest expense relative to earning assets and a higher net interest margin indicates effective management of assets and liabilities, pricing strategy which can enhance the financial performance of banks. (Alem, 2024) finding states there is a positive and significant relationship between net interest margin and commercial banks.

H5: Net interest margin has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

Capital adequacy refers to the banks' ability to absorb losses and sustain operation in periods of financial distress and if banks have strong capital adequacy, they can absorb losses and remain stable and profitable. This Hypothesis is also supported by the findings of study made by (Bereket, *2020).*

H6: Capital adequacy ratio has a statistically significant positive effect on the financial performance of private commercial banks in Ethiopia.

2.4 Gaps in Existing Literature

The existing literature and results of various studies in Ethiopia show a mixed result on the effect of foreign currency fluctuations components on financial performance of commercial banks. From the review of literature that even in situations where similar indicators of financial performance have been employed, conflicting results are provided. Some studies findings on the impact of exchange rate on profitability of private commercial banks in Ethiopia are significant or insignificant positive effect while others have shown significant or insignificant negative relationship. For instance, from Kidist (2018) study findings there was a significant positive relationship between variables including foreign exchange rate, inflation, GDP and bank size and the performance of private commercial banks. Whereas there was an insignificant and negative relation between net interest margin and performance of commercial banks measured in ROA. On the other hand, Alem (2023) also conducted study on impact of foreign exchange rate on profitability of private commercial banks in Ethiopia measured in ROA and the major findings of the study show that that foreign exchange rate and inflation rate have statistically insignificant and positive relationship with banks' profitability. Further, GDP has a negative and statistically significant relationship with banks' profitability and the relationship for net interest margin and bank size is found to be positive and statistically significant.

Getish (2023) examined the effects of foreign exchange rates on bank profitability and financial performance measured in ROE and the study found a negative but insignificant relationship between foreign exchange rates and bank performance, as well as a positive relationship between inflation and performance. There was no significant relationship observed between inflation rates and financial performance and significant relationship between interest rate spread and financial performance. On another study made by Girum (2020) findings revealed that there is a negative and significant relationship between foreign exchange rates and financial performance measured in ROE of private commercial Banks, positive and significant relationship between bank size. The study also concluded that there was insignificant relationship among interest rate spreads and inflation rates with the financial performance of private commercial banks in Ethiopia in the study period.

Empirical evidence and results of various studies show a mixed results on the effect of foreign currency fluctuation on the financial performance of commercial banks. In addition, existing

literature suggests some studies explored bank specific factors affecting bank performance but there is a lack of comprehensive research that integrates bank specific variables to examine their impact on the financial performance of commercial banks in Ethiopia. These limitations restrict the generalizability and depth of the findings, creating a significant gap in the literature that this study seeks to fill.

Many studies examine individual macroeconomic variables' effects on bank profitability; few have integrated multiple variables into a comprehensive model that reflects real-world complexities. Future research should aim to develop more complete models incorporating various factors influencing bank performance during periods of high volatility.

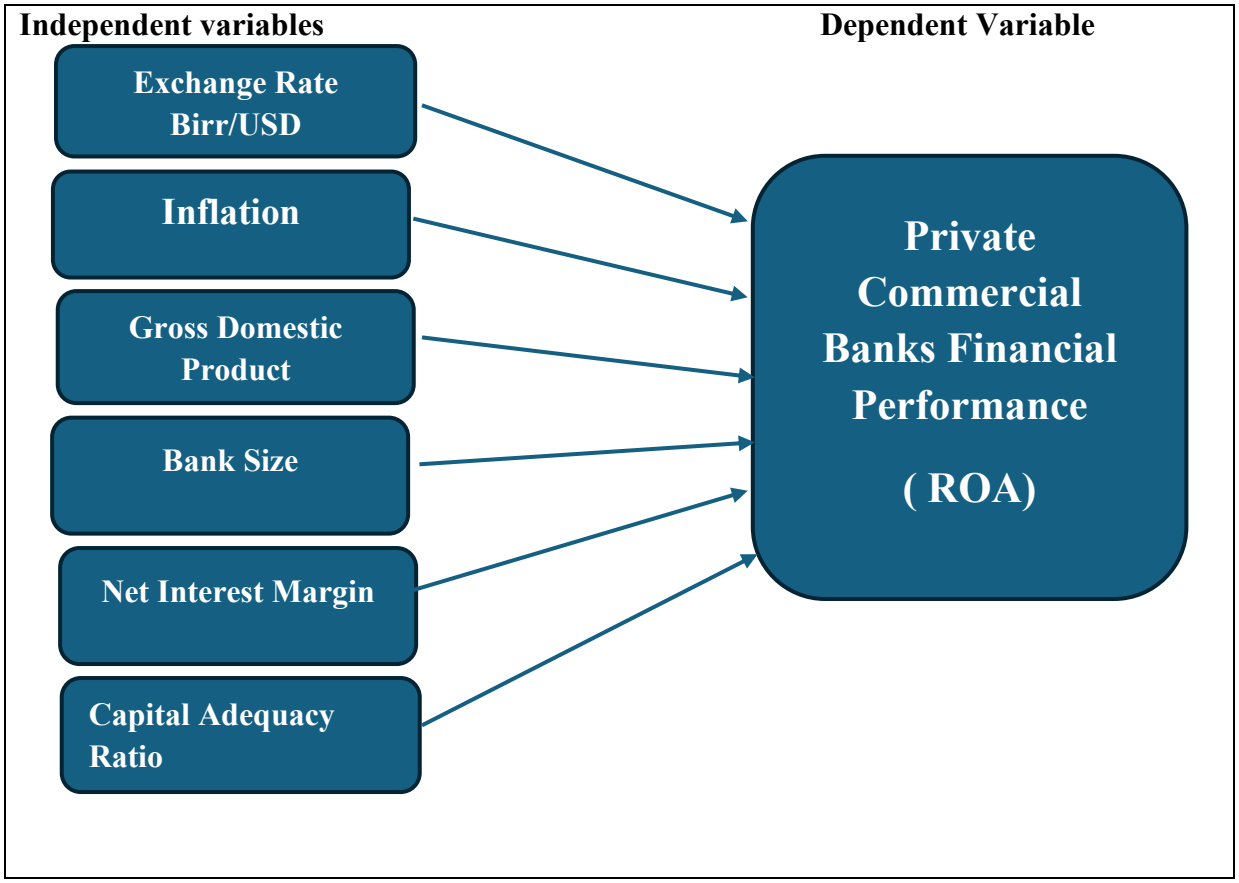
The literature reveals a complex interplay between foreign exchange rate volatility and the financial performance of commercial banks globally. While some studies indicate positive effects on profitability through increased foreign currency transactions, others highlight significant risks associated with high levels of volatility. The findings indicate the importance of effective risk management strategies tailored to specific banking environments. As such, further research is warranted to explore these dynamics within the Ethiopian context, particularly given the unique challenges faced by commercial banks operating in an increasingly volatile economic situation.

The Existing literature suggests some studies explored bank specific factors affecting bank performance but there is a lack of comprehensive research that integrates bank specific variables to examine their impact on the financial performance of commercial banks in Ethiopia. These limitations restrict the generalizability and depth of the findings, creating a significant gap in the literature that this study seeks to fill.

2.5 Conceptual Framework

The conceptual framework is developed from the review of the literature discussed above and presented in the following diagram. The diagram presents a conceptual framework of the effect of explanatory variables (exchange rate, net interest margin, inflation rate, GDP, capital adequacy and size of banks) on the dependent variable return on asset (ROA). It also shows that the proposed conceptual framework, basically illustrates the factors that contribute to the effect of financial performance in private commercial banks in Ethiopia.

Figure 2. 1 Conceptual Framework



Source: Researcher's own Design

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter the methodology for this study used in examining the effect of the exchange rate fluctuation on the financial performance of private commercial banks in Ethiopia is discussed. It encompasses the research approach, research design, target population research methods, data analysis and presentation, methods of data analysis, and research ethical considerations.

3.2. Research Approach/Methodology

The study used quantitative research approach, which is based on the measurement of quantity for examining the relationship between variables. Creswell (2009) stated that Quantitative research is used to test objective theories by examining the relationship among variables. Under this method variables can be measured, typically on instruments, so that numbered data can be analyzed using statistical methods. In order to accomplish the research objectives and the nature or research questions of the study, a quantitative research approach is used which facilitates the use of financial metrics to analyze historical data.

3.3 Research Design

This study used explanatory research design in order to examine the effect of foreign exchange rate fluctuation on the financial performance of private commercial banks in Ethiopia. Explanatory research used explanations of observed phenomena, problems, or behaviors and answers to why and how types of questions. It attempts to “connect the dots” in research, by understanding causal factors and outcomes of the target phenomenon. Most of the academic and doctoral research belongs to the explanation category but some amount of exploratory and/or descriptive research may also be needed during initial phases of academic research (Bhattacherjee, A, 2012).

