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THE EFFECT OF FOREGIN EXCHANGE RATE ON THE FINANCIAL PERFORMANCE OF PRIVATE COMMERCIAL BANKS IN ETHIOIPIA

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STATEMENT OF DECLARATION

I Getish G/hiwot, affirm that I have independently conducted the research for my thesis titled "The Impact of Foreign Exchange Rate on the Financial Performance of Private Commercial Banks in Ethiopia" as part of my Master of Science in Accounting and Finance degree. I have properly acknowledged all sources used in the study and received guidance and suggestions from my advisor, Dr. Takele Fufa**.**

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Date ----------

CERTEFICATE OF DECLARATION

I confirm that Getish G/hiwot thesis titled "The Impact of Foreign Exchange Rates on the Financial Performance of Private Commercial Banks in Ethiopia" meets the university's regulations and standards for Originality and Quality in partial fulfillment of the Masters of Science in Accounting and Finance degree requirements.

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LIST OF ACRONYMS

CPI: consumer price index

NBE: national bank of Ethiopia

ROE: return on equity

GDP: gross domestic product

CLRM: classical linear regression model

FOREX: Foreign exchange

IMF: International Monetary Fund

MOFED: ministry of finance

OLS: Ordinary Least Squares

NPLs: non-performing loans

ROA: return on asset

PPP: purchasing power party

USD: united States dollar

ETB: Ethiopian birr

ABSTRACT

The purpose of this study is to investigate the impact of foreign exchange rates on the financial performance of private commercial banks in Ethiopia, with Return on Equity (ROE) as the dependent variable. The independent variables include foreign exchange rates, interest rate spread, inflation rate, and GDP. The data for this research was collected from audited financial reports of national bank of Ethiopia over a specific time period. The data was tested and analyzed using random effect regression analysis to determine the relationship between foreign exchange rates and ROE and tested for using the assumption of CLRM. Quantitative research methods were employed, and data from eight private commercial banks were collected over a 22-year period from 2001 to 2022 for the analysis. The research utilized Stata 14.2 econometric software to assist in analyzing the data. The finding of this study was providing insights into how foreign exchange rates influence the financial performance of private commercial banks in Ethiopia. The results of this research contribute to the existing literature on the effects of foreign exchange rates on bank profitability and financial performance. the study found a negative 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 also significant relationship between interest rate spread and financial performance. Recommendations include increasing exports and foreign direct investment to stabilize the value of the domestic currency, as well as implementing strategies to manage foreign exchange risks in the banking sector in Ethiopia.

Some phrases commonly used to discuss this topic include:- Currency exchange rates, economic evaluations, and the banking sector in Ethiopia.

CHAPTER ONE

Introduction:

1.1 Background of the study

A foreign exchange rate is the value at which one currency can be exchanged for another. It plays a significant role in a country's international trade, balance of payments, and overall economic performance. The exchange rate is known as nominal when it includes the impact of inflation, and as real when it does not consider the effects of inflation (Pugel, 2007)

According to Clark et.al (2004), exchange rate systems can be classified into fixed and floating. Fixed exchange rates or stable currency conversion rate are designed to remain constant for a specific duration, whereas floating exchange rates fluctuate regularly, varying from year to year, week to week, and even minute by minute.

According to Sadoulet and Janvry (1995), the terms devaluation (reducing) and revaluation (increasing) are used to describe the upward and downward movements of the exchange rate in a fixed exchange rate regime. However, it is worth noting that fixed exchange rates can still change over time and exhibit volatility. Pugel (2007) states that the exchange rate is influenced by a range of factors such as interest rates, inflation, and the political and economic situation in each country.

The performance of banks plays a significant role in the economic growth of a nation as they provide funds for investors to borrow and help deepen the financial market. It is crucial for the smooth flow of surplus funds into productive ventures in order to promote development. Financial institutions play a critical role in ensuring the seamless execution of this process (Franklin and Elena, 2008). Additionally, commercial banks not only act as intermediaries in finance but also facilitate international transactions through their divisions dedicated to international banking.

Foreign exchange (FOREX) is a significant aspect of international banking, as it encompasses the financial aspects of commercial transactions carried out through banks' payment and settlement systems. It refers to the use of currencies other than the local currency for settling international transactions and the process of trading and converting one country's currency into another. Typically, different currencies are exchanged to facilitate payment in most international

business transactions. However, due to the daily fluctuations in exchange rates, the amount of a firm's home currency required to purchase foreign supplies can change, even if the suppliers have not adjusted their prices. This introduces exchange rate risk, which is an important consideration for banks when it comes to foreign exchange rates and currency exposure. Risk management is therefore essential in decision-making related to foreign exchange rates and currency exposure to ensure that banks can effectively fulfill their economic roles. This idea is supported by the definition provided by the Business Dictionary and the argument made by Allayannis et al. (2001).

The phenomenon of globalization has prompted numerous companies to expand their operations outside their home countries, with the aim of gaining a competitive edge and benefiting from economies of scale. Consequently, in the context of international trade, where various currencies are involved, the fluctuation in foreign exchange rates becomes a significant factor that influences the profitability of commercial banks. This is because it directly impacts their process of facilitating financial transactions (Chiira, 2009).

Understanding and evaluating the effect of foreign currency fluctuations on the profitability of banks is essential, as they play a vital role in the economy. It is important to ensure the accuracy of accounting comparisons due to the stringent regulations banks operate under. Furthermore, considering the extensive impact of the global financial system on all industries, it is beneficial to comprehend how changes in foreign currency rates impact the effectiveness of banks (Ling, Fayman and Michael, 2014).

Various factors can affect the profitability of banks, as suggested by different studies and banking literature (Rao and Lakew, 2012; Kanwal and Nadeem, 2013; Pan and Pan, 2014; Ongore and Kusa, 2013; Kiganda, 2014). These factors can be categorized into internal and external factors. Internal factors refer to the specific characteristics of a bank that can impact its profitability, such as decisions made by management and the board. External factors, on the other hand, are wide-scale factors that are beyond the control of the bank, such as industry and macroeconomic variables. While internal factors are related to the bank's operational practices, external factors are associated with the industry and macroeconomic conditions in which the bank operates.

According to Allayannis et al (2001), effective risk management plays a crucial role in facilitating banks to fulfill their functions in an economy, particularly in regard to making decisions related to foreign exchange rates and currency exposure.

Nassreddine and colleagues (2013) indicated that a bank's performance can be influenced by factors that are either within the control of the bank's management or beyond their control. The factors that can be controlled by management are known as internal or bank-specific factors. Mohana and colleagues (2012) referred to them as such, as they can be strengthened or weakened by the bank's management depending on their impact on profitability.

The performance of a bank is influenced by several internal factors, such as its capital structure, the quality of its assets, the efficiency of its management, the quality of its earnings, its liquidity, its size, the technology it utilizes, the skills and knowledge of its employees, the performance of its loans, and the diversification of its income. On the other hand, factors that are not under the direct control of the bank's management are called external or macroeconomic factors. These factors are related to the industry and the macroeconomic environment and include bank concentration, inflation, real GDP growth, effective tax rate, interest rate, etc.

The level of exchange rate volatility represents the extent to which the exchange rate fluctuates or changes over a specific time period. An exchange rate is considered to be more volatile if it experiences more frequent and significant ups and downs, while it is considered less volatile if there are fewer fluctuations. Floating exchange rates, in particular, exhibit real-time fluctuations (Sabri, 2011). Stancik (2006) states that there are several factors that contribute to fluctuations in the exchange rate of a specific country. These factors include the level of economic openness, the availability of domestic and foreign money supplies, the chosen exchange rate regime, interest rates, the independence of the central bank, as well as the levels of output, income, inflation, and unforeseeable circumstances. The impact of each of these factors, as mentioned earlier, varies and is dependent on the economic conditions of the specific country (Stancik, 2006).

Banks, like other businesses, can be affected by changes in exchange rates. The impact is most directly felt by banks engaged in foreign currency transactions or operating in foreign countries. However, even banks without such activities can still be indirectly affected by exchange rate

fluctuations. These fluctuations can influence the level of foreign competition, demand for loans, and overall banking conditions.

Sabri (2011) states that all commercial banks encounter Foreign Exchange risk, which occurs when a bank possesses assets or liabilities in foreign currencies. This risk can impact the bank's earnings and capital as a result of fluctuations in exchange rates. These rates have the potential to rise or fall unexpectedly, leading to uncertainty that poses a danger to a bank's earnings and capital. Financial managers in the banking sector need to understand how to measure exposure to exchange rate fluctuations so they can determine whether and how to protect their company and mitigate this risk.

According to Murthy and Sree (2017) define financial performance as the successful management of organizational decisions and expenses to achieve financial stability. It is used as a measure to assess a bank's achievement of its financial goals, and Makkar (2016) emphasizes that financial performance can be evaluated by analyzing different ratios from financial statements. Reid and Joshua (2004) propose various methods for evaluating an organization's financial performance, including assessing liquidity, debt levels, and profitability.

1.1.1 General background monetary and exchange rate development in Ethiopia

The history of exchange rate regimes in Ethiopia has undergone various changes. Prior to 1992, the country used a fixed exchange rate regime where the government determined the rate. After 1992, Ethiopia shifted towards a "managed floating" exchange rate policy, where the government intervenes as needed to stabilize the foreign exchange market. As one of the founding members of the IMF, Ethiopia committed to the Articles of Agreement, which allowed currencies to fluctuate by plus or minus 1% of their central parity against the USD. Ethiopia's legal tender currency, the Ethiopian dollar, was issued in 1945 and was valued based on its gold content, in accordance with the Bretton Woods Agreement. In 1964, the Birr was devalued slightly against the USD and was revalued in 1971 after the collapse of the Bretton Woods System. However, the fixed official exchange rate remained unchanged until 1992. The fixation of the exchange rate led to the overvaluation of the Birr, which had a negative impact on the national economy. Therefore, in an attempt to liberalize the foreign exchange market, the National Bank of Ethiopia introduced a fortnightly auction market for foreign exchange in 1993, which was later changed to a weekly auction in 1996. Commercial banks were also allowed to

establish foreign exchange bureaus. In 1998, the retail auction system was replaced by a wholesale system, and the inter-bank foreign exchange market was introduced. Currently, the official exchange rate is determined in the daily inter-bank foreign exchange market. Since the change to a managed floating exchange rate policy, the value of the Ethiopian currency has experienced a depreciating trend. The fluctuations in the exchange rate of the Ethiopian Birr against currencies such as the US dollar have resulted in unpredictable changes. As a result, these fluctuations directly impact the performance of banks as they influence the value of foreign assets and liabilities held by banks. Furthermore, there may be indirect effects on profitability as well due to these rate variations. Consequently, it is challenging to anticipate the overall impact of exchange rate fluctuations on bank profitability.

1.2 Statement of the problem

The banking industry is crucial for the functioning of industry, commerce, and trade as it provides the necessary financial support. It is considered the backbone of modern business activities (Shifa, M.A., Debela, K.L., & Tarfa, E.G. 2019). The importance of the banking industry in assessing the well-being of a nation's financial system cannot be overstated. Numerous studies have indicated that a well-developed banking sector plays a significant role in promoting economic growth. Ong Tze San and Tan Boon Heng(2018) draw a parallel between a bank and blood in the economic system, highlighting the significance of continuous money circulation for sustaining a robust economy. When money is not supplied to various sectors, those parts become ineffective. This highlights that if a bank's profitability is unstable, it will hinder the growth and expansion of the nation's economy. Ultimately, this demonstrates the challenge of predicting exchange rate movements, and underscores the importance of understanding the fundamental economic factors that influence these rates.

A nation needs to know how much of its currency will be necessary to purchase goods and services from other countries, and this information is determined by the exchange rate. As stated by O'Sullivan (2003), the exchange rate refers to the value of one country's currency in relation to another country's currency. In other words, it represents the number of units of one currency that can be purchased with a specific amount of another currency.