3.4. Data Source

Data used for this study was collected from secondary data sources. The data for the bank-specific factors were obtained from published audited financial statements of selected private commercial banks and data for macroeconomic factors foreign exchange rate, inflation and GDP were collected from the National Bank of Ethiopia's (NBE) annual audited reports from 2010-2024.

3.5 Target Population and Sampling Techniques

The target population of this study include all private commercial banks in Ethiopia. According to the National Bank of Ethiopia (NBE, 2024), there were 30 private commercial banks operating as of June 2024. Given the variation in banks' years of establishment, purposive sampling was employed to select only those private commercial banks that had been operational for 15 years or more. The rationale for choosing a 15-year period (2010–2024) is to ensure sufficient data points for robust panel data analysis, allowing to capture long-term trends and the impact of foreign exchange rate fluctuations across multiple economic cycles. A shorter period might have missed structural changes or lagged effects on bank performance. The starting period of 2010 was selected because it marks a significant period in Ethiopia's exchange rate policy and macroeconomic environment, which had direct implications for the banking sector. In September 2010, Ethiopia implemented a major exchange rate adjustment that realigned the real effective exchange rate closer to external equilibrium, marking a shift in currency policy and macroeconomic management (IMF, 2010).

Purposive sampling was appropriate in this context as it ensured the inclusion of banks with complete and consistent annual financial reports throughout the study period, which is crucial for longitudinal econometric analysis (Palinkas et al., 2015). The banks selected were Dashen Bank, Awash Bank, Bank of Abyssinia, United Bank, Nib Bank, Wegagen Bank, Lion International Bank, Cooperative Bank of Oromia and Oromia International Bank each with over 15 years of operation and data availability.

3.6 Data Analysis and Presentation Method

The study used panel data regression analysis to examine the effect of foreign exchange rate fluctuation on the financial performance of private commercial banks in Ethiopia. The model examines the effect of key explanatory variables exchange rate, bank size, inflation, and GDP growth, net interest margin and capital adequacy ratio on bank financial performance which is, measured by Return on Assets (ROA), and Descriptive statistics first summarize the data and correlation analysis conducted to detect multicollinearity among variables. The study applied panel regression techniques by choosing between fixed effects and random effects models based on the Hausman test results. Robustness checks, such as tests for heteroscedasticity and autocorrelation, conducted to ensure the validity of the findings. The results presented using tables and figures in order to enhance clarity and interpretation. Data analysis performed using software tools such as STATA 16 and ensuring detail statistical testing and effective visualization of results.

3.8 Model specification

In order to study the effect of foreign currency exchange rate fluctuation on financial performance of private commercial banks in Ethiopia, the multiple regression models have the following form:

$$\mathbf{ROA_{it}=\beta_0+\beta_1 FX_{it}+\beta_2 INF_{it}+\beta_3 GDP_{it}+\beta_4 BS_{it}+\beta_5 NIM_{it}+\beta_6 CAR_{it}+u_i+\epsilon_{it}}$$

β_0 = Constant (Y-intercept), Expected value of ROA when all independent variables are zero.

FX = Exchange Rate Annual weighted average rate Birr/USD, Inter-Bank Forex Market Rate.

INF= Inflation Rate, Annual percentage change in the Consumer Price Index (CPI)

GDP = Annual Real Gross Domestic Product Growth rate

BS= Natural logarithm of total asset

NIM = Net Interest Margin: Percentage difference between interest income and interest expense relative to total assets.

CAR= Capital Adequacy Ratio: Ratio of bank's capital to total asset.

u_i = Unobserved Bank-specific effect & ε_{it} = Error term

3.9 Variable Definition

Dependent Variable: Return on Assets (ROA), ROA is used to determine bank profitability. Net income after tax within total assets is the formula for return on assets. ROA is primarily an indicator of managerial effectiveness. It shows how skilled the bank management is at converting the bank's assets into net income. ROA, which is the return on the bank's total assets as a measure of operating efficiency, can be seen in the first place as a reflection of the bank's profit margin and operating income. In the background, it includes management decisions such as portfolio of funds collected and invested, bank size.(Karadayi, N. (2023).

Independent Variables

Exchange Rate (FX): Exchange rate in this study refers to the annual weighted average exchange rate of the Ethiopian Birr (ETB) against the United States Dollar (USD). This measure captures the annual average value of the Birr relative to the USD which indicates currency appreciation or depreciation during that period. The Birr/USD exchange rate is a key indicator of Ethiopia's foreign currency environment, as the US Dollar is the dominant currency. The study uses the Inter-Bank Forex Market Rate which is periodic weighted average shared annually by the National Bank of Ethiopia.

Inflation Rate (INF): Inflation rate is the annual percentage change in the Consumer Price Index (CPI), indicating the rate at which the general level of prices for goods and services is rising. (Athanasoglou, Brissimis, & Delis, 2008) argued High inflation increases uncertainty and credit risk, often leading to reduced bank profits. Inflation is one of the key macroeconomic variables that shape the operating environment of banks.

Gross Domestic Product Growth (GDP): GDP growth rate is the annual percentage increase in the real gross domestic product which shows the overall economic growth of a country. Higher GDP growth typically leads to increased demand for credit and improved bank profitability due to enhanced economic activities (Athanasoglou, Brissimis, & Delis, 2008).

Bank Size(BS): An important factor employed by most of researcher's in determining firm performance and this is attributable to economies of scale as firm size influences its financial performance in several ways. For this study it is calculated by the natural logarithm of total assets.

Net Interest Margin (NIM) is an important metric which represents the difference in the interest incomes generated by banks and financial institutions between their lending activities and how much they spend on paying out interest to its depositors. Basically, NIM shows the profitability with which a bank uses its assets and liabilities to make money interest (Bajaj Finserv, 2025). NIM is a widely used indicator of bank profitability and can be measured as the difference between interest income and the interest expense, divided by earning assets.

Capital Adequacy Ratio (CAR)The capital adequacy ratio is one of the effective tools used to absorb any potential losses or risks associated with the banks' assets. Capital buffers can deal with the gradual erosion of their invested capital and protect their depositors' funds (Kishibayeva et al., 2023). Capital adequacy measures the bank's capital relative to its assets.

Table 3. 1 Variable measurement and Expected Sign

Variables	Measurement	Expected Sign
Dependent Variable		
Return on Asset (ROA)	Net Income After tax/Total asset	
Independent Variables		
Exchange Rate Birr/USD	Annual periodic weighted average rate Birr/USD	−
Inflation	Annual Inflation rate %	_
GDP	Annual real growth rate of gross domestic product	+
Bank Size	Natural logarithm of total assets	+
Net Interest Margin	Net Interest Income//Earning Asset	+
Capital Adequacy Ratio	Total Capital/Total Asset	+

Source: Own design developed from different literatures

3.10 Ethical Consideration

Ethical considerations in banking research and panel data analysis are fundamental in ensuring the integrity, confidentiality, and responsible use of data. First Researchers must obtain proper permissions to access financial data, protect the privacy of institutions and individuals, and avoid data manipulation (Kumar et al., 2022). It requires transparency in methodology, honest reporting of results, and acknowledgment of limitations are essential to uphold ethical standards. In addition to this, ethical research promotes fairness by avoiding conflicts of interest and ensuring that findings are used to benefit stakeholders, including regulators, banks, and the public (Florence School of Banking & Finance, 2021). The researcher believes that adhering to ethical principles strengthens the credibility and also societal impact of studies.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter presents data analysis and discussion of findings regarding the study which aimed at investigating the effect of foreign exchange rate fluctuation on the financial performance private Commercial Banks in Ethiopia. The study used secondary data from 2010- 2024 which was obtained from 9 private commercial banks and National Bank of Ethiopia published annual reports. This chapter presents the results and discussion of descriptive statistics, diagnostic tests and regression analysis.

4.2 Descriptive Statistics

Descriptive statistics shows initial indication of variables that can be used in regression analysis giving several summarized statistics on a variable, e.g. mean, standard deviation and the lowest and highest observations.