Ngerebo (2012) suggests that foreign exchange markets serve as a global or worldwide means of communication for major commercial banks. These banks operate as intermediaries for

foreign exchange, mainly through international lending. The activities in these markets have implications for commercial banks as they enable exchanges, payments, and international transactions, and play a crucial role in the forex market.

According to Kairu (2016), there is compelling evidence indicating that there is a weak negative correlation between the volatility of the foreign exchange rate and the performance of banks in Kenya. In recent years, the Kenyan currency has displayed high levels of volatility against the dollar, and this depreciation has had detrimental effects on the returns achieved by banks.

Fluctuations in exchange rates pose a considerable risk for banking institutions, as noted by Jamal and Khalil in 2011. These fluctuations can result in substantial losses for banks, potentially leading to their failure and imposing a considerable financial burden on their profitability. Additionally, the volatility of foreign exchange rates negatively affects the performance of banks, posing challenges for commercial bank managers in effectively managing credit and attaining profitability, as discussed by Baum, Mustafa, and Neslihan in 2009.

Several studies conducted locally that investigated the impact of exchange rates on the financial performance of private commercial banks in Ethiopia.

A study conducted by Bereket Agaza (2021) focused on examining the influence of the foreign currency exchange rate on the financial performance of private commercial banks in Ethiopia. This study failed to consider the interest rate as a determining factor in the profitability of these banks. According to Almeida (2018) argued that higher interest rates can enhance bank profitability as banks earn higher interest income from loans.

And another study by Smith (2010) found that a rise in lending interest rates leads to higher borrowing costs, decrease credit demand, and reducing bank profitability. This also conflicting result and need further research to find their gap.

In a study by Chakraborty and Ray (2017) on the relationship between bank competition and financial stability during the global financial crisis, it was discovered that heightened competition among banks resulted in elevated deposit rates, ultimately impacting the financial performance of banks negatively.

According to Gray (2014) suggests that exchange rates are influenced or clearly impacted by various economic conditions and variables such as relative inflation and interest rates, as well as

supply and demand for currencies. Therefore interest rate is included as determinant of financial performance in this study.

And another study by GirumDemissie (2020) found a significant negative relationship between with foreign exchange rate (USD) and the return on equity (ROE) of Ethiopian private commercial banks. Indicating that a higher exchange rate is associated with lower ROE.

On the other hand KidistEshetu Tufa (2018) and BereketAgaza(2021) found a significant positive relationship between with foreign exchange rate (USD) and return on equity (ROE) of private bank in Ethiopia . This study suggesting that a higher exchange rate is associated with higher ROE. The conflicting results indicate a need for further research to identify and interpret this Gap in findings.

The Study conducted by GirumDemissie (2020) and Henok G/Michael (2021) did not include the GDP growth rate as a factor that determines bank profitability. Because it is important to consider this variable as it can have a significant impact on the financial performance of the banks. According to Doe (2020) finds that a positive correlation exists between GDP growth and bank profitability. Higher economic growth leads to increased credit demand, resulting in higher interest income and lending activity for banks. And also Smith (2019) highlights the procyclical nature of bank performance, suggesting that during economic expansions, banks tend to experience positive financial performance due to increased lending, whereas during recessions, bank performance declines due to higher loan defaults and lower credit demand.

And also Lake (2013) try to investigate or conducted a study on the impact of financial risks on the profitability of commercial banks for total of eight commercial banks in Ethiopia , covering the period of 2000-2011. This study tells and found that the foreign exchange rate is insignificant for the profitability of the commercial banks of Ethiopia .this implies that there is no significant impact of foreign exchange rate on the profitability of commercial banks. , which contradicts or directly opposite to the findings of Girum Demissie's(2020) study suggests a significant negative relationship between foreign exchange rate and return on equity (ROE) of Ethiopian private commercial banks. This indicates that a higher exchange rate is associated with lower ROE. Therefore further research is needed to reconcile these differing findings or inconsistency in findings indicates a research gap that needs to be addressed. So the researcher will try to a bridge to this inconsistency

1.3 Objectives of the study

1.3.1 The General objective of the study

Objective of the Study:

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

1.3.2 Specific objective of the study

- To analyze the impact of interest rate spread on the operational efficiency and effectiveness of private commercial banks in Ethiopia

– To examine the impact of inflation on the profitability of private commercial banks in Ethiopia.

-To assess whether macroeconomic factors, specifically GDP, have any mediating effect on bank performance.

-To propose strategies and recommendations for private commercial banks to enhance their financial performance in light of foreign exchange rate volatility.

1.4 Hypothesis of the Study

According to Kothari (2004), a research hypothesis is a statement that can be tested and predicts the correlation between an independent variable and a dependent variable. In this particular study, the hypotheses have been created by drawing from established theories and empirical proof regarding the financial performance of banks.

H1: predicts that the profitability of private commercial banks is negatively affected by the exchange rate. This is supported by the notion that currencies with high interest rates usually decline in value, and central banks can control inflation and exchange rates through interest rate adjustments. Moreover, previous research indicates a substantial link between exchange rate management and the performance of banks.

H2: suggests that the profitability of private commercial banks is influenced positively and significantly by the difference between interest rates. This is based on the theory that banks earn a profit through the spread between their lending and borrowing rates. Therefore, a wider interest rate spread may lead to higher profits for banks.

H3: suggests that inflation has a negative and significant effect on the profitability of private commercial banks. Inflation diminishes the purchasing power of currency and decreases the actual profits gained from investments, as indicated by the theory of purchasing power parity..

H4: suggests that there is a strong and beneficial correlation between the gross domestic product (GDP) and the financial success of private commercial banks in Ethiopia. This implies that a rise in GDP could result in greater profitability for private commercial banks.

1.5 Significance of the Study

The research is expected to have significant benefits to various stakeholders in the financial sector, including bank managers, the Government of Ethiopia, academic researchers, and scholars. Bank managers can use the findings of this study to make informed decisions on how to manage their organizations during changes in foreign exchange rates. The recommendations and conclusions to be written at the end of this study regarding the result obtained due to the data collected from the exchange rate, inflation rate, GDP rate and interest rate will help the bank managers to make better decisions . The research can offer them valuable information and guidance on strategies to safeguard the efficiency and effectiveness of their financial institutions.. The Ethiopian government has the opportunity to utilize the findings of the study's results to develop regulations and policies that can strengthen the banking industry and make it more resilient to fluctuations in foreign currency reserves. Academic researchers can use the findings of this study as reference materials to support their research endeavors. Additionally, the study can suggest areas for further studies, providing future scholars with new insights on the impact of foreign exchange rates on the financial performance of private commercial banks in Ethiopia. Overall, This research can provide valuable information to various stakeholders in the financial industry, guiding their decisions and contributing to the growth and stability of the banking industry in Ethiopia.

1.6 Scope of the Study

The purpose of this study is to investigate how foreign exchange rates affect the financial performance of private commercial banks in Ethiopia, taking into consideration the limitations in terms of time and resources. The researcher chose to narrow down the scope of this study to focus specifically on private commercial banks operating in Ethiopia and the research focuses on 16 private commercial banks that were registered by the NBE before 2014/00 E.C as a total population. However, only eight banks was chosen as a sample (including Dashen Bank, Awash Bank, Bank of Abyssinia, United Bank, Nib Bank, Wegagen Bank, Lion International Bank, and Cooperative Bank of Oromia), based on the availability of more than six years of

consecutive annual statements. The study covers panel data analyzed spans from the year 2001/02 to 2021/22 because the researcher believes more than six years of consecutive annual statements data sufficient to this study. And this study limits including factors such as foreign exchange rates, inflation rate, Interest rate spread, and GDP growth rate, were analyzed. The required data was collected from the banks' balance sheets and income statements, as well as from macroeconomic data in the National Bank's annual reports. The study was designed to fit its objectives and the available resources within the specified time frame. Justifying the use of return on equity (ROE) as the main indicator of bank performance is based on its ability to demonstrate how effectively a bank can generate profits from its assets.

1.7. Limitation of study

The scope and methodology of this study on how foreign exchange rates affect the financial performance of private commercial banks in Ethiopia have certain limitations.

The study exclusively focuses on analyzing numerical data collected from secondary sources, potentially neglecting the deeper understanding that qualitative data could provide to support and elaborate on the results. The size of sample is also limited, with only a few private banks in Ethiopia represented. Therefore, the results may not be generalizable to other developing countries unless similar studies are conducted. Nevertheless, despite these limitations, the study was comprehensive and succeeded in achieving its research objective.

CHAPTER TWO

2 REVIEW OF RELATED LITERATURE

2.1 Introduction

This section introduces an over view of the literature that has been studied to form the foundation for the research and concepts. The chapter also explores theories that have guided the study, as well as factors that influence financial performance. It reviews empirical studies that highlight gaps in research before presenting a summary of the literature.

2.2 Theoretical review

The philosophical foundation of the research is based on the theoretical framework, which connects the theoretical and practical aspects of the variables being studied. In this study the following theories were used to explain the correlation between foreign exchange fluctuations and financial performance.

2.2.1. The theory of exposure to foreign exchange

According to El-Masry (2006), exposure refers to the degree to which a company's net worth is influenced by fluctuations in exchange rates. Several empirical investigations, mentioned in Muller's work (2006), have indicated that alterations in currency exchange rates have the potential to impact the earnings and profitability of both multinational and domestic companies. Abor (2005) emphasizes that with the rise of outsourcing operations to other countries, companies are utilizing foreign currency to cover costs such as salaries, taxes, and materials. Therefore, it is crucial for financial managers to understand and quantify this exposure to foreign currency. Although companies that do not engage in foreign currency trading may not face immediate financial risks, they are still impacted by varying exchange rates as competition from multinational companies, foreign rivals, and macroeconomic conditions can significantly influence their operations As a result, both local and multinational organizations often experience impacts on their income statements and business performance from these fluctuations. (Parsley & Popper, 2006). This statement discusses how changes in exchange rates can have various impacts on a domestic firm, such as affecting the cost of goods, labor, and input/output. The absence of international or foreign activities can result in negative consequences for the competitiveness of a domestic company. The impact of exchange rate

fluctuations on a firm's value and its sales and net asset values can vary depending on the type of product and the competitive environment of the company (Bradley & Moles 2001). Therefore, according to the theory of foreign exchange exposure, the extent of this impact is determined by the type of product and competitive landscape, suggesting that fluctuations in exchange rates can have a significant effect on a company's overall worth.

2.2.2 Theory of Monetary Base

Aliber proposed the Currency Base theory in 1971 which is centered around imperfect foreign exchange and capital markets. According to Aliber, the varying strength of different currencies can account for the internationalization of a company. According to this theory, companies from stronger currency countries have an advantage over those from weaker countries, as the income stream of the latter is subject to greater exchange risk. As a result, firms with a strong currency have the ability to tap into a greater share of the income generated in countries with weak currencies.

2.2.3 The theory of Purchasing Power Parity

The theory of exchange rate determination, known as purchasing power parity (PPP). This theory offers an understanding of how the exchange rates of two currencies are established by taking into account their respective price levels. Put simply, the exchange rate between two countries will vary over time as the prices of goods and services within each country change. (Dornbusch, 1985)

Gustav Cassel, a Swedish economist, introduced the concept of purchasing power parity (PPP) in 1918, proposing that the value of similar goods in different countries can be compared by considering the currency of each country.

If the purchasing power is equal in various countries, their currency exchange rates will be balanced.

Reid and Joshua (2004) propose that the value of a country's currency should be proportional to its commodity price levels. On the other hand, Ross (2008) contends that there are cases where a country's currency may be undervalued to an extent that it cannot afford to purchase its own goods and services at their present prices..

This concept operates under the assumption that trading is unrestricted and involves identical commodities. When the currency used for trading is exchanged at the immediate exchange rate,

the price of a given commodity should be equivalent across different borders. Price indexes serve as a tool for determining the precise price of a commodity between countries. However, accurately measuring Purchasing Power Parity (PPP) poses a significant challenge due to the variation in goods used by different countries to determine their respective price levels. Menon and Viswanathan (2005) highlighted two categories of PPP: absolute and relative.