Table 4. 1 Descriptive Statistics

```
. summarize ROA FX INF GDP BS NIM CAR

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         ROA |        135    .0265904     .007902    .003257    .049419
          FX |        135    28.63207    13.65515     12.8909    55.9623
         INF |        135       17.44    9.950468         2.8       34.1
         GDP |        135       8.658    1.701018         6.1       11.4
          BS |        135    10.01103    1.179013    7.019806   12.55111
-------------+---------------------------------------------------------
         NIM |        135     .060945    .0176797    .022825    .104768
         CAR |        135    .1286875    .0256132    .078715    .195187

.
```

Source: Own data analysis (Stata 16 result), 2025

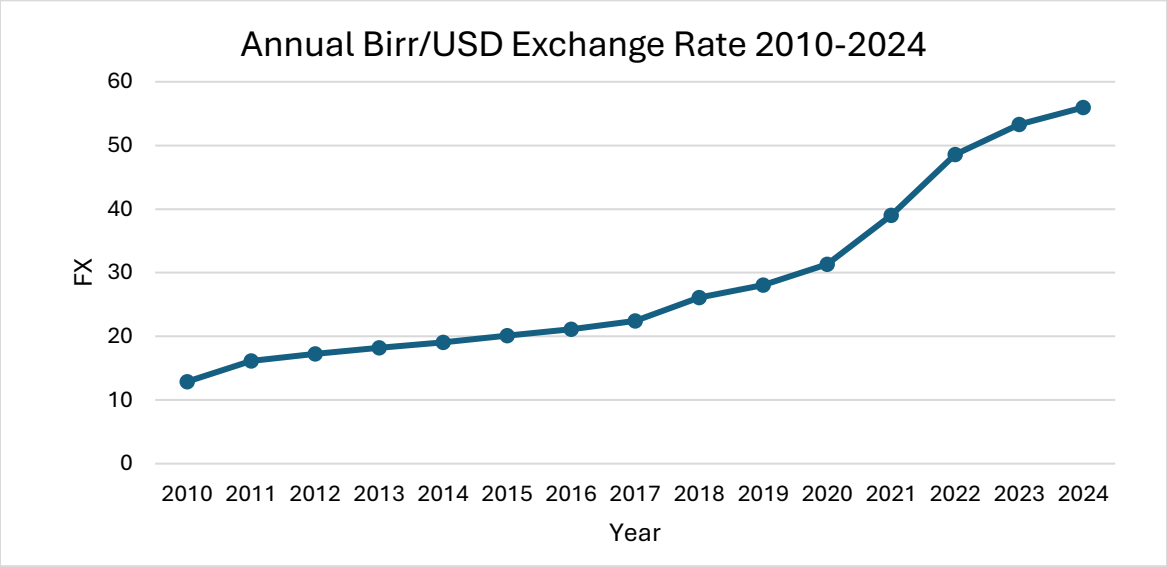
Descriptive statistics is used to understand the nature and distribution of the data used in this study. The dataset comprises 135 observations from selected 9 private commercial banks in Ethiopia, covering the years 2010 to 2024. This section provides a detailed statistical profile of the key variables: Return on Assets (ROA), Exchange Rate (FX), Inflation Rate (INF), Gross Domestic Product Growth Rate (GDP), Bank Size (BS), Net Interest Margin (NIM), and Capital Adequacy Ratio (CAR).

Return on Assets (ROA): The descriptive statistics show that the average ROA for the banks in the sample is approximately 2.66% (0.0265904), indicating the average profitability level relative to total assets. The standard deviation of 0.79% (0.007902) suggests relatively low variability in ROA across the banks, indicating a degree of consistency in performance. The range from 0.33% (0.003257) to 4.94% (0.049419) reveals that there are differences between the least and most profitable banks over the study period, showing potential differences in efficiency and business strategy. A relatively low standard deviation suggests that while some banks were more profitable than others, the performance was not extremely volatile. The ROA, as a key profitability metric, reflects how efficiently banks utilized their assets to generate earnings.

Exchange Rate (FX): The descriptive statistics of FX, measured with Birr/USD annual weighted average rate, shows a average level of volatility at 28.63 (28.63207), with a high standard deviation of 13.66 (13.65515). This suggests there was volatility in the Birr/USD annual weighted average rate during the study period, with values ranging from a minimum of 12.89 (12.8909) to a maximum of 55.96 (55.9623). The relatively high standard deviation implies that Ethiopian banks faced significant uncertainty related to exchange rates. The high standard deviation indicates substantial volatility in the exchange rate, likely influenced by economic policy reforms, global market pressures, and structural trade imbalances. Since exchange rates can directly affect the cost of foreign-denominated liabilities and asset valuations, this variable is important in assessing bank performance.

Figure 4.1 shows the wide range in FX values indicates the potential for FX fluctuation to substantially impact banks' performance given their exposure to foreign currency transactions, creating both risks and opportunities.

Figure 4. 1 Trend Analysis for Exchange rate

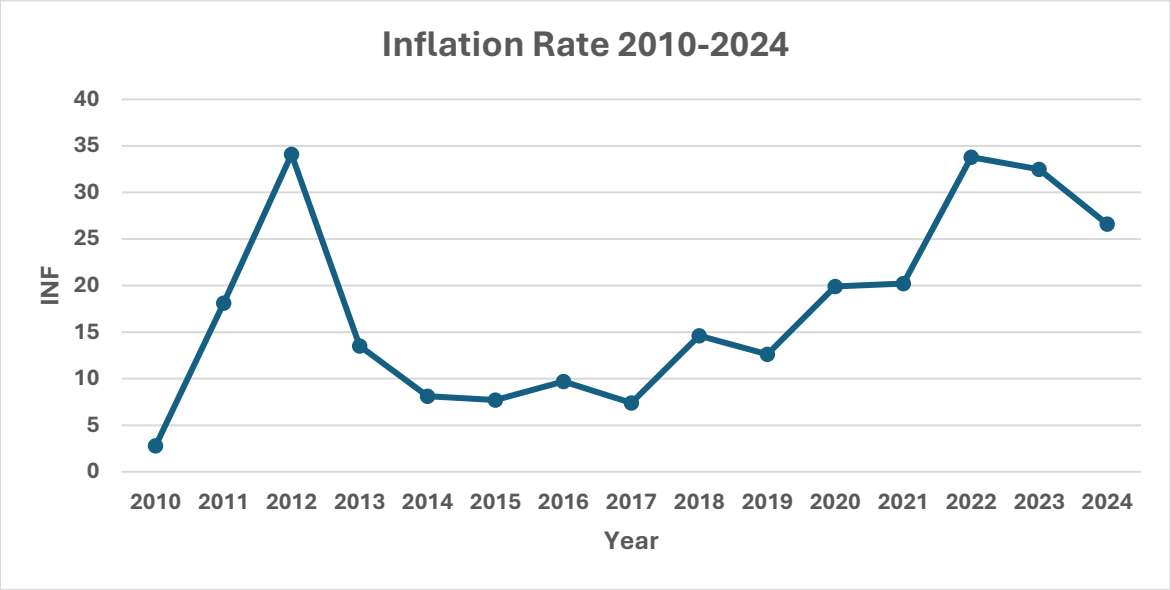


Source: Own data analysis, 2025

Inflation Rate (INF): The average inflation rate is 17.44% (17.44), with a standard deviation of 9.95 (9.950468), ranging from 2.8% to 34.1% (2.8 to 34.1). The large standard deviation indicates substantial variability in inflation rates during the study period, reflecting the macroeconomic instability that has sometimes characterized the Ethiopian economy. This wide range in inflation rates may affect bank operations and profitability differently depending on their ability to anticipate and adjust to these fluctuations, impacting real interest rates, operational costs, and also asset valuations. Inflationary pressures may also affect borrowers' repayment capacity, indirectly influencing banks' asset quality and profitability.

Figure 4.2 shows the inflation rate in Ethiopia exhibited significant volatility over the period from 2010 to 2024, starting at a low of 2.8% in 2010 rising to a peak of 34.1% in 2012. Following this peak, inflation declined steadily to single-digit levels between 2014 and 2017, fluctuating between 7.4% and 9.7%, indicating a period of relative price stability. However, from 2018 onwards, inflation began to rise again, reaching elevated levels above 20% in 2020 and 2021, and peaking near 33.8% in 2022. Although it slightly moderated to 26.6% in 2024. This trend reflects periods of both macroeconomic and inflationary pressures, which have important implications for the financial performance and risk management strategies of commercial banks.