2.2.3.1. The concept of absolute purchasing power parity (PPP).

Absolute purchasing power parity (PPP) holds that the exchange rate between two nations is entirely influenced by their price levels and assumes perfect market conditions However, factors such as transportation costs, tariffs, and quotas prevent the law of one price from being effective. According to Kanamori (2006), Absolute Purchasing Power Parity (PPP) is viewed as a theory that focuses on achieving equilibrium in the goods market and does not take into account money markets or the international balance of payments. It fails to explain real-world occurrences and has been observed to deviate significantly from this theory due to its impractical preconditions.

2.2.3.2 Comparative purchasing power parity

Relative purchasing power parity (PPP) takes into account market imperfections by acknowledging that the same goods may have different prices in different currencies. It suggests that if we assume transportation costs and trade barriers stay the same, the rate at which prices of goods change should be somewhat similar when measured using a common currency. In simple terms, the increase or decrease in the current exchange rate between two countries is solely influenced by the variations in their individual currency inflation rates. (Mishkin, 2012).To calculate this, one should subtract the actual inflation rate of the base currency from the actual inflation rate of the counter currency. The percentage of the actual change in the spot rate is equal to the difference between the actual inflation rate of the counter currency and the actual inflation rate of the base currency.

2.2.3.3 The concept of the International Fisher Effect

In 1930, Irving Fisher introduced the concept of the International Fisher Effect, which posits that nominal interest rates (N) are determined by the real interest rate (R) and an additional allowance (I) for anticipated inflation (Mishkin, 2012). Thus, it implies that variations in interest rates across countries could stem from differing predictions regarding inflation, assuming investors from all nations seek equivalent real returns.

According to Ubindi (2006), disparities in interest rates between countries arise from differences in projected inflation rates, causing investors to look for a stable real rate of return. The theory suggests that foreign currencies with higher interest rates are likely to depreciate as these higher nominal interest rates align with expected inflation rates (Madura, 2012).

The Fisher Effect states that in the long term, inflation does not affect the real interest rate, provided that the nominal interest rate adjusts in accordance with changes in the inflation rate. For instance, if inflation rises by 2%, the nominal interest rate should also increase by 2% to maintain the same real interest rate. This ensures that the impact of inflation and the nominal rate increase cancel each other out. Moreover, the nominal interest rate takes into account factors such as the possibility of default in investments, as explained by Staikourasand Wood (2004).

The Fisher Effect argues that borrowing money from one country and investing it in another country will not lead to profitable outcomes, as the exchange rates would be adjusted to cancel out the disparities in interest rates (Ubindi, 2006). However, this theory has its limitations since it fails to consider other factors aside from inflation that also influence exchange rates.

. As a result, the exchange rates might not correspond to the difference in inflation levels. This concept is relevant to the present study as it clarifies how the value of currencies relates to the inflation rate in different countries. Hence, when exchange rates reach equilibrium, the purchasing power of one unit of a currency in one country should be equivalent to that of the same unit in another country. This ensures that the currencies have the same purchasing power. To achieve this equilibrium exchange rate, nominal interest rates must reflect the inflation rate in each country, ensuring that the real interest rate remains the same. Additionally, nominal interest rates account for factors such as default risks in investments, as suggested by Staikourasand Wood (2004).

2.3 Empirical Review

This section provides an overview of research carried out by academics on the correlation between currency conversion rate or foreign exchange rate fluctuations or volatility and the economic performance of commercial banks. The studies are categorized into international and local research.

2.3.1 International studies

Isaac (2015) conducted a study to examine the impact of exchange rate risk on the performance of banks operating in Nigeria.

. The study used information from secondary sources and employed an auto regression conditional model to measure the level of risk. The model stated that the level of variance depends on the previous squared residual. The study showed a positive correlation between increases in exchange rates and a higher post-tax profit. Furthermore, the findings demonstrated the importance of managing exchange rates for the financial success of banks and other financial institutions. To effectively handle the risk associated with exchange rate fluctuations, it is recommended that banks establish a centralized entity within their operations to handle the practical aspects of forecasting exchange rates.

Additionally, banks should adopt hedging approaches in their accounting procedures to deal with currency risk. It is crucial that banks and firms identify the specific type of exchange rate risk they are exposed to and accurately measure the associated risk exposure in order to successfully manage and mitigate the risk.

In 2008, Wong and colleagues carried out a research project on how Chinese banks are affected by foreign exchange exposure. They used equity-price information from 14 publicly traded banks and employed the Capital Market Approach to analyze the data.

They found that larger Chinese banks had a positive relationship with foreign exchange exposure due to their size and significant indirect exposure through customers. Despite their limited involvement in international banking, state-owned and joint-stock commercial banks in China still had higher average foreign exchange exposures than banks in Hong Kong.

The study also found that larger Chinese banks had mostly negative foreign exchange exposure, which could negatively impact the banking sector's performance if the exchange rate appreciated.

Ahmed (2015) conducted a study in Kenya to investigate how foreign exchange exposure affects the financial performance of commercial banks. The research incorporated both primary and secondary data sources to analyze the impact of different factors on bank performance.

The findings indicated that interest rates had a minimal positive effect, while foreign exchange exposure and inflation had a negative impact on listed commercial banks in Kenya. The study suggests that the Central Bank of Kenya should control interest rates in order to stabilize the

exchange rate, and that commercial banks should strengthen their capabilities in managing foreign exchange exposure.

Bergen (2010) found that the exchange rates are heavily influenced by interest rates, inflation, and currency values. Central banks can use interest rates as a tool to control both inflation and exchange rates. Higher interest rates attract foreign investments, leading to an increase in the exchange rate. However, if there is a significant increase in inflation in the nation or if other circumstances contribute to a decrease in the value of the currency, the effectiveness of raising interest rates is restricted. On the other hand, lower interest rates decrease exchange rates.

The study by Taiwo (2013) investigated that the relationships between exchanges rate volatility and the performance of banks in Nigeria. The study employed two indicators, the loan loss to total advances ratio and capital deposit ratio, to evaluate bank performance. It also examined the influence of various factors such as government spending, interest rates, and real GDP on exchange rates and bank performance. The findings revealed that the impact of exchange rates on bank performance varied depending on the measure used. In particular, volatile exchange rates were associated with increased instances of nonperforming loans, as indicated by the loan loss to total advance ratio.

.On the other hand, the capital deposit ratio had no significant relationship with exchange rate. The study concluded that ensuring a stable exchange rate was crucial for improving access to credit for the economy through the banking sector.

In contrast, C. Lagat and M. Nyandema (2016) conducted a study on the effects of fluctuations in foreign exchange rates on the financial performance of commercial banks that are listed on the Nairobi securities exchange. Their objective was to examine the connection between foreign exchange policies and the financial performance of commercial banks in Kenya, utilizing a time series correlation research design.

The research focused on commercial banks that were listed on the Nairobi Securities Exchange between 2006 and 2013. Data from the Central Bank of Kenya and annual reports of the listed banks were utilized to investigate how foreign exchange rates, inflation rates, interest rates, and bank performance indicators were interconnected.

The analysis employed multivariate Linear Regression and Pearson product moment correlation to identify any significant correlations between these variables.

The findings showed a significant positive relationship between foreign exchange rates and financial performance indicators, indicating that changes in exchange rates may have influenced the profitability of banks. The research recommended that the government should implement policies to encourage exports in order to improve the country's financial performance. Another study conducted by Addae1, Nyarko-Baasi1, and Tetteh in 2014 investigated the impact of fluctuations in exchange rates on banks in Ghana. The study employed both quantitative and qualitative methods to assess the sensitivity of various listed banks on the Ghana Stock Exchange to exchange rate fluctuations between 2005 and 2010. The researchers applied econometric models to analyze the banks' exposure and sensitivity to exchange rate changes.

According to the findings, every bank participated in forex trading, and the majority of them achieved profits. However, only Ghana Commercial Bank and Standard Chartered Bank were deemed to have foreign exchange risk related to pound sterling, whereas the rest of the banks did not face any currency risks. Nonetheless, all banks had put in place risk management systems to minimize potential risks associated with their activities.

Opaluwa and colleagues (2010) examined the consequences of varying exchange rates on the Nigerian manufacturing sector from 1986 to 2005. Their research revealed that these fluctuations had a detrimental impact on the sector's productivity. This was mainly attributed to the sector's reliance on imported inputs and machinery, which were procured using foreign currencies that were susceptible to unpredictable exchange rate changes.

In their study, the researchers utilized a practical approach and employed regression analysis to examine the relationship between manufacturing output, employment rate, foreign private investment, and the industry's performance. The findings indicated that both positive and negative coefficients of the variables influenced the industry, with the negative impact being statistically significant when all factors were considered.

Rutto and Ondiek (2014) conducted a research study that examined the effects of fluctuations in exchange rates on the performance of tea exports. The researchers used historical data from 1970 to 2008 and employed statistical techniques such as co-integration and error correction analyses developed by Engle and Granger. They also conducted unit root tests, specifically the Dickey Fuller and Augmented Dickey Fuller tests, to determine the stationary of the data. The data used

for the study was obtained from various sources, including the Central Bank of Kenya, Kenya National Bureau of Statistics, Tea Board of Kenya, and the International Monetary Fund (IMF).

The results showed that exchange rate volatility has a negative effect on tea exports in Kenya. The study recommends continuous monitoring of the exchange rate and implementation of fiscal and monetary policies to manage its impact.

2.3.2 Studies conducted at the local level.

In 2015, Tadesse conducted a study in Ethiopia that examined the relationship between the exchange rate and the profitability of commercial banks. The research used a balanced panel data set from 2000 to 2014 and also aimed to determine whether the exchange rate affected the growth of bank loans, potentially influencing bank profitability indirectly. The study ultimately found that exchange rates had a statistically significant and negative impact on the profitability of commercial banks

Nevertheless, the study failed to account for the impact of inflation, a variable that is influenced by the exchange rate and other microeconomic factors. As a result, this research incorporated the inflation rate as a factor that determines bank profitability.

Lake (2013) investigated how financial risks affect the profitability of eight commercial banks in Ethiopia from 2000 to 2011. The results showed that credit risk and liquidity risk were found to have a significant negative impact on the banks' profitability. However, there was no significant relationship observed between interest rate risk and foreign exchange rate risk with the profitability of the banks. This finding contradicts Tadesse's (2015) conclusion, which stated that foreign exchange rate risk significantly affects the profitability of commercial banks in Ethiopia. Therefore, the author aims to address this inconsistency in their research.

A study conducted by Biruk in 2012 examined how exchange rate fluctuations affected agricultural exports in 29 Sub Saharan African countries. The research analyzed data from 1996 to 2008, spanning a period of 13 years. The results indicated that exchange rate volatility had a significant and detrimental impact on the agricultural exports of these countries. A variety of estimation techniques confirmed this finding. In light of these results, the researcher recommended implementing a stable exchange rate policy in Sub Saharan African countries, as policies aimed at increasing exports may introduce uncertainty in exchange rates and result in a decrease in exports.

In another study conducted by Amezenech (2018), the impact of fluctuations in exchange rates on the export of Ethiopian coffee was explored using annual time series data. The data, gathered from various sources within the country between 1980 and 2015, was analyzed using descriptive statistics to gain a better understanding of the variables involved.

The findings indicated that the fluctuation in exchange rates had an adverse and noteworthy impact on the export of coffee in Ethiopia. Nonetheless, as agriculture and banking are distinct industries, it is crucial to examine the consequences of exchange rate volatility on the financial effectiveness of banks to lessen potential financial risks.