Figure 4. 2 Trend Analysis for Inflation

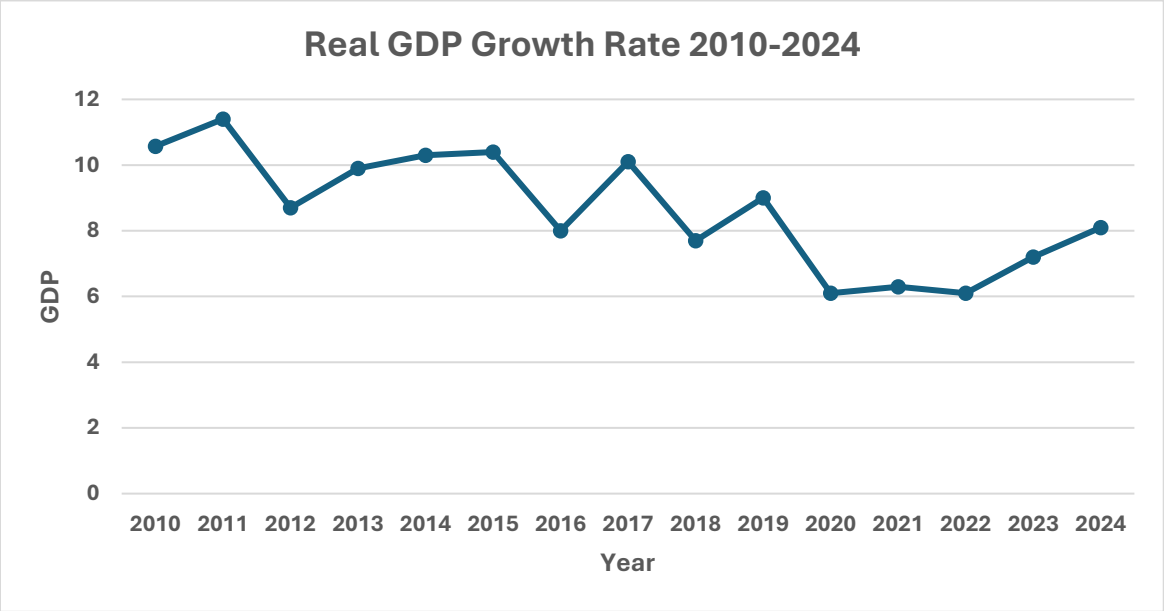


Source: Own data analysis, 2025

Gross Domestic Product (GDP) Growth Rate: The statistics for GDP show a mean growth rate of 8.66% (8.658), with a relatively small standard deviation of 1.70 (1.701018). This indicates that, on average, the Ethiopian economy experienced growth during the period, with growth rates ranging from 6.1% to 11.4% (6.1 to 11.4). A narrow standard deviation indicates relatively consistent growth, potentially creating a stable environment for the banking sector to expand its lending and investment activities. However, further analysis is needed to determine how effectively banks capitalize on these economic opportunities.

This relatively stable growth indicates consistent economic expansion in Ethiopia, which can positively impact the banking sector. A growing economy usually supports increased credit demand, better loan repayment rates, and more opportunities for financial intermediation, all contributing to improved bank performance.

Figure 4. 3 Trend Analysis for GDP



Source: Own data analysis, 2025

Bank Size (BS): Measured as the natural logarithm of total assets, Bank Size averages 10.01 (10.01103), indicating the average bank size in the sample after the log transformation. The standard deviation of 1.18 (1.179013) suggests moderate variation in size across banks, with logarithmic sizes ranging from 7.02 (7.019806) to 12.55 (12.55111). This range suggests heterogeneity in the scale of operations among the banks, with a mixture of both small and large banks.

Net Interest Margin (NIM): The descriptive statistics for Net Interest Margin show a mean of 6.09% (0.060945), indicating the average spread between interest earned and interest paid out relative to earning assets. The standard deviation is 1.77% (0.0176797), with a range from 2.28% (0.022825) to 10.48% (0.104768). This variation suggests differences across banks in risk or competition and that some banks are more efficient or have greater pricing power in their lending and deposit activities than others.

Capital Adequacy Ratio (CAR): The Capital Adequacy Ratio averages approximately 12.87% (0.1286875), with a standard deviation of 2.56% (0.0256132) and a range from 7.87% (0.078715) to 19.52% (0.195187). This illustrates that, on average, banks maintain a capital adequacy well above regulatory minimums, which enhances their resilience to absorb potential losses. However,

the range indicates some variation in capital positions, with certain banks holding substantially more capital relative to their assets than others.

4.3. Diagnostic tests

Diagnostic tests are very useful in data analysis to assess the reliability of the fitted model and to ensure the data meets the necessary assumptions of valid statistical inference. This section discusses findings of the different test procedures performed to ensure reliability of the conclusion. The tests performed include multicollinearity, autocorrelation, heteroscedasticity, normality and model specification tests.

4.3.1 Heteroskedasticity test

Heteroscedasticity test is applied to test is the variance of errors is constant across observations. If p value is greater than 0.05 homoscedasticity is present and if p value is less than 0.05 there is Heteroscedasticity across variances. The Breuch-Pagan test is used to determine whether there is heteroscedasticity in the residuals.

Table 4. 2 Heteroskedasticity test

```
. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of roa

         chi2(1)      =     1.46
         Prob > chi2  =   0.2263

.
```

Source: Own data analysis (Stata 16 result), 2025)

As shown in the table 4.2 above the p-value (0.2263) is greater than the significance level of 0.05, fails to reject the null hypothesis. In other words, there is not enough evidence to conclude that there is heteroskedasticity in the model. The p-value of 0.2263 suggests that there is insufficient evidence to reject the null hypothesis of constant variance.

4.3.2 Multi -collinearity test

Gujarati and Porter (2009) explain that multicollinearity arises when explanatory variables are highly correlated, which can make it difficult to isolate the individual effect of each variable on the dependent variable. However, moderate correlations among regressors do not necessarily invalidate the regression results. They suggest a rule of thumb that pairwise correlations below 0.8 generally do not indicate serious multicollinearity problems. In this study result, although some variables such as exchange rate (FX) and bank size (BS) show moderate correlations (e.g., 0.83), most correlations are below this threshold. This implies that while the explanatory variables share some linear relationship, it is not strong enough to cause instability in coefficient estimates or inflate variances excessively. Therefore, the observed correlation structure is acceptable and does not compromise the reliability of the regression analysis.

Table 4. 3 Correlation Matrix of Independent Variables

```
. corr FX INF GDP BS NIM CAR
(obs=135)
```

	FX	INF	GDP	BS	NIM	CAR
FX	1.0000					
INF	0.6722	1.0000				
GDP	-0.7050	-0.6060	1.0000			
BS	0.8288	0.4644	-0.7052	1.0000		
NIM	0.6976	0.3739	-0.5689	0.6087	1.0000	
CAR	-0.2333	-0.0872	0.2627	-0.4098	-0.0263	1.0000

Source: Own data analysis (Stata 16 result, 2025)

Table 4. 4 Variance Inflation factor

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
          fx |      6.02    0.166233
        lnbs |      4.51    0.221567
         gdp |      2.62    0.381843
         inf |      2.32    0.431936
         nim |      2.26    0.441556
         car |      1.35    0.739655
-------------+----------------------
    Mean VIF |      3.18

.
```

Source: Own data analysis (Stata 16 result, 2025)

Wooldridge (2012) emphasizes that the Variance Inflation Factor (VIF) is a useful diagnostic to quantify how much the variance of an estimated regression coefficient is increased due to multicollinearity. He notes that VIF values exceeding 10 are often considered indicative of severe multicollinearity that may distort inference. In this analysis, the highest VIF is 6.02 for FX, and the mean VIF is 3.18, which are below the critical threshold. This suggests that although some correlation exists among the regressors, it is not severe enough to substantially inflate standard errors or undermine coefficient precision. Wooldridge also points out that multicollinearity does not bias coefficient estimates or affect their consistency; it only affects their variance. Given these moderate VIF values, the regression results can be interpreted with confidence, accepting the current level of multicollinearity as manageable within the model.

4.3.3 Normality test

To verify if the residuals of the error terms are normally distributed, a normality test, such as the Jarque-Bera statistic test, was performed. The significance of the Jarque-Bera statistic determines if the disturbances are normally distributed. To accept the null hypothesis of normality, the p-value should exceed 0.05 at a 5% significance level**.**

The below Table 4.5 of Jarque-Bera statistic test shows that p value is 0.1059 which is greater than 5% siginificance level so we fail to reject the null hypothesis the residuals are normally distrubuted. As per the table 4.5 residuals are normally distrubuted and also histogram is approximately bell-shaped and symmetric around zero suggests that the residuals from the OLS regression are normally distributed.

A skewness and kurtosis test was conducted to evaluate the normality of the regression residuals. The test results indicated no significant departure from normality, $\chi^2(2) = 4.49$, $p = .106$. The individual p-values for skewness ($p = .548$) and kurtosis ($p = .044$) suggest that while the kurtosis is marginally significant, the overall joint test does not reject the null hypothesis of normality. Therefore, the residuals can be considered approximately normally distributed, supporting the assumption of normality required for valid inference in regression analysis

Table 4. 5 Jarque-Bera statistic test

```
predict residuals, residuals

sktest residuals

kewness and kurtosis tests for normality
                                                    ——— Joint test ———
  Variable |       Obs   Pr(skewness)   Pr(kurtosis)   Adj chi2(2)  Prob>chi2
-----------+--------------------------------------------------------------------
 residuals |       135         0.5483         0.0443          4.49     0.1059
```

Source: Own data analysis (Stata 16 result, 2025)

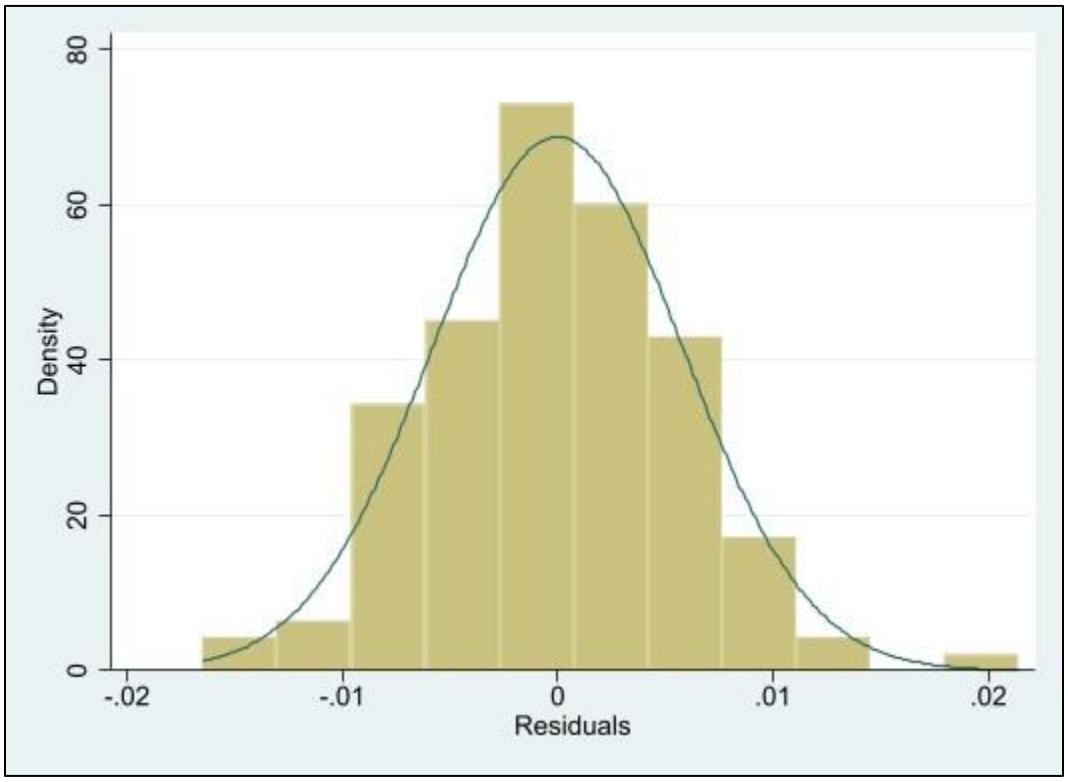
Table 4. 6 *Shapiro-Wilk W Test for Normal Data.*

```
. swilk residuals

                    Shapiro-Wilk W test for normal data

   Variable |       Obs       W           V          z       Prob>z
------------+--------------------------------------------------------
  residuals |       135   0.98393       1.709      1.208     0.11356
```

Source: Own data analysis (Stata 16 result, 2025)

A Shapiro-Wilk test was conducted to assess the normality of the regression residuals. The results indicated that the residuals did not significantly deviate from a normal distribution, W = 0.98393, z = 1.208, p = 0.111356. Since the p-value is greater than the conventional alpha level of .05, we fail to reject the null hypothesis of normality.

Figure 4. 4 Histogram Normality Test



Source: Own data analysis (Stata 16 result, 2025)

The histogram of residuals shows a roughly bell-shaped, symmetric distribution, which supports the assumption of normality of residuals in this regression model.

4.3.4 Autocorrelation Test

The Durbin-Watson (DW) test was conducted to assess first-order autocorrelation in the residuals of the regression model predicting return on assets (ROA), yielding a statistic of 1.30, which is below the threshold of 2.0 and indicates positive autocorrelation. Although this violates the assumption of independent errors in ordinary least squares regression and may lead to underestimated standard errors, the model's coefficients remain unbiased (Gujarati & Porter, 2009;

Wooldridge, 2012). Given the sample size (obs = 135) and number of predictors (k = 7), the DW value falls below the lower critical bound (1.62723) and the upper bound is(1.81250), confirming significant autocorrelation; however, the model still explains a substantial portion of variance in ROA (R^2 = 0.46), with key predictors showing statistically significant effects. While future analyses should incorporate corrections such as generalized least squares or robust standard errors to address autocorrelation more rigorously, the current model provides meaningful exploratory insights and is justified for use with acknowledgment of this limitation.

Table 4. 7 Durbin Watson Test

```
. tsset time
        time variable:  time, 1 to 135
                delta:  1 unit

. dwstat

Durbin-Watson d-statistic(  7,   135) =  1.298821

.
```

Source: Own data analysis (Stata 16 result, 2025)

4.4 Correlation

Correlation analysis is used to assess the relationship between two or more variables showing the direction as well as the strength of relationship that exists between variables. This section presents the correlation between dependent variables (ROA) and independent variables exchange rate, GDP NIM, and bank size capital adequacy ratio.

Table 4.8 indicates the correlation matrix (obs=135), several key relationships emerge regarding the financial performance (ROA) of banks and its drivers. Increased exchange rate (FX) is moderately negatively correlated with ROA (-0.4279), suggesting that FX volatility affect bank profitability, while economic growth (GDP) shows a moderate positive correlation (0.4232), indicating that a growing economy supports better bank performance. Capital adequacy ratio (CAR) also exhibits a moderate positive correlation with ROA (0.3815), suggesting that well-capitalized banks tend to be more profitable. However, bank size (BS) and net interest margin (NIM) show weak negative correlations with ROA (-0.3195 and -0.3688, respectively), implying

that larger banks and higher interest margins may not necessarily translate to higher profitability in this context. Importantly, the strong positive correlations among the independent variables, particularly between FX and BS (0.8288) and FX and NIM (0.6976), as well as strong negative correlation between GDP and FX (-0.7050), indicate potential multicollinearity issues that should be addressed in subsequent regression analysis. Overall, the correlation matrix highlights the importance of managing FX risk, maintaining adequate capital, and benefiting from economic growth to enhance bank profitability, while also raising concerns about potential multicollinearity among explanatory variables.

Table 4. 8 Correlation Matrix Dependent and Independent Variables

```
. corr ROA FX INF GDP BS NIM CAR
(obs=135)
```

	ROA	FX	INF	GDP	BS	NIM	CAR
ROA	1.0000						
FX	-0.4279	1.0000					
INF	-0.1173	0.6722	1.0000				
GDP	0.4232	-0.7050	-0.6060	1.0000			
BS	-0.3195	0.8288	0.4644	-0.7052	1.0000		
NIM	-0.3688	0.6976	0.3739	-0.5689	0.6087	1.0000	
CAR	0.3815	-0.2333	-0.0872	0.2627	-0.4098	-0.0263	1.0000

Source: Own data analysis (Stata 16 result, 2025)

4.5 Model Specification: Fixed Effect vs. Random Effect

Based on the results displayed in Table 4.9, the Hausman test showed a p-value of 0.9999, indicating that the null hypothesis, which suggests that the random effect model is suitable, cannot be rejected in favor of the alternative hypothesis that the fixed effect model is more appropriate at a 5% significance level. Therefore, it is concluded that the random effect model is the most suitable for analyzing the relationship between return on asset and the independent variables: exchange rate , inflation, net interest margin, bank size, and GDP.

Table 4. 9 Hausman Test

```
. hausman fe_model re_model

                 ---- Coefficients ----
                 (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                 fe_model     re_model       Difference          S.E.
-------------------------------------------------------------------------
          FX     -.0004996    -.0004875      -.0000121        .0000615
         INF      .0003732     .0003686       4.68e-06         .000028
         GDP      .0020537     .0020303       .0000234        .0001983
          BS      .0047594     .0047658      -6.46e-06        .0010807
         NIM     -.0394545    -.0541508       .0146964        .0449229
         CAR      .1266048     .1245214       .0020833        .0198423
-------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          0.17
                Prob>chi2 =        0.9999
```

Source: Own data analysis (Stata 16 result, 2025)

4.6 Regression Analysis and Discussions of the Results

This section discusses the results of finding from the random effects regression analysis to examine the effects of foreign exchange rate fluctuations on the financial performance (ROA) of private commercial banks in Ethiopia. The analysis includes independent variables, exchange rate, inflation, GDP, bank size, net interest margin and capital adequacy ratio.

Model:

$$ROA_{it}=\beta_0+\beta_1 FX_{it}+\beta_2 INF_{it}+\beta_3 GDP_{it}+\beta_4 BS_{it}+\beta_5 NIM_{it}+\beta_6 CAR_{it}+u_i+\epsilon_{it}$$

Table 4. 10 Random Effects Regression Analysis

```
. xtreg  ROA FX INF GDP BS NIM CAR, re

Random-effects GLS regression                   Number of obs     =       135
Group variable: bankid                          Number of groups  =         9

R-sq:                                           Obs per group:
     within  = 0.4268                                         min =        15
     between = 0.6850                                         avg =      15.0
     overall = 0.4611                                         max =        15

                                                Wald chi2(6)      =    102.73
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FX	-.0004875	.0000988	-4.94	0.000	-.0006811	-.0002939
INF	.0003686	.0000788	4.68	0.000	.0002141	.000523
GDP	.0020303	.0004933	4.12	0.000	.0010635	.0029972
BS	.0047658	.001091	4.37	0.000	.0026275	.0069042
NIM	-.0541508	.0504618	-1.07	0.283	-.1530542	.0447525
CAR	.1245214	.0264179	4.71	0.000	.0727433	.1762995
_cons	-.0438929	.0133793	-3.28	0.001	-.0701159	-.0176699
sigma_u	.00151189					
sigma_e	.00588403					
rho	.06193354	(fraction of variance due to u_i)				

Source: Own data analysis (Stata 16 result, 2025)

4.6.1 Foreign Exchange Rate (FX) and ROA

The coefficient for FX is -0.0004875 with a p value (0.000), which indicates that FX has a statistically significant and negative relationship with the financial performance of banks measured by ROA. This means as the foreign exchange rate Birr/USD increases the ROA of private commercial banks decreases. This result is the same with Hypothesis 1 drawn that exchange rate has negative effect on ROA and the researcher failed to reject the null hypothesis. The result is similar with the study of Henok G. (2021) there is a negative and significant relationship between foreign exchange rates and the financial performance of private commercial Banks. Similarly,

Daniel T. (2024) study reveled that there is significant and negative relationship between exchange rate fluctuation and financial performance of private commercial banks in Ethiopia.