2.4 research gap analysis and summary of literature review

The literature review for this study examined various theories that are relevant to the research topic. These included theories such as the theory of exposure to foreign exchange, Theory of Monetary Base, The theory of Purchasing Power Parity, The concept of the International Fisher Effect, and theory of interest rate parity

These theories provide an explanation for the influence of foreign exchange rates on organizations involved in global trade. Furthermore, the literature review also analyzed empirical research carried out both domestically and internationally..

Many different studies have been conducted on this topic (Isaac, 2015; Wong et al, 2008; Ahmed, 2015; Bergen, 2010; Taiwo, 2013; Lagat and Nyandema, 2016; Addae1, Nyarko-Baasi1 and Tetteh, 2014; Opaluwa et al, 2010; Rutto and Ondiek, 2014). However, the empirical data from these studies may not be applicable to Ethiopian firms due to their focus on an international context.

Previous studies conducted in Ethiopia (Tadesse in 2015, Lake in 2013, Amezenech in 2018, and Biruk in 2012) examined the impact of exchange rates on financial performance. Tadesse did not take into account inflation rate as a factor affecting financial performance, whereas Lake's research found that foreign exchange rates do not have a significant impact on the profitability of commercial banks in Ethiopia. The researcher was motivated to conduct further investigation due to this lack of consistency. Additionally, Amezenech and Biruk conducted their own research on the effects of exchange rate volatility on coffee and agricultural exports, respectively. However, it is important to also consider the impact of exchange rate volatility on the financial

performance of banks in order to mitigate financial risk, as the banking sector operates differently from the agricultural industry.

According to various research studies, there is not a consistent impact of foreign exchange rates on the profitability of different sectors, including the financial sector. Several researchers, such as C. Lagat and M. Nyandema (2016) and Addae et al. (2014), discovered a significant and positive relationship between foreign exchange rates and financial performance indicators. However, other studies conducted by Tadesse (2015), Ahmed (2015), Opaluwa et al. (2010), and Amezenech (2018) showed a statistically significant and negative influence of exchange rates on firm profitability. Meanwhile, Lake (2013) found that exchange rates had not significant impact on the profitability of commercial bank

Hence, the objective of this research was to investigate the influence of changes in foreign currency exchange rates on the financial performance of private commercial banks in Ethiopia. The aim was to provide reliable evidence that could potentially reconcile the conflicting findings in prior studies related to this subject.

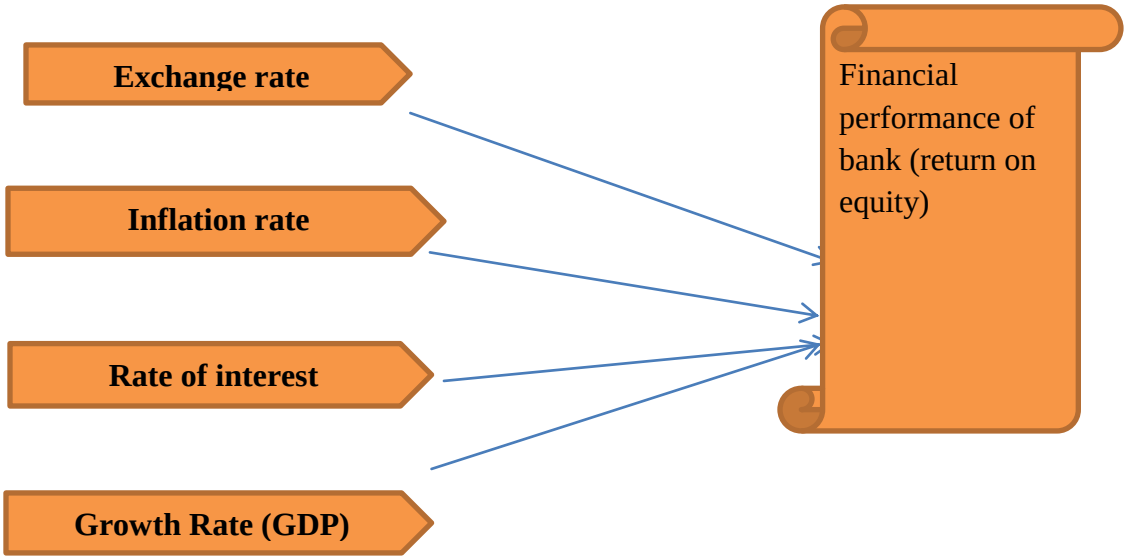
2.5. Conceptual framework or Theoretical structure

Ethiopia has recently encountered substantial variations in foreign currency exchange rates, resulting in a rise in the interest rates for loans set by the country's central bank.

The performance of commercial banks in Ethiopia can be affected positively or negatively by fluctuations in foreign exchange rates since these banks primarily operate within the local market. Therefore, there is a need for effective management of such fluctuations. Studies have shown that the performance of commercial banks in Ethiopia can be impacted by foreign exchange rates.

. To better understand this relationship, a conceptual framework, which is a graphical representation of the relationship between variables in a study, can be developed (Mugenda and Mugenda, 2008).

Independent variable Dependent variable



Figer 2.1: Conceptual Framework

Source :- researchers own design

2.6. Factors influencing the financial performance of banks

Financial performance pertains to a company's capacity to attain financial stability by effectively implementing operational and investment decisions and strategies. It indicates how successfully a company achieves its financial goals and benchmarks, ultimately determining its profitability. Banks, specifically, strive to maximize profits, which can be evaluated through metrics like Return on Asset, Return on Equity, and Net Interest Margin. (Mueni, 2016).

Various factors have an impact on an organization's success or performance. These factors can be classified as either internal or external. Internal factors have a direct influence on the management of the board of directors and can ultimately affect the profitability of the company.

These variables are specific to each bank and differ from one institution to another. Some examples of such variables include factors related to the bank's technology, capital size, productivity, deposits, management quality, credit portfolio, interest rate strategy, size, and ownership. Additionally, external factors, such as macroeconomic indicators like GDP, stability in macroeconomic policies, exchange rates, inflation, political stability, and interest rates, also play a role in influencing a bank's performance (Athanasogluo et al 2005).

The study examines how banks' financial performance is affected and pinpoints four external factors that play a role in influencing it. These factors comprise the exchange rate, interest rate spread, inflation rate, and GDP rate.

2.6. 1.Currency conversion rate or exchange rate

The foreign exchange rate pertains to the expense associated with acquiring currency from another country.. Numerous conditions influence the exchange rate of two currencies, and regrettably it may fluctuate unpredictably over time, which can pose a challenge for individuals involved in global commerce. (Hoyle et al, 2011).

According to Hoyle et al. (2011), the value comparison between two currencies, known as the exchange rate, is influenced by varying policies implemented by different countries.

There are three main types of exchange rate systems: floating, fixed, and managed floating. In a floating system, the value of a currency is determined by the market forces of supply and demand, causing it to fluctuate freely.

In a fixed system, the government steps in to counteract any fluctuations in the exchange rate

resulting from changes in supply and demand. In a managed floating system, exchange rates have some level of flexibility based on supply and demand, but the government may intervene temporarily to stabilize them and avoid excessive volatility.

The exchange rate is a variable asset that fluctuates based on different currencies and timeframes. Some currencies have higher values than others, but when the value decreases, it is known as depreciation. There are various factors that influence exchange rate changes, predominantly the supply and demand balance in the foreign market. These changes are unpredictable and can impact an organization's performance. However, the impact is typically limited to organizations involved in international transactions or dealing with different currencies, while locally-based ones experience minimal effects (Nyandema, 2016).

When the exchange rates are high, foreign investors usually avoid making any transactions, causing a negative impact on the economy. Similarly, banks are also affected by a decline in the local currency as fewer people will engage in savings and borrowing, ultimately leading to a decrease in returns.

2.6.2 Inflation rate

Inflation is the phenomenon where the cost of goods and services in an economy rises over a particular timeframe, leading to a decrease in the purchasing power of a nation's currency. To measure inflation, two main price indexes are used:

The CPI (consumer Price Index): which tracks price changes in consumer goods and services, and

The PPI, also known as producer price indexes, is a metric that tracks fluctuations in the prices at which domestic producers sell their goods and services.. While the CPI reflects the perspective of the buyer, the PPI tracks price change from the point of view of the seller.

Inflation is commonly described by experts as a situation where the general prices in an economy are rising. However, technically speaking, inflation is the percentage alteration in the price level compared to the previous period.

In 2003, Mankiw provided a definition for the calculation of inflation rate, which entails the use of the consumer price index to determine the cost of goods and services commonly bought by the average consumer.

Inflation is defined as a situation where the value of a specific currency declines significantly (Biller, 2007). This can occur when there is an increase in prices for goods and services within a country, which impacts different sectors and individuals ranging from international businesses to the general public.

The rise in prices resulting from inflation has made it less desirable to participate in multiple transactions, as was the case previously. Inflation is seen as a financial emergency, and governments work towards maintaining relatively low levels of inflation. Nevertheless, inflation can have positive consequences if an organization makes significant investments prior to its occurrence and reaps the benefits later. Nonetheless, it is challenging to forecast inflation, and doing so often leads to undesirable outcomes. Therefore, it is important for banks to have methods in place to anticipate and control inflation levels in order to maintain consistent performance.

2.6.3. Rates of interest

An interest rate refers to the percentage amount that a borrower compensates a lender or financial institution for the privilege of using their money for a specified time period.

It is also a major source of income for banking institutions. Interest rates, exchange rates, and inflation are interlinked, and central banks manipulate interest rates to control inflation and exchange rates. When interest rates are high, foreign investors are attracted, causing the exchange rate to rise. However, if inflation in the country is too high or other factors push the currency downward, the effect of higher interest rates is reduced.

When a country offers higher interest rates, it attracts foreign investment and causes the value of its currency to increase. However, this effect can be lessened if inflation rates are significantly higher or other factors are negatively affecting the currency. Conversely, lower interest rates tend to decrease the exchange rate of a country's currency. (Bergen, 2010).

High interest rates have a discouraging effect on borrowing and encourage investing, while low interest rates promote borrowing and discourage investing. The government can manipulate interest rates to control cash flow in banks. Interest rates also affect currency values, as higher demand for a currency leads to an increase in its value. In banking, interest rates are a major source of income, but there are direct costs associated with deposit interest rates. To investigate this subject, the researcher analyzed the difference between the lending rate and the deposit

interest rate, also known as the interest rate spread.

According to Bergen (2010), the relationship between interest rates, inflation, and exchange rates is strong. He suggests that central banks can control both inflation and exchange rates by manipulating interest rates. When interest rates are high, lenders in a country can earn a greater return compared to other countries, attracting foreign capital and causing the exchange rate to increase. However, this effect may be weakened if the country has significantly higher inflation than others or if other factors are driving the currency down. Conversely, lowering interest rates tends to decrease exchange rates..

2.6.4 GDP (Gross Domestic Product)

The economy of a country can have an impact on the profitability of banks and exchange rate is one factor that can affect the economy. Several studies have looked at the relationship between exchange rate and economy. A study conducted by Charles in 2006 suggested that exchange rate is a crucial tool for economic adjustment, but it can also be a controversial economic policy instrument. The study highlighted that a devaluation of the exchange rate can provide protection to domestic industry only if the domestic production cost increases less than the rate of depreciation, while the prices of imported goods increase by the full amount of the depreciation.

According to Obadan (2006), the exchange rate serves as a means to link the price systems of various countries, enabling traders to make direct price comparisons. When the exchange rate fluctuates, it can substantially impact a country's imports and exports by influencing the relative prices of goods.

According to Agu (2002) as cited in Adesola and Taiwo (2013), the most effective exchange rate policies should aim to stabilize the real exchange rate (RER) while maintaining both internal and external economic balance. Internal balance is defined as a level of economic activity that leads to controlled inflation and full resource employment, while external balance refers to a sustainable payment equilibrium and current account deficit financing through expected capital flow. Any disruption to the real exchange rate can lead to instability in both internal and external balance. Generally, exchange rates have a significant impact on import and export businesses and are an important tool for economic adjustment.