In contrast other studies noted mixed results depending on the currency and period of analysis. For example, Bereket A. (2021) found out currency fluctuations in USD affect bank profitability positively and others SEK had negative effects, indicates the impacts are different depending on the currency exposure. This reflects the complexity of currency exchange rate effects in multi-currency environments.

4.6.2 Bank Size and ROA

The coefficient for Bank size (log of total asset) is 0.0047658($p<0.001$), indicates there is a positive and significant relationship with ROA. This suggests that larger banks have higher profitability and supports Hypothesis 4 that states larger banks have better financial performance than smaller banks. Yalemselam. W (2019) found out Bank size is significant and positively related with Ethiopian private commercial banks profitability at 5% significant level with a p value of 0.024. The result of this study is consistence with the result of In Ethiopia larger banks benefit from more extensive branch networks and access to technology and skilled labor. Prior studies also indicated there is a positive and significant relationship between bank size and profitability that gives support to the economies of scale market-power hypothesis. Larger banks make efficient gains that can be captured as higher earnings (Flamini etal., 2009).

4.6.4 Capital adequacy ratio and ROA

The coefficient for CAR is 0.1245214($p<0.001$), shows a positive and significant relationship with ROA. The result supports Hypothesis 6. A positive relationship between Capital adequacy ratio and profitability is key determinant by is consistent with most of studies. Taye etal (2024) results also indicated Capital adequacy is positively and significantly influences the return on assets of commercial banks. When banks become more financially adequate, there is a higher possibility to invest either in interest-bearing or non-interest-bearing income assuming the cost of doing business is in normal circumstances and commercial banks generate more profit. Banks with less capital are unable to expand their investment and beat competition, as well as face the risk of overcoming challenges in the business environment.

4.6.3 Net Interest Margin and ROA

The coefficient for NIM is -0.00541508 with p value (0.283) indicates that there is negative and insignificant relationship with ROA. This result contradicts the hypothesis drawn that Net interest margin leads to improved financial performance. This result may be due to unique characteristics of Ethiopian Banking industry, where interest rates are regulated by national bank of Ethiopia and macro-economic instability. Prior studies by Sintayehu G (2022) and Kidist E. (2018) also found out that there is negative relationship and significant relationship between Net Interest Margin and financial performance of private commercial banks in Ethiopia. This indicates that banks should focus on optimizing both interest and non-interest income.

4.6.5 Inflation and ROA

The coefficient for inflation is 0.0003686($p<0.001$), indicated there is positive and significant relationship. This result is different from Hypothesis 2 stated increase inflation leads to a decrease in ROA. The study result is the same as Kidist E. (2018) findings stated that there was a significant positive relationship between inflation and financial performance of private commercial banks. In Ethiopian context the positive relationship between inflation and profitability may indicate bank's ability to pass inflationary costs to borrowers or inflation may also coincides with economic growth. A study conducted by Jain, A. K. (2024) indicates the theoretical effects of inflation on bank value are both complicated and time varying and the findings indicate that Banks' stock prices outperformed the broader market following inflation surprises, which is driven by rising interest rates and incomplete pass-through of deposit rates. Higher inflation increased net interest margins (NIM) for banks with low-cost deposits.

4.6.6 Gross Domestic Product and ROA

The coefficient for GDP is 0.0020303 with p-value<0.001, indicates there is a positive and significant relationship between GDP and ROA of private commercial banks under the study period from 2010-2024. This finding supports Hypothesis 6, and it is consistent with literature that economic growth enhances banks financial performance by encouraging demand for banking services and improving asset quality. Kidist E. (2018) findings also the same that *there was a* significant positive relationship between GDP and bank size and the performance of private commercial banks.

Table 4. 11 ***Summary of results from the ROA model***

Independent Variable	Hypothesis	Result	Decision
Exchange Rate Birr/USD	Negative and significant	Negative and significant	Failed to reject
Inflation	Negative and significant	Positive and significant	Reject
GDP	Positive and significant	Positive and significant	Failed to reject
Bank size	Positive and significant	Positive and significant	Failed to reject
Net Interest Margin	Positive and significant	Negative and insignificant	Reject
Capital Adequacy Ratio	Positive and significant	Positive and significant	Failed to reject

Source: Own data analysis (2025).

Chapter 5

Summary, Conclusion and Recommendation

5.1. Introduction

This chapter includes the key findings and conclusions and provides recommendations based on the research results. The primary focus is on the effect of foreign exchange rate fluctuation on the financial performance of private commercial banks in Ethiopia.

5.2. Summary of findings

This study examined the effects of foreign currency fluctuation on the financial performance of private commercial banks measured by Return on Asset. The study used random effects regression model to analyze panel data from 2010-2024, examining the effects of foreign exchange rate along with other macro-economic and bank specific variables. Exchange rate measured by Birr/USD average rate regression results showed there is significant negative relationship between ROA specifically the coefficient for FX is (0.0004875) and indicates as exchange rate volatility increases private commercial banks ROA declines. The overall model is statistically significant (Wald chi2(6) = 102.73, p = 0.0000), and the adjusted R-squared is 0.4611.

The random-effects OLS regression analysis, with bank-level data from 2010-2024, reveals several key determinants of Return on Assets (ROA) among private commercial banks in Ethiopia. Foreign Exchange Rate (FX): A significant negative effect of FX on ROA ($\beta = -0.0004875$, $p < 0.001$) confirms the hypothesis that higher exchange rate fluctuation reduces bank profitability. This is consistent with the notion that FX uncertainty increases risks and costs.

Inflation Rate (INF): A significant positive effect of inflation on ROA ($\beta = 0.0003686$, $p < 0.001$), contradicts the hypothesis, suggesting that banks can manage to reprice their loans more quickly than their deposit rates during times of high inflation.

Gross Domestic Product (GDP) Growth: The significant and positive relationship between GDP growth and ROA ($\beta = 0.0020303$, $p < 0.001$) confirms that economic growth supports better bank performance.

Bank Size (BS): The significant and positive effect of bank size on ROA ($\beta = 0.0047658$, $p < 0.001$) suggests that larger banks in Ethiopia tend to be more profitable, implying potential economies of scale.

Net Interest Margin (NIM): The insignificant effect of Net Interest Margin (NIM) on ROA ($\beta = -0.0541508$, $p = 0.283$) does not support that better interest margin management leads to increased profitability in this study findings.

Capital Adequacy Ratio (CAR): The significant positive effect of Capital Adequacy Ratio (CAR) on ROA ($\beta = 0.1245214$, $p < 0.001$) indicates that banks with higher capital buffer are more profitable. The random-effects OLS model indicates that approximately 6.2% of the variance in ROA is attributable to bank-specific effects.

5.3. Conclusion

In conclusion, foreign exchange rate fluctuation (FX) emerges as a key factor influencing the financial performance of private commercial banks in Ethiopia. The negative and statistically significant coefficient for FX in the OLS regression model confirms that heightened FX volatility significantly affecting bank financial performance, as measured by Return on Assets (ROA). This finding aligns with the theoretical understanding that exchange rate uncertainty introduces significant risks and costs, particularly for banks operating in industry with substantial foreign currency exposure.

Although factors such as inflation, economic growth, bank size, and capital adequacy also play a role in determining bank financial performance, the impact of FX is high. The study indicated Ethiopian banks to prioritize and enhance their foreign exchange risk management practices. In this study, Net Interest Margin had an insignificant effect on private commercial banks in Ethiopia, highlighting its limited role on the financial performance of the sampled banks in this study model. The overall evidence suggests that strong macroeconomic policies aimed at stabilizing the exchange rate, along with bank-level risk management strategies, are essential for ensuring the stability and profitability of the Ethiopian banking sector in the face of FX-related challenges.

Inflation has a positive and significant impact on bank financial performance. Moderate inflation may increase nominal interest rates and lending spreads, thereby improving banks' earnings.

However, this relationship may be context-dependent, as very high inflation could erode real returns. In Ethiopia's private banks for this study period, inflation appears to support profitability, possibly reflecting adaptive pricing strategies by banks.