Chapter three

3. Research design and methodology

3.1. Introduction

In this chapter, we describe the methodology and structure of the research as well as provide a comprehensive overview of the research plan, factors considered, and the process of selecting participants. Additionally, we outline the tools utilized for conducting the study, methods used for gathering data, and procedures employed for analyzing the obtained information.

3.2. Research design

Research design is the way of organizing the process of gathering and analyzing data in a way that balances its significance to the research goal with efficiency in methodology. The importance of research design lies in its ability to streamline the research process and obtain the greatest amount of useful information while minimizing the expenditure of effort, time, and resources expended.(Kothari,2004)

A research design is a systematic approach used by researchers to effectively and efficiently address research questions in a valid, objective, accurate, and cost-effective manner. It serves two primary purposes: firstly, it involves determining the necessary procedures and logistical arrangements for conducting a study; and secondly, it emphasizes the significance of ensuring the quality of these procedures to maintain their validity, objectivity, and accuracy (Kumar, 2011). The objective of this study is to ascertain how foreign exchange rates are related to the financial performance of private commercial banks. The dependent variable in this research is the financial performance, while the independent variables include foreign exchange rates, interest rate, growth rate, and inflation rate. This study was conducted using an explanatory research design, which is useful for determining and assessing the cause-and-effect relationship between various variables being examined. This type of research design is especially effective for examining the relationship between dependent and independent variables. (Creswell, 2014)

3.3. Research approach

This research was conducted using the quantitative research method, which involves examining the relationship between variables to test hypotheses and theories. The variables are measurable

and data is analyzed using statistical procedures. The variables being studied can be measured, and data analysis is done using statistical methods. This definition of quantitative research is derived from Creswell's work in 2014.This study uses numerical data and statistics to analyze the casual relationship between multiple variables. Therefore, a quantitative methodology is considered suitable. The research design allows for the examination and interpretation of existing relationships and facilitates comparisons between the variables being studied. Determining the research approach for a study is based on the objective that needs to be achieved. If the problem identified involves factors that can be measured numerically, then a quantitative approach is appropriate. (Creswell, 2003). Quantitative approaches involve the use of statistical analysis to analyze performance data, attitude data, observational data, and census data (Creswell, 2009). As a result, the research employed a quantitative methodology to examine the effect of foreign exchange rate on the financial performance of private commercial bank of Ethiopia.

3.4. Target population

Diamantopoulos (2006) defines a population as a collection of items, from which a sample can be selected. The NBE (2015/16) report states that the merger between Construction & Business Bank and Commercial Bank of Ethiopia resulted in a decrease in the number of banks from 19 to 18. Out of these 18 banks, 16 were privately owned. Or According to the National Bank of Ethiopia's website, Ethiopia has a total of eighteen commercial banks that were registered by the NBE before 2014/15 E.C as of January 2022. These include both private commercial banks and two government-owned institutions, namely Development Bank of Ethiopia and Commercial bank of Ethiopia. The other sixteen private commercial banks are Awash International Bank, Bank of Abyssinia, Wegagen Bank, United Bank, Nib International Bank, Dashen Bank, Cooperative Bank of Oromia, Lion International Bank, Zemen Bank, Oromia International Bank, Buna International Bank, Berhan International Bank, Abay Bank, Addis International Bank, Debub Global Bank, and Enat Bank are the target population . This information is based on the report provided by NBE in 2019.

3.5. Sampling design and sample size determination

According to Kothari (2004), an effective sample design should be feasible in terms of both time and funds available for the research study. Therefore, for this particular study, the researcher utilized purposive sampling as it is a viable option within the constraints of available

time and funds. Among the banks listed, the researcher chose to focus on private commercial banks with relatively similar revenue, and selected individual data sources based on predetermined criteria. This sampling method is categorized as non-probability sampling because the researcher decides which data sources to include in the sample rather than using a random selection process.

The researcher had two specific criteria for selecting banks for the study. Firstly, only private commercial banks operating in Ethiopia were considered due to their comparable capital and revenue. Secondly, the banks had to have for more than six years of consecutive annual financial statement and years between 2001/02 and 2021/22 as the researcher deemed this duration to be adequate for the study. The total population consists of sixteen individuals, but for the purpose of the study, a sample size of eight is chosen. Purposive sampling, a non-probability technique, is employed to select samples from the overall population. Non-probability sampling is preferred over random sampling as it is deemed unsuitable for this particular study. The selected banks for the study were (Dashen Bank, Awash Bank, Bank of Abyssinia, United Bank, Nib Bank, Wegagen Bank, Lion International Bank, and Cooperative Bank of Oromia) as listed in the following table of June 30, 2018 there is a record of commercial banks that were sampled.

Table 1.1

s/no	Bank Name	Year of Establishment	Establishment Capital (in Million)	Owner ship
1	Cooperative bank of Oromia	2004 E.C. (2012 G.C.)	386 Million	private
2	Dashen Bank	1995 E.C. (2003 G.C.)	375 Million	private
3	Lion international bank	2006 E.C. (2014 G.C.)	420 Million	private
4	Awash Bank	1984 E.C. (1992 G.C.)	150 Million	private
5	Bank of Abyssinia	1994 E.C. (2002 G.C.)	300 Million	private
6	United Bank	1999 E.C. (2007 G.C.)	232 Million	private
7	Nib Bank	1999 E.C. (2007 G.C.)	341 Million	private
8	Wegagen Bank	1997 E.C. (2005 G.C.)	200 Million	private

3.6. Data collection procedures and instruments

The research analyzed the performance of eight private commercial banks in Ethiopia from 2001/02 to 2021/22 using data from a secondary source. The researcher preferred this approach as it was cost-efficient or saves time, money and allowed for high-quality data collection. As noted by Saunders et al. (2007) and Gadise (2014), secondary data sources offer various benefits over primary data sources, such as time and cost savings. Eight banks operating in Ethiopia during the period under the study were included in the panel data set.

In order to gather information for the research, the author used secondary data from the audited annual financial statements of private commercial banks in Ethiopia. This data included both bank-specific details found in annual reports and information on macroeconomic factors such as inflation and foreign exchange rate fluctuations which were obtained from annual report bulletins published by the National Bank of Ethiopia and the Ministry of Trade (previously known as MoFED).

3.7 Data Analysis and presentation

According to Kothari's (2004) recommendations, once data has been collected and sorted, it should be analyzed in accordance with the research plan's objectives. Therefore, we obtained secondary data from the annual financial statements of two Ethiopian commercial banks, NBE and Ministry of Trade, and used econometric software (Stata 11) to investigate the impact of exchange rates on the financial performance of private commercial banks in Ethiopia.

To reach or achieve the intended goals of the study, the primary methodology implemented involved the collection of panel data through a structured document review. This panel data was then analyzed using various statistical techniques, including descriptive statistics and multiple linear regression analysis. Mean values and standard deviations were utilized to examine broader trends in the data from 2001 to 2022, specifically within the industry samples of eight commercial banks. In this research, the OLS regression analysis method was utilized to determine the correlation between ROE (a measure of financial performance) and several factors including exchange rate volatility, inflation, bank size, growth rate and interest spread. The study explored multiple linear regressions to analyze the causal relationship between these variables. To accomplish this, Stata 11 econometric software was utilized to measure the connection between private commercial banks' financial performance and foreign exchange rate volatility.

This research focused on the analysis of data from private commercial banks in Ethiopia between 2001-2022. It utilized panel data procedures to investigate how exchange rates impact the financial performance of these banks. Panel data methodology was used to analyze data across various banks and time periods. The goal was to understand the effects of foreign currency exchange rates on the financial performance of private commercial banks in Ethiopia.

3.8. Empirical model

To investigate how volatile exchange rates impact on the financial performance of private commercial banks in Ethiopia, the researcher created a multiple regression model.

The researcher utilized multiple regression analysis as an analytical model in order to achieve the desired outcome of influencing foreign exchange rates. The research was based on the adaptation of Kairu's study conducted in 2016.

$$Y= \beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\beta 4X4 +€$$

Where:- Y= Financial performance/ Profitability of banks (ROE Dependent Variable)

β0 = Constant (Y- intercept)

β1=β4 Parameter coefficient

X1=Foreign exchange rate (exchange rate of United States Dollar to Birr)

X2= Interest rate spread (interest rates charged on loans ((Lending Rates) - interest rates paid on deposits or Interest rate on deposits)).

X3= consumer price index (Inflation rate)

X4= Growth rate (GDP)

€ = Error term

3.9. Operationalization and Measurement of variables

This section provides the explanation and quantification of the variables that are being studied, both the ones that depend on other factors and the ones that are not influenced by any other variables. The operational definition and measurement of dependent and independent variable are presented under this section.

3.9.1 Description of Research Variable

The regression model aims to assess the impact of exchange rate fluctuations on the financial performance of private commercial banks in Ethiopia. It seeks to determine the overall influence of exchange rate variations on the performance of these banks. The dependent variable in the model is specified as Return on equity (ROE), which is used to measure the financial performance of the banks. Additionally, four independent variables that correspond to each dependent variable have been identified and included in the model.

3.9.2 Dependent Variable

Return to Equity (ROE)

There are three main measurements for profitability: return on asset (ROA), return on equity (ROE), and net interest margin . The researcher selected Return on Equity (ROE) as the dependent variable because it signifies the proportion of net profit generated in relation to the equity of the bank. This measurement helps evaluate the bank management's ability to generate profits for shareholders and demonstrates how effectively they utilize shareholders' equity to generate returns. The information is derived from a study conducted by Hoyle et al. in 20

ROE evaluates the profitability of a company by examining how effectively it generates profits from its shareholders' equity. It assesses the company's ability to utilize investment funds for earnings growth. A favorable ROE falls within the range of 15% to 20%. ROE is calculated by dividing net income by total equity. (Fraker, 2006).

3.9.3. Independent variables

Exchange rate

In the study, the independent variable used by the researcher was foreign exchange rate to examine how it influences the financial performance of private commercial banks in Ethiopia. The official exchange rate of Ethiopian Birr (ETB) to United States Dollar (USD) was used for this purpose due to the USD being the primary trading currency in international trade. The researcher obtained data from the National Bank of Ethiopia's (NBA) annual average exchange rate ETB to USD report. According to some local researchers like Tadesse (2015), Amezenech (2018), Biruk (2012),and girum Demisse (2020), the effect of foreign exchange rate on the performance of commercial banks in Ethiopia is negative and significant. However, there are opposing views like Lake (2013), who found the effect of foreign exchange rate to be insignificant on bank performance, and),kidist eshetuTufa(2018) ,and Bereket Agaza(2021) positive significance relationship.

Interest rate spread

In this particular research, the researcher utilized the interest rate spread as an independent variable to determine the impact of the foreign currency exchange rate on the financial performance of private commercial banks in Ethiopia. The researcher calculated the interest rate spread of each bank by deducting the minimum deposit rate from the maximum loan rate. From the literature review, it was discovered that the lending interest rates had statistically insignificant which was conducted by Lake (2013) and girum Demisse (2020) and significant negative effects on the profitability of banks in Ethiopia according to studies conducted by Tadesse (2015).

Inflation rate

The study's independent variable was the inflation rate, which was used to measure the impact of foreign currency exchange rates on the financial performance of private commercial banks in Ethiopia. To determine the inflation rate, the researcher relied on the consumer price index,

which reflects the average cost of goods and services purchased by a typical consumer. The data for the study was obtained from the annual average CPI report published by the MOT (ministry of transportation). Previous research by Ahmed (2015) has demonstrated that inflation can have a detrimental effect on bank performance.

Gross Domestic Product (GDP)

The growth rate of the economy, known as GDP, is a widely used macroeconomic indicator that measures the overall economic activity within a country. The increase in GDP per capita is anticipated to have a positive effect on banks' profitability, as supported by extensive research on the relationship between economic growth and the performance of the financial sector.