GDP growth positively and significantly influences bank financial performance, confirming that economic expansion enhances demand for banking services and credit, thereby increasing profitability. A growing economy improves borrowers' repayment capacity and reduces non-performing loans, which strengthens banks' asset quality and returns.

Larger banks have higher financial performance, as indicated by the positive and significant coefficient on bank size. This is consistent with the literature suggesting that bigger banks benefit from economies of scale, diversified portfolios, and better risk management capabilities (Daniel Tsegaye, 2024; Bereket Agza et al., 2021). Capital adequacy ratio has a positive and significant effect on bank profitability, well-capitalized banks are more stable and capable of absorbing losses, which enhances investor and depositor confidence. Higher CAR reflects stronger financial health, enabling banks to expand lending and generate higher returns.

According to this research's findings, Net Interest Margin had an insignificant effect on the ROA of selected private commercial banks, which is contrary to global banking trends and this effect should be further examined by future researchers.

5.4 Recommendations

To mitigate the impact of foreign exchange rate fluctuation on the financial performance of private commercial banks in Ethiopia, the following recommendations are targeted at managing foreign exchange fluctuation risks: Banks should prioritize the development and implementation of comprehensive foreign exchange risk management frameworks. These frameworks should include strategies for hedging FX exposures, closely monitoring exchange rate movements, and implementing effective internal controls. Banks should conduct regular stress tests to assess the potential impact of extreme FX movements on their capital positions, asset quality, and earnings. The National Bank of Ethiopia (NBE) should strengthen its regulatory oversight of FX risk management practices in banks. This should include implementing clear guidelines for measuring, monitoring, and mitigating FX exposures, as well as conducting regular follow ups to ensure compliance.

As this study finds that inflation positively affects the financial performance of private commercial banks in Ethiopia, banks should adopt strategies to effectively manage inflation in order to ensure long-term sustainability. This includes integrating inflation considerations into pricing and risk assessment models to optimize interest rates and lending spreads. Furthermore, banks should conduct regular inflation stress testing to evaluate the potential impact on capital adequacy and earnings. Integrating inflation into pricing, lending, and foreign exchange risk models will help banks better manage exposure to exchange rate volatility.

This study found that GDP has a positive and significant effect on the financial performance of private commercial banks in Ethiopia, suggesting that economic growth creates favorable conditions for banking activities. As the economy expands, demand for banking services, including credit and deposits, tends to rise, improving banks' earning potential. Therefore, banks should align their strategic plans with national economic development.

Private commercial banks in Ethiopia should pursue sustainable growth strategies aimed at increasing their size, as this can enhance their resilience to external shocks and improve overall financial performance by enabling economics of scale and improved operational efficiency. Another important bank-specific factor identified in this study is the capital adequacy ratio, which showed a positive and significant association with Return on Assets. This indicates the critical role of maintaining sufficient capital levels to absorb losses stemming from macroeconomic shocks, including foreign exchange rate fluctuation. Banks should ensure compliance with regulatory capital requirements and regularly conduct stress testing to verify their capital adequacy under adverse economic conditions, thereby safeguarding financial stability and profitability.

5.5 Suggestions for future studies

Future research should investigate the impact of Ethiopia’s ongoing and upcoming financial sector reforms related to foreign exchange market. These reforms represent a major shift toward a market-based monetary framework and increased competition, and understanding their effects on profitability, risk management, and credit allocation is critical for policymakers and banking institutions. Additionally, studies focusing specifically on public-owned commercial banks are needed because public banks are different in their ownership structure, governance, and strategic objectives and may respond differently to policy changes.

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Appendixes

Secondary Data Summary

S/N	Bank Name	year	ROA	FX	INF	GDP	BS	NIM	CAR
1	AWASH	2010	0.034461	12.8909	2.8	10.57	8.98027	0.029069	0.120752
1	AWASH	2011	0.039936	16.1178	18.1	11.4	9.221854	0.027349	0.13212
1	AWASH	2012	0.035771	17.2536	34.1	8.7	9.387373	0.040116	0.138282
1	AWASH	2013	0.031311	18.1947	13.5	9.9	9.685307	0.039673	0.1285
1	AWASH	2014	0.034231	19.0748	8.1	10.3	9.904926	0.040221	0.12966
1	AWASH	2015	0.029401	20.0956	7.7	10.4	10.08036	0.043183	0.133434
1	AWASH	2016	0.027815	21.1059	9.7	8	10.29585	0.050468	0.132874
1	AWASH	2017	0.028033	22.4137	7.4	10.1	10.64483	0.052249	0.114577
1	AWASH	2018	0.030695	26.1082	14.6	7.7	10.91995	0.063537	0.117531
1	AWASH	2019	0.037562	28.0543	12.6	9	11.22037	0.061866	0.129147
1	AWASH	2020	0.031614	31.3427	19.9	6.1	11.39962	0.070019	0.134123
1	AWASH	2021	0.031156	39.0163	20.2	6.3	11.76521	0.058525	0.1255
1	AWASH	2022	0.034229	48.5673	33.8	6.1	12.11938	0.065138	0.114243
1	AWASH	2023	0.034331	53.283	32.5	7.2	12.31951	0.086218	0.124845
1	AWASH	2024	0.03427	55.9623	26.6	8.1	12.55111	0.08583	0.134363
2	BOA	2010	0.023916	12.8909	2.8	10.57	8.745052	0.035497	0.093238
2	BOA	2011	0.02669	16.1178	18.1	11.4	8.892606	0.044147	0.090789
2	BOA	2012	0.02788	17.2536	34.1	8.7	9.016696	0.046827	0.11003
2	BOA	2013	0.028779	18.1947	13.5	9.9	9.226224	0.039928	0.109018
2	BOA	2014	0.025257	19.0748	8.1	10.3	9.330467	0.049004	0.13559
2	BOA	2015	0.023392	20.0956	7.7	10.4	9.522776	0.049015	0.132471
2	BOA	2016	0.023647	21.1059	9.7	8	9.730805	0.052935	0.126243
2	BOA	2017	0.027059	22.4137	7.4	10.1	10.13954	0.051087	0.114702
2	BOA	2018	0.019641	26.1082	14.6	7.7	10.37296	0.066794	0.132738
2	BOA	2019	0.021802	28.0543	12.6	9	10.57884	0.062498	0.125982
2	BOA	2020	0.017537	31.3427	19.9	6.1	10.94888	0.067518	0.099795
2	BOA	2021	0.016697	39.0163	20.2	6.3	11.5507	0.060484	0.08329
2	BOA	2022	0.025549	48.5673	33.8	6.1	11.91472	0.082682	0.095122
2	BOA	2023	0.022851	53.283	32.5	7.2	12.15221	0.094506	0.102765
2	BOA	2024	0.020582	55.9623	26.6	8.1	12.3118	0.091196	0.104335
3	CBO	2010	0.017982	12.8909	2.8	10.57	7.477966	0.051892	0.106862
3	CBO	2011	0.022146	16.1178	18.1	11.4	7.824282	0.038858	0.09831
3	CBO	2012	0.033062	17.2536	34.1	8.7	8.208146	0.049525	0.11366
3	CBO	2013	0.037011	18.1947	13.5	9.9	8.785306	0.037927	0.106462
3	CBO	2014	0.049419	19.0748	8.1	10.3	8.902506	0.06453	0.148343
3	CBO	2015	0.033216	20.0956	7.7	10.4	9.346801	0.064095	0.123094
3	CBO	2016	0.003524	21.1059	9.7	8	9.276812	0.073849	0.114242