According to Rao and Lakew's (2012) study, the profitability of banks is positively impacted by GDP. Other studies, including Salas and Suarina (2002) and Rajan & Dhal (2003), have found a negative correlation between real GDP growth and non-performing loans (NPLs). This is because a higher growth in real GDP usually results in increased income, which enhances the borrower's capability to repay loans and subsequently reduces NPLs. Additionally, GDP influences the loan growth of banks, which is why changes in real GDP are considered independent variables in the two models.

Demirguc-Kunt and Huizinga (1999) found that countries experiencing rapid economic growth tend to see increased profitability. GDP, which measures the overall economic activity of a country, captures both the upswings and downswings in the business cycle. As a result, changes in the general activity level of the economy are expected to directly affect the profitability of banks. In empirical studies, researchers often use two versions of GDP. The first is cyclical output, which measures the deviation of GDP from a filtered version of GDP. The second is GDP per capital, which takes into account the level of economic development.

The table below shows how different variable indicators will be measured which assists in data analysis.

Table: 1.2 measurements of Variables

Variable type	*Variable*	*Measurement*	*Measurement scale*	*Data source*
Dependent variable	*Return on Equity (ROE) Y*	*We evaluated financial performance by analyzing the ROE ratio of banks. This metric served as our measuring tool(net income /total equity)*	*Ratio*	*Secondary data*
Independent Variables	*Exchange rate (X1)*	*This was determined based on the yearly rate of exchange between USD and ETB*	*Rate*	*Secondary Data*
	Interest Rate Spread(X2)	*The assessment was conducted by subtracting the interest rate for borrowing from the interest rate for depositing.*	*Rate*	*Secondary Data*
	Inflation(X3)	*The measurement was based on the average yearly Consumer Price Index.*	*Rate*	*Secondary Data*
	Gross rate (GDP)(X4)	*This is figured out by adding together the amount of money spent on personal consumption, business investments, government spending, and subtracting the amount spent on imports from the amount earned from exports*	*Rate*	*Secondary Data*

3.10 Validity and reliability or Diagnostic tests on CLRM assumption

To ensure the accuracy of the parameters, diagnostic tests were conducted to assess normality, multicollinareity, heteroskedasticity, and autocorrelation. On the assumptions of the classical linear regression model. These included assessing for heteroskedasticity, multicollinareity, autocorrelation, and normality.

Normality

Normality was assessed through the degree of skewness and kurtosis. The classical linear regression model assumes that the residual component of the model is normally distributed. However, OLS estimators remain best linear unbiased estimators regardless of whether the error terms are normally distributed or not, as highlighted by Gujarati (2004). These estimators are asymptotically normally distributed, with means equal to the corresponding true coefficients (*B's)*, given that the disturbances are independently and identically distributed with a mean of zero and constant variance, and the explanatory variables remain constant in repeated samples.

Heteroskedasticity

Heteroskedasticity, which occurs when the variance of error terms is not constant, was tested using the Whites test. In (Gujarati, 2004), it is mentioned that heteroskedasticity refers to a scenario where the variability of errors is not consistent. This violates a crucial assumption of classical linear regression. To identify heteroskedasticity, the study utilized the Whites test. The issue with persisting to utilize data affected by heteroskedasticity is that any conclusions or inferences drawn from it will be deceptive.

Multi-co linearity

Multi-collinearity is a term used to describe when there is a perfect linear relationship between one or more explanatory variables in a regression model. This can be detected by examining the correlation matrix, where a correlation coefficient above 0.8 indicates a high level of multi-collinearity. In such cases, one solution is to remove a variable with a high R-squared value, or alternatively, no action may be taken. (Gujarati, 2004).Multicollinareity, which can lead to erroneous conclusions about the relationship between dependent and predictor variables, was checked using the Variance Inflation Factor and tolerance degree.

Auto-correlation

The study also tested for autocorrelation using the Durbin Watson test to ensure that the distribution errors were uncorrelated and independent of one another. Brook (2008) recommended this test for detecting serial correlation among error terms. Serial auto-correlation occurs when the fundamental assumption that residuals (or errors) are independent of each other is violated. This is particularly common in time series data, where consecutive residuals tend to have a strong correlation. In cross-sectional data, there can also be a correlation between residuals of neighboring units. The Durbin-Watson test is a method used to detect autocorrelation. Typically, a Durbin Watson statistic close to two is considered acceptable, although there are certain ranges where autocorrelation can be classified as positive, negative, or insignificant. Brook (2008).

3.11. Ethical consideration

The research was carried out with a focus on ethical accuracy. This involved informing the participants about the purpose of the study and how the information would be used, as well as ensuring that any data collected would be kept strictly confidential (zikmund, 2000). Additionally, the researcher made a point to share the results of the research with the participants. This was done to ensure that the participants' personal information was held in a way that made them feel comfortable and secure when expressing their thoughts.

CHAPTER FOUR

DATA ANALYSIS AND INTRPRETATION

4.1 introductions

The previous chapter detailed the research methods utilized in the study. This chapter focuses on analyzing and interpreting the impact of foreign currency exchange rate fluctuations on the financial performance of the banking sector in Ethiopia. The study utilized annual balanced panel data, where all variables were observed for each cross-section and time period. The time series analysis covered the period from 2001 to 2022, and the cross-section analysis considered eight private commercial banks. The chapter is divided into four sections. The first section examines descriptive statistics and correlation analysis. The second section presents the model specification and tests for the assumptions of the classical linear regression model. The third section discusses the results, and the chapter concludes with a summary. And the study involves conducting diagnostic tests to assess heteroskedasticity, multi-collinearity, and the specification of the data. The data for the study is gathered from secondary sources, specifically from the National Bank of Ethiopia, focusing on macroeconomic variables. Additionally, the annual financial reports of the banks included in the study are also utilized. The data spans twenty one - year period, ranging from 2001 to 2022.

4.2. Descriptive statistics

In this study, the descriptive statistics of both the dependent variable (bank profitability, measured as Return on Equity or (ROE) and the independent variables were analyzed. The independent variables included foreign currency exchange rate (changes in the exchange rate between the Ethiopian Birr and the United States Dollar) , the interest rate spread (the difference between lending rates and interest rates on deposits), inflation (measured by the Consumer Price Index), and the GDP (growth domestic product) measures the total value of all goods and services produced within a country's borders during a specific period of time

Table 4.1 descriptive statistics of secondary data

```
sum ROE USDBIRR IRSPREAD GDP INFL

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         ROE |       176    .2428131    .1084697      -.0356       .522
     USDBIRR |       176      19.425    12.59452        8.33       49.56
  IRSPREAD |       176    .0698375    .0190853         .01      .0975
         GDP |       176    .0868955    .0342826      -.0209       .1264
        INFL |       176    .1301364    .1095012       -.011        .364
```

Stata version 14.2 results

Table 4.1 displays the descriptive analysis of the study variables during the study period. The Return on Equity (ROE) obtained by dividing Net Income before Tax (NIBT) by Total Capital has an average of 24.28%. This indicates that Ethiopian private commercial banks, on average, earned 24.28% for every birr invested, showcasing good performance. The range of ROE values ranged from -2.1% to 52.2%, with the most and least profitable banks earning 52.2% and -2% return on investment, respectively. The relatively low standard deviation of 10.48 percent suggests that the majority of observations are clustered around the mean ROE value, indicating consistent performance among the banks.

The initial variable examined in the study was the Exchange Rate, with an average of Birr 19.43 per USD, a minimum of 8.33 Birr per USD, and a maximum of 49.56 Birr per USD. The standard deviation for this variable was Birr 12.6 per USD. This statement is referring to the variable of Exchange Rate in a study. An average Exchange Rate of Birr 19.43 per USD means that, on average, 1 USD is equivalent to 19.43 Birr. The minimum Exchange Rate of 8.33 Birr per USD indicates the lowest exchange rate observed in the study, while the maximum Exchange Rate of 49.56 Birr per USD represents the highest exchange rate observed over the past twenty one decades (2001-2021) and The standard deviation of Birr 12.6 per USD shows the variability or fluctuation of the Exchange Rate data around the average. A higher standard deviation means

that the data points are more fluctuation out from the average, which indicates greater volatility in the Exchange Rate. In this case, the standard deviation of Birr 12.6 per USD suggests that the Exchange Rate values in the study have a moderate amount of variability around the average Birr 19.43 per USD.

The second variable examined in the study was the spread between interest rates (mainly lending and saving rates) at Ethiopian private commercial banks. The spread ranged from minimum 1% to maximum 8.3%, with an average of 6.35% and a standard deviation of 2.03%. This indicates that, on average, Ethiopian private commercial banks earned a profit of 6.35% on each birr they lent. According to A. Onour and R. Maghyereh (2016) explain that a higher standard deviation indicates greater dispersion in the data, while a lower standard deviation suggests a more uniform set of values or more consistent. The standard deviation of 2.03% indicates the degree of variation or dispersion of interest rate spreads among Ethiopian private commercial banks. Accourding to A. Onour and R. Maghyereh (2016) A higher standard deviation indicates that there is more variability in the interest rate spreads, while a lower standard deviation indicates that the interest rate spreads are more consistent. In this case, with a standard deviation of 2.03%, it can be inferred that there is moderate variability in the interest rate spreads among Ethiopian private commercial banks.

The third independent variable used for the study was GDP (growth domestic product) had a minimum of -2.09% and maximum of 12.64%, standard deviation 3.4 % and a mean of 8.7%

Based on the information provided, it can be interpreted that GDP has a significant impact on bank profitability. The range of GDP values from -2.1 % to 12.64% suggests that economic growth fluctuates over time, which can influence the profitability of banks. a period of economic growth, where GDP is at its peak. In such times, businesses thrive, leading to increased lending, investment, and overall economic activity. This could positively influence bank profitability as there is a higher demand for financial services. However, the negative minimum value of -2.1% suggests that there were also periods of economic contraction when bank profitability may have been impacted negatively. A higher GDP, as indicated by the mean of 8.7%, can lead to increased economic activity and higher levels of borrowing, which typically results in higher profits for banks. Or A mean GDP value of 8.7% indicates that, on average, the economy was growing, which can lead to increased lending opportunities for banks and potentially lead to

higher interest rates. This could result in increased profitability for banks. However, the standard deviation of 3.4% indicates that there is variability in the relationship between GDP and bank profitability, suggesting that other factors may also play a role. This variability in the relationship between GDP and bank profitability indicates that there are factors beyond just GDP that influence how profitable banks are. These factors could include market conditions, regulatory environment, competition among banks, interest rates, inflation, and other economic variables. This variability means that the relationship between GDP and bank profitability is not fixed, and banks may experience different levels of profitability even when the GDP grows or shrinks by the same percentage Overall, a strong GDP growth rate is generally positive for bank profitability, but fluctuations in economic conditions can impact their financial performance

The fourth factor examined in the study was the **inflation rate**, measured by the consumer price index. The inflation rate ranged from a minimum of -1.1% and a maximum of 36.40%, with a standard deviation of 10.95% and a mean of 13.01%.

However, the statement also mentions that the minimum inflation rate is -1.1%, which suggests deflation (a decrease in prices) rather than inflation (an increase in prices). It is important to clarify whether this negative inflation rate is included in the average calculation. Additionally, the maximum inflation rate of 36.40% indicates a period of high inflation, which would have a significant impact on the purchasing power of money, and The statement mentions that the average inflation rate over the last 21 years is 13.01%, which means that prices have increased by an average of 13.01% each year. This would imply that the purchasing power of money has decreased by this amount on average each year. In summary, the interpretation of the inflation rate data should consider both the average rate of inflation and any periods of deflation or high inflation that may have occurred during the 21 -year period.

4.3. Diagnostic tests

This portion presents and examines the findings of Diagnostic tests. The purpose of these tests was to ensure the validity of the quantitative evaluation by assessing the assumptions of classical linear regression models. These assessments included examining heteroskedasticity, multicollinareity, autocorrelation, and conducting a normality test.

4.3.1 Heteroskedasticity test

One of the assumptions of the classic linear regression model (CLRM) is that the errors have constant variance, which is called homoscedasticity. However, when the variance of the error term is not constant, it is referred to as heteroskedasticity. Having heteroskedasticity invalidates the standard errors and can lead to misleading conclusions. To determine if heteroskedasticity is present, researchers commonly use the White test, as described by Brooks in 2008. If the p-value is greater than 0.05, we fail to reject the null hypothesis at a 5% significance level.

Table 4.2 illustrates the examination of heteroskedasticity through the white test using secondary data

```
estat hettest
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of ROE
        chi2(1)      =     2.42
        Prob > chi2  =   0.1196
```

As shown the table above the p-value (0.1196) is greater than the commonly used significance level of 0.05, you fail 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 0.1196 suggests that there is insufficient evidence to reject the null hypothesis of constant variance. Therefore, based on this test, you do not have significant evidence to conclude that there is heteroskedasticity in the model using the fitted values of ROE (Return on Equity).

4.3.2 Multi -collinearity test

This assumption deals with the connection between explanatory variables. When using the OLS estimation method, a hidden assumption is that the explanatory variables are not correlated with each other (Brooks, 2008). Conversely, multicollinareity refers to a linear relationship between explanatory variables, which may introduce bias in the regression model (Gujarati, 2004). Therefore, a correlation matrix of the explanatory variables was utilized to examine the presence of multicollinareity. Hair et al. (2006) stated that correlation coefficients below 0.9 are not likely to cause significant multicollinareity issues. Additionally, the variance of inflation factor (VIF) was used to test for the presence of this problem. If the VIF showed a value above 10, it would

indicate that the regression results might be affected by multicollinareity (Gujarati, 2004). In this particular study, there was no evidence of multicollinareity as indicated by the results presented in tables 4.3 and 4.4. The maximum correlation was 0.3185 and the mean VIF was 1.20, both of which were below the established thresholds of 0.9 and 10, respectively. These findings increase the reliability of the regression analysis.

Table 4.3 presents a correlation table for the independent variables

. corr USDBIRR irspread GDP INFL

(obs=176)

	USDBIRR	irspread	GDP	INFL
USDBIRR	1.0000			
irspread	0.2733	1.0000		
GDP	-0.1827	-0.1807	1.0000	
INFL	0.3185	-0.0184	0.2229	1.0000

Table 4.4 variance inflation factor

vif

Variable	VIF	1/VIF
USDBIRR	1.29	0.775214
INFL	1.23	0.811856
GDP	1.15	0.868262
irspread	1.11	0.902075
Mean VIF	1.20	

4.3.3 Normality test

According to Brooks (2008), it is necessary to meet the assumption of normality in order to conduct a hypothesis test on the model parameters. 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.

Table 4.5 presents the results of the Jarque-Bera test, which assesses the normality of a dataset

```
ktest ROE

        Skewness/Kurtosis tests for Normality ------ joint ------
    Variable |       Obs      Pr(Skewness)    Pr(Kurtosis)    adj chi2(2)     Prob>chi2
-------------+-------------------------------------------------------------------------------
         ROE |       176          0.6946          0.5959           0.44           0.8026
```

In Table 4.6 the kurtosis and skewness tests were conducted to assess the normality of the data.

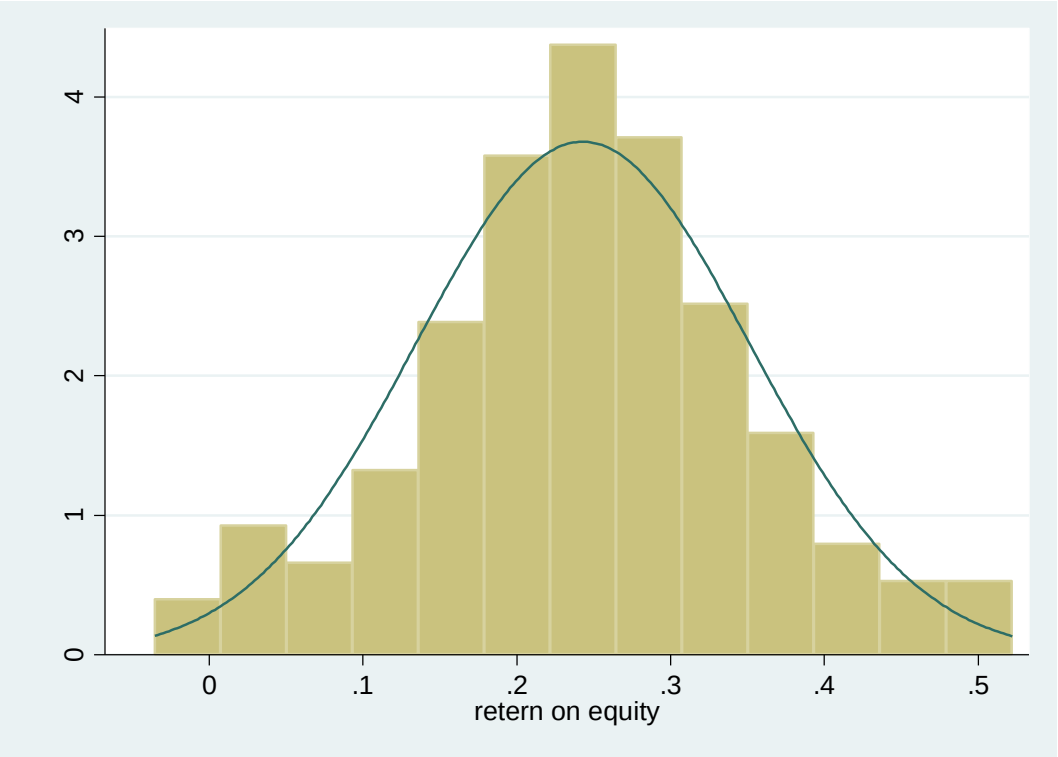
```
sum ROE,detail

                        ROE
-------------------------------------------------------------
      Percentiles      Smallest
 1%     -.0203          -.0356
 5%      .032           -.0203
10%      .1037          -.0126          Obs                 176
25%      .18325          .0115          Sum of Wgt.         176
50%      .2398                          Mean                .2428131
                        Largest         Std. Dev.           .1084697
75%      .30945         .4887
90%      .3842          .4906          Variance            .0117657
95%      .4174          .4922          Skewness            -.0698595
99%      .4922          .522           Kurtosis            3.101575

histogram ROE , normal

(bin=13, start=-.0356, width=.04289231)
```

Table 4.7 presents a histogram illustrating the residuals of the secondary data.



.

Source stata 14.2

According to the data in tables 4.5, 4.6, and 4.7, the histogram of the residuals appears to be bell-shaped. The Bera-Jarque statistic yielded a p-value of 0.8026, which is greater than the significance level of 0.05. This indicates that we cannot reject the null hypothesis that the residuals are normally distributed. Additionally, the kurtosis and skeweness values from table 4.6 were close to the ideal values of 3 and 0, with a kurtosis of 3.101575 and skewness of -0.069859. Therefore, it can be concluded that the residuals were normally distributed around the mean in the ROE model, and there were no issues with normality.

4.3.4 Autocorrelation

According to Brooks (2008), the third assumption of the CLRM states or posits that the errors in the model should be uncorrelated with each other over time or across different data points. If the errors are correlated, it is referred to as autocorrelation or serial correlation. In order to examine the impact of exchange rate volatility on the profitability of Ethiopian private commercial banks, measured by ROE, a total of 176 observations (8*22) were included in the regression analysis. The study employed the Durbin Watson test to determine the presence of autocorrelation among the error terms.

Table 4.8 presents the Durbin Watson Test which measures serial correlation in the data.

```
.tsset time
      time variable: time,1 to 176
            Delta: 1 unit
. estat dwatson
Durbin-watson d-statistic(5,176)= 1.350514
```

Source stata 14.2

The Durbin-Watson statistic, which falls within the range of 0 to 4, is used to detect autocorrelation in a dataset. A value near 2 suggests no autocorrelation, while values closer to 0 indicating positive autocorrelation and a value near 4 indicate negative autocorrelation. (Hair et al. 1998). In this study, with 176 data points and four independent variables, the Durbin-Watson statistic was calculated to be 1.35, suggesting that the null hypothesis of no autocorrelation cannot be rejected. Therefore, there was no evidence of autocorrelation among the error terms in this research.

4.4. Correlation analysis

The correlation between two variables determines how much they are linearly related. When it is said that y and x are correlated, it means that they are being treated equally. This does not imply that changes in x cause changes in y, or vice versa. It simply indicates that there is evidence of a linear relationship between the two variables, with movements in both being related to some extent as indicated by the correlation coefficient, which always falls between -1 and +1. A correlation coefficient of +1 suggests a perfect positive linear relationship, -1 a perfect negative linear relationship, and 0 signifies no linear relationship. In this research, Karl Pearson's

correlation coefficient was used to examine the connection between the variables being studied (Brooks, 2008).

Table 4.9 displays the correlation between the dependent and independent variable

Corr ROE USDBIRR Irspread GDP INFL
(obs=176)

	ROE	USDBIRR	irspread	GDP	INFL
ROE	1.0000				
USDBIRR	-0.1951	1.0000			
Irspread	-0.2562	0.2733	1.0000		
GDP	0.4561	-0.1827	-0.1807	1.0000	
INFL	0.1831	0.3185	-0.0184	0.2229	1.0000

Source : stata 14.2

According to the correlation matrix shown in Table 4.9, there is statistical evidence indicating that ROE is positively correlated with inflation rate and GDP, with correlation coefficients of 0.1831 and 0.4561, respectively. The data also suggests a negative correlation between ROE and foreign exchange rate, with a correlation coefficient of 0.1951, meaning that as the exchange rate increases, ROE tends to decrease. Additionally, the correlation coefficient of 0.2562 indicates a negative correlation between ROE and interest rate spread.

4.5 Model Specification: Fixed Effect vs. Random Effect

The study collected data using a panel data model, combining cross-sectional and time-series observations. The cross-sectional units considered were Awash Bank, Bank of Abyssinia, Dashen Bank, Nib Bank, United Bank, Wegagen Bank, Cooperative bank of Oromia and Lion international bank over a 22-year period from 2001 to 2022 when conducting regression analysis with panel data, researchers typically choose between fixed effects models and random effects models. Brooks (2008) outlines two primary approaches for conducting regression analysis using panel data in financial research: fixed effects models and random effects models. The choice between these approaches depends on whether the entities in the sample are considered to be randomly selected from the population (random effects model) or if they effectively represent the

entire population (fixed effects model). To determine which model is more appropriate, a Hausman test is typically conducted. The null hypothesis in the Hausman test posits or states that the random effects model is suitable, while the alternative hypothesis suggests that the fixed effects model is more appropriate. Based on the results displayed in Table 4.10, the Hausman test showed a p-value of 0.3870, 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 annual return on equity (ROE) and the explanatory variables: foreign exchange rate fluctuation, interest rate spread, inflation rate, and GDP

Table 4.10 Hausman Test of Model Selection between Random Effect and Fixed Effect

hausman fe re ---- Coefficients ----

| (b) | (B) | (b-B) | sqrt(diag(V_b-V_B))
| fe | re | Difference | S.E.

USDBIRR	-.0190048	-.0211122	.0021075	.0010192
Irspread	-1.030163	-.6142908	-.415872	.3022312
GDP	.1005287	.08 9539	.0109897	. 0053409
INFL	.0875014	.0623283	.0251731	.0117811

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(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 4.23
Prob>chi2 = 0.3870 .
(V_b-V_B is not positive definite)

4.6 regression analysis

In earlier sections, various tests were conducted to assess the adherence to the assumptions of the classical linear regression model. Descriptive statistics and correlation analysis were also provided for the variables. The following section outlines the comprehensive findings of the

regression analysis on the relationship between the foreign exchange rate and financial performance of private commercial banks

$$ROE = B_0 + B_1 * FERF_{it} + B2 * IRS_{it} + B3 * CPI_{it} + B4 * GDP_{it} + €it \ldots\ldots\ldots\ldots..2$$

Were the equation for the profitability of banks (Return on Equity) is determined by various factors, including B_0 = the constant (y-intercept), foreign exchange rate fluctuations (Ethiopian Birr against the United States Dollar), interest rate spread(lending rate-deposit on interest rate), inflation (Consumer Price Index), and GDP(growth domestic product). Additionally, there is an error term included in the equation. In this study, return on equity (ROE) was utilized as a standard in for measuring performance. The outcomes of the random effect regression analysis were displayed in the table provided.