3	CBO	2017	0.014629	22.4137	7.4	10.1	9.782686	0.054834	0.085592
3	CBO	2018	0.01845	26.1082	14.6	7.7	10.30521	0.05225	0.079487
3	CBO	2019	0.018353	28.0543	12.6	9	10.64043	0.052245	0.078715
3	CBO	2020	0.025088	31.3427	19.9	6.1	10.86835	0.057603	0.097371
3	CBO	2021	0.019837	39.0163	20.2	6.3	11.30616	0.048336	0.087252
3	CBO	2022	0.020879	48.5673	33.8	6.1	11.64926	0.055113	0.098704
3	CBO	2023	0.02043	53.283	32.5	7.2	11.85172	0.070774	0.105995
3	CBO	2024	0.011538	55.9623	26.6	8.1	11.84725	0.077544	0.114132
4	Dashen	2010	0.029344	12.8909	2.8	10.57	9.421686	0.02678	0.090934
4	Dashen	2011	0.033366	16.1178	18.1	11.4	9.592864	0.027497	0.095254
4	Dashen	2012	0.040523	17.2536	34.1	8.7	9.771098	0.03687	0.104332
4	Dashen	2013	0.032564	18.1947	13.5	9.9	9.890767	0.035078	0.103594
4	Dashen	2014	0.034164	19.0748	8.1	10.3	9.997078	0.035406	0.118277
4	Dashen	2015	0.031209	20.0956	7.7	10.4	10.11714	0.039537	0.118071
4	Dashen	2016	0.027261	21.1059	9.7	8	10.26034	0.037187	0.117503
4	Dashen	2017	0.023927	22.4137	7.4	10.1	10.45232	0.040261	0.115322
4	Dashen	2018	0.023209	26.1082	14.6	7.7	10.72383	0.050767	0.129148
4	Dashen	2019	0.020007	28.0543	12.6	9	10.937	0.050485	0.121789
4	Dashen	2020	0.024697	31.3427	19.9	6.1	11.1311	0.060057	0.121805
4	Dashen	2021	0.021186	39.0163	20.2	6.3	11.45844	0.061261	0.106921
4	Dashen	2022	0.027422	48.5673	33.8	6.1	11.67116	0.065654	0.122758
4	Dashen	2023	0.027206	53.283	32.5	7.2	11.88201	0.077892	0.133562
4	Dashen	2024	0.02976	55.9623	26.6	8.1	12.12117	0.081762	0.130236
5	Hibret	2010	0.033078	12.8909	2.8	10.57	8.682069	0.04476	0.108129
5	Hibret	2011	0.034038	16.1178	18.1	11.4	8.952297	0.047142	0.116672
5	Hibret	2012	0.036077	17.2536	34.1	8.7	9.081013	0.066528	0.125382
5	Hibret	2013	0.030039	18.1947	13.5	9.9	9.208939	0.070372	0.120283
5	Hibret	2014	0.025447	19.0748	8.1	10.3	9.382309	0.074266	0.132639
5	Hibret	2015	0.021444	20.0956	7.7	10.4	9.572265	0.075914	0.117419
5	Hibret	2016	0.021436	21.1059	9.7	8	9.756721	0.075226	0.120006
5	Hibret	2017	0.019489	22.4137	7.4	10.1	9.994374	0.071001	0.114853
5	Hibret	2018	0.022976	26.1082	14.6	7.7	10.24106	0.077886	0.105377
5	Hibret	2019	0.018402	28.0543	12.6	9	10.48392	0.075984	0.108003
5	Hibret	2020	0.022591	31.3427	19.9	6.1	10.66892	0.085325	0.124503
5	Hibret	2021	0.021326	39.0163	20.2	6.3	10.89848	0.079374	0.11983
5	Hibret	2022	0.017961	48.5673	33.8	6.1	11.11854	0.093297	0.107513
5	Hibret	2023	0.030644	53.283	32.5	7.2	11.32156	0.091364	0.113488
5	Hibret	2024	0.0257	55.9623	26.6	8.1	11.47813	0.098307	0.130946
6	LION	2010	0.034507	12.8909	2.8	10.57	7.217891	0.042999	0.177322
6	LION	2011	0.027587	16.1178	18.1	11.4	7.500037	0.049466	0.195187
6	LION	2012	0.03531	17.2536	34.1	8.7	7.809147	0.045229	0.179342
6	LION	2013	0.041221	18.1947	13.5	9.9	7.986991	0.053591	0.184182
6	LION	2014	0.029464	19.0748	8.1	10.3	8.192385	0.057232	0.173751

6	LION	2015	0.031791	20.0956	7.7	10.4	8.675794	0.047424	0.140309
6	LION	2016	0.028065	21.1059	9.7	8	9.00199	0.056638	0.131768
6	LION	2017	0.028118	22.4137	7.4	10.1	9.303457	0.063186	0.132006
6	LION	2018	0.030896	26.1082	14.6	7.7	9.569385	0.068499	0.126322
6	LION	2019	0.031059	28.0543	12.6	9	9.922878	0.06571	0.125518
6	LION	2020	0.024652	31.3427	19.9	6.1	10.36667	0.070379	0.109526
6	LION	2021	0.010457	39.0163	20.2	6.3	10.37985	0.078285	0.113017
6	LION	2022	0.008249	48.5673	33.8	6.1	10.40344	0.068873	0.116273
6	LION	2023	0.014281	53.283	32.5	7.2	10.47967	0.069826	0.12234
6	LION	2024	0.020052	55.9623	26.6	8.1	10.66957	0.066227	0.118347
7	NIB	2010	0.037281	12.8909	2.8	10.57	8.694588	0.047932	0.153506
7	NIB	2011	0.037675	16.1178	18.1	11.4	8.869472	0.055718	0.164613
7	NIB	2012	0.037204	17.2536	34.1	8.7	9.021079	0.05801	0.184631
7	NIB	2013	0.03437	18.1947	13.5	9.9	9.120913	0.076345	0.182177
7	NIB	2014	0.029899	19.0748	8.1	10.3	9.28241	0.068782	0.182777
7	NIB	2015	0.028086	20.0956	7.7	10.4	9.492213	0.082252	0.164249
7	NIB	2016	0.026802	21.1059	9.7	8	9.669687	0.08794	0.159058
7	NIB	2017	0.024065	22.4137	7.4	10.1	9.953216	0.083622	0.140538
7	NIB	2018	0.021434	26.1082	14.6	7.7	10.192	0.087046	0.126659
7	NIB	2019	0.023981	28.0543	12.6	9	10.42577	0.0844	0.130824
7	NIB	2020	0.02734	31.3427	19.9	6.1	10.6564	0.084443	0.136279
7	NIB	2021	0.025056	39.0163	20.2	6.3	10.90042	0.092598	0.131066
7	NIB	2022	0.022984	48.5673	33.8	6.1	11.02665	0.080222	0.131978
7	NIB	2023	0.021755	53.283	32.5	7.2	11.25183	0.082314	0.129491
7	NIB	2024	0.013287	55.9623	26.6	8.1	11.11302	0.104768	0.154648
8	OIB	2010	0.026709	12.8909	2.8	10.57	7.019806	0.022825	0.189536
8	OIB	2011	0.028868	16.1178	18.1	11.4	7.581689	0.024115	0.150879
8	OIB	2012	0.020852	17.2536	34.1	8.7	7.932861	0.031874	0.157022
8	OIB	2013	0.019982	18.1947	13.5	9.9	8.271607	0.043658	0.140007
8	OIB	2014	0.030582	19.0748	8.1	10.3	8.724477	0.056802	0.121678
8	OIB	2015	0.028277	20.0956	7.7	10.4	9.162707	0.050955	0.104136
8	OIB	2016	0.014909	21.1059	9.7	8	9.330955	0.066255	0.116808
8	OIB	2017	0.020916	22.4137	7.4	10.1	9.698484	0.049502	0.102232
8	OIB	2018	0.036304	26.1082	14.6	7.7	10.0773	0.061407	0.108899
8	OIB	2019	0.026841	28.0543	12.6	9	10.36657	0.060226	0.116824
8	OIB	2020	0.026232	31.3427	19.9	6.1	10.42915	0.071101	0.135942
8	OIB	2021	0.023091	39.0163	20.2	6.3	10.63804	0.070919	0.131201
8	OIB	2022	0.025627	48.5673	33.8	6.1	10.85987	0.068033	0.131479
8	OIB	2023	0.026897	53.283	32.5	7.2	11.08848	0.081102	0.132363
8	OIB	2024	0.012599	55.9623	26.6	8.1	11.12835	0.088498	0.140728
9	WB	2010	0.04113	12.8909	2.8	10.57	8.655551	0.045361	0.183166
9	WB	2011	0.046842	16.1178	18.1	11.4	8.994798	0.04415	0.165901
9	WB	2012	0.040985	17.2536	34.1	8.7	9.029675	0.048123	0.192177

9	WB	2013	0.036638	18.1947	13.5	9.9	9.248964	0.050932	0.176107
9	WB	2014	0.029051	19.0748	8.1	10.3	9.352604	0.05117	0.185988
9	WB	2015	0.027928	20.0956	7.7	10.4	9.525983	0.052161	0.176086
9	WB	2016	0.025124	21.1059	9.7	8	9.692137	0.053713	0.173305
9	WB	2017	0.028658	22.4137	7.4	10.1	9.949856	0.055175	0.160187
9	WB	2018	0.032832	26.1082	14.6	7.7	10.21797	0.062952	0.1397
9	WB	2019	0.021727	28.0543	12.6	9	10.30126	0.063365	0.144226
9	WB	2020	0.024488	31.3427	19.9	6.1	10.54953	0.065444	0.133848
9	WB	2021	0.003257	39.0163	20.2	6.3	10.58799	0.071999	0.126462
9	WB	2022	0.013322	48.5673	33.8	6.1	10.67178	0.063355	0.130191
9	WB	2023	0.017055	53.283	32.5	7.2	10.88717	0.076138	0.129128
9	WB	2024	0.026895	55.9623	26.6	8.1	11.09336	0.086116	0.140072

Year of establishment for the Selected Private Commercial Banks

S.N	Bank Name	Year of Establishment
1	Awash Bank	1994
2	Dashen Bank	1995
3	Bank of Abyssinia	1995
4	Hibret Bank S.C	1998
5	Wegagen Bank	1997
6	Nib International Bank	1999
7	Cooperative Bank of Oromia	2004
8	Lion International Bank	2006
9	Oromia International Bank	2008