Table 4.11 shows Results from Random Effect Regression Analysis

```
reg ROE USDBIRR Irspread GDP INFL
      Source |       SS              df          MS              Number of obs   =       176
-------------+------------------------------                       F(4, 171)       =     15.01
       Model | .535166357         4     .133791589              Prob > F        =    0.0000
    Residual | 1.52382662         171     .008911267              R-squared       =    0.5199
-------------+------------------------------                       Adj R-squared   =    0.5026
       Total | 2.05899298         175     .011765674              Root MSE        =     .0844
------------------------------------------------------------------------------
         ROE |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    USDBIRR |  -1.115385   .6435142    -1.73   0.085    -2.38564    .1548693
   Irspread |    -.85621   .3936677    -2.17   0.031    -1.633284   -.0791361
        GDP |   1.184698    .223384     5.30   0.000     .743753    1.625644
       INFL |   .1367771   .0723256     1.89   0.060    -.0059889    .279543
      _cons |   .2035304   .0364096     5.59   0.000     .1316603    .2754006
------------------------------------------------------------------------------
```

The Source of the data from Stata 14.2

According to Wooldridge (2012), R-squared is a measure of how well the independent variables explain the variation in the dependent variable. A high R-squared value, close to one, suggests that the independent variables have a strong correlation with the dependent variable and explain a large portion of its variation in the sample. Essentially, R-squared represents the percentage of

the dependent variable's variation that can be attributed to the independent variables included in the equation.

Brooks (2008) explains that the most commonly used measure of goodness of fit in statistics is R-squared. This statistic is calculated as the square of the correlation coefficient between the actual values of the dependent variable y and the predicted values ˆy from the model. The correlation coefficient ranges from -1 to +1, and since R-squared is the square of this value, it lies between 0 and 1. A high correlation indicates a good fit of the model to the data, while a low correlation suggests a poor fit. The adjusted R-squared takes into account the number of variables in the model and accounts for the loss of degrees of freedom when additional variables are added.

the R-squared value in the context of the regression analysis conducted. This means that the model developed based on the independent variables can predict about 51.99% of the variability in return on equity for private commercial banks in Ethiopia. The R-squared value of 0.5199 indicates that 51.99% of the variance in the model can be explained by the independent variables, while the remaining 48.01% of the variance is attributed to other factors not included in the model. This suggests that there are additional variables or factors influencing the return on equity in private commercial banks in Ethiopia that were not accounted for in the analysis. In summary, the factors included in the model, such as exchange rate, inflation rate, interest spread, and growth domestic product, effectively explain the impact of foreign exchange rate volatility on the financial performance of private commercial banks. Therefore, the model was found to be a suitable representation of the data.

The adjusted R squared value of 0.5026 suggests that the model, which includes one or more independent variables, is suitable for estimating the financial performance (ROE) of private commercial banks. This means that 50% of the variation in ROE can be explained by the independent variables included in the model, while the remaining 50% may be attributed to other factors not accounted for.

In a two-tail p-values test, the hypothesis is that each coefficient is statistically different from 0. In order to reject this hypothesis, the p-value must be less than 0.05 (or 0.10 if preferred by the researcher). If this condition is met, it can be concluded that the variable has a significant impact on the dependent variable in the study. In the above table, the p-values for the independent

variables such as exchange rate, interest rate spread, inflation rate, and growth domestic product were found to be 0.085, 0.031, 0.060, and 0.000 respectively. This indicates that the interest rate spread and growth domestic product variables are statistically significant at a 1% significance level, while the exchange rate and inflation rate variables were deemed to be insignificant.

The F-test, as described by Brooks (2008), is a statistical analysis that examines the variance of a regression. It assesses the significance of a group of variables or a restriction by conducting an analysis of variance (ANOVA). The null hypothesis in this case is that certain regression coefficients are all equal to zero. The results of the F-test in this study showed a statistical probability of 0.0000, indicating that the model was deemed reliable, valid, and statistically significant based on the decision criteria.

A. **Fluctuations in the exchange rate of the Ethiopian Birr in relation to the United States Dollar**

The study aimed to investigate the impact of foreign exchange rates on the financial performance of private banks in Ethiopia. The analysis used random effect regression and found that Exchange Rate had a coefficient of -1.115385 with a p-value of 0.085which is greater than 0.05 ,suggesting or indicating that it is statistically insignificant negative effect on the financial performance , at a 1% significance level when holding other variables constant at their average value.This finding suggests that, holding all other things constant, a 1 unit rise in the foreign exchange rate (indicating a depreciation of the Ethiopia Birr compared to the United States Dollar) leads to, on average, a -1.115385 decrease in the financial performance of private commercial banks, as measured by ROE. The connection between the foreign exchange rate and the Return on Equity (ROE) of Ethiopian private commercial banks is weak and not statistically significant at the 1% level, suggesting there is only a slight negative correlation.

The study's hypothesis that volatility in the exchange rate of the Ethiopia Birr against the US Dollar adversely affects the profitability of private commercial banks was confirmed through empirical research. The results showed that insignificant negative impact of foreign exchange rate fluctuations on profitability, specifically Return on Equity (ROE). Thus, the researcher validates the proposition that Foreign Exchange Rate does have a detrimental effect on ROE.

This result aligns with previous studies by Meanwhile; Lake (2013) found that exchange rates had not significant and negative impact on the profitability of commercial bank. The

insignificant adverse relationship between the foreign exchange rate and the rate of return on equity in the sampled commercial banks can be attributed to the depreciation of the local currency. This depreciation led to a shortage of foreign currency in many private commercial banks in Ethiopia due to increased demand for imports and debt repayment in foreign currency, insufficient export volumes, low income from remittances in foreign currency, and minimal earnings from service charges related to foreign transactions like Letter of Credit (LC) and Cash against Documents.

B. **interest rate spread**

The spread between lending and deposit interest rates, known as the Interest Rate Spread, represents the net cost of borrowing for individuals. According to the findings of a Random Effect Regression analysis, the coefficient for Interest Rate Spread is -.85621 with a p-value of 0.031. This suggests that, when all other variables are held constant, a one unit increase in the Interest Rate Spread leads to a 85% decrease in the Return on Equity (ROE) of private commercial banks on average. However, this impact was found to be statistically significant. Therefore, it can be concluded that while the Interest Rate Spread has a negative effect on the financial performance of private commercial banks, this effect is statistically significant at a 1% significance level.

Hence, the researcher reject s the previously proposed null hypothesis that a positive and significant correlation exists between interest rate spreads and returns on equity. This is based on the findings of the empirical study, which indicate that interest rate spreads have a significant and negative impact on profitability (ROE).

The significant negative relationship between interest rate spreads and Rate of Return on Equity of commercial private banks in Ethiopia may be due to the consistent devaluation of the local currency ETB over the past 21 years relative to major foreign currencies like USD. This depreciation has led to high inflation and interest rates in the country, making borrowing more expensive for customers. Consequently, high interest rates in the Ethiopian banking sector have deterred people from taking out loans. Or On the other hand, a high interest rate spread can also imply that there is increased risk in the financial system, which could lead to lower returns on equity for banks. This could be due to factors such as increased default rates on loans, economic instability, or regulatory changes affecting the banking sector. Therefore, the negative relationship between interest rate spreads and rate of return on equity of commercial private

banks in Ethiopia may suggest that while high interest rate spreads can lead to increased profitability for banks in the short term, it may also come with increased risks that can negatively impact the banks' overall financial performance in the long run.

C. **Consumer price index or inflation**

According to the Random effect regression results in table 4.11, the coefficient for Inflation rate is 0.1367771 with a P-value of 0.060. This suggests that when the Inflation Rate increases by one percent, the average return on Equity of sampled Ethiopian private commercial banks would increase by 13.7%, holding all other variables constant at their average values. However, this relationship is statistically insignificant at the 10% significance level. Therefore, there is a positive but insignificant relationship between Inflation Rate and ROE of Ethiopian private commercial banks.

The initial hypothesis that inflation rate has a negative and significant impact on profitability of private commercial banks was not supported by the findings of the study. In fact, the results showed that inflation rate has a positive and insignificant effect on profitability. Therefore, the researcher rejects the idea that inflation rate has a significant and negative relationship with return on equity.

The inflation rate in sampled commercial private banks in Ethiopia may be found to be insignificant and positive due to similar reasons as the interest spread. In instances of decreased purchasing power of money, banks may respond by raising interest rates for depositors, leading to increased cash flow and higher earnings for the banks.

The reason for the insignificant and positive inflation rate along with a positive Return on Equity for private banks in Ethiopia may be due to

- Efficient cost management: Commercial private banks may have implemented cost-control measures effectively, thus keeping their expenses low and allowing them to maintain a healthy profit margin despite inflation.
- Strong customer base: Commercial private banks may have a strong and loyal customer base, which allows them to generate consistent revenue streams even during periods of inflation. This can help them maintain a positive return on equity.
- Diversified revenue streams: Commercial private banks may have diversified their revenue streams by offering a range of financial products and services, such as loans, investments,

and insurance. This diversification can help mitigate the impact of inflation on their overall profitability.

- Effective risk management: Commercial private banks may have robust risk management practices in place, allowing them to identify and mitigate potential risks associated with inflation. This can help them protect their bottom line and maintain a positive return on equity.
- Strong regulatory compliance: Commercial private banks may have a strong track record of regulatory compliance, which can help them navigate changing economic conditions, including inflation. By adhering to regulatory requirements, they can maintain stability in their operations and profitability
- As the purchasing power of money decreases (leading to inflation), banks may respond by raising interest rates for depositors. This adjustment can result in an increase in the cash flow of banks, ultimately leading to higher earnings for the banks

D. **Gross domestic product**

The Random effect regression analysis in table 4.11 shows that a one percent increases in GDP is associated with a significant 118.5% increase in the average return on equity of sampled Ethiopian private commercial banks, when all other variables are kept constant at their average values. This relationship is statistically significant at the 10% level, indicating a positive and significant correlation between GDP and ROE for Ethiopian private commercial banks.

The initial hypothesis that GDP has a positive and significant impact on profitability of private commercial banks was supported by the findings of the study. In fact, the results showed that GDP has a positive and significant effect on profitability. Therefore, the researcher do not rejects the idea that GDP has a significant and positive relationship with return on equity.

The study confirmed the hypothesis that GDP positively and significantly affects the profitability of private commercial banks. The results indicated a clear and positive relationship between GDP and profitability, leading the researcher to support the idea or do not reject the notation that GDP has a significant and positive impact on return on equity.

The positive and significant connection between GDP and private banks' Return on Equity in Ethiopia could be attributed to

Firstly, as the overall economy grows and prospers, there is an increase in demand for financial services and products. This translates to higher revenues for private banks, which in turn can lead to an increase in their Return on Equity (ROE).

Secondly, a growing GDP often indicates a favorable business environment with improved market conditions. This can lead to increased investment opportunities for private banks, allowing them to expand their operations, introduce new products, and attract more customers. These factors can contribute to an increase in ROE for private banks.

Additionally, a higher GDP can result in increased consumer spending, leading to higher levels of deposits in private banks. This provides private banks with more funds to lend out and invest, which can generate higher returns and ultimately lead to an increase in their ROE.

Overall, a positive and significant connection between GDP and private banks' ROE in Ethiopia can be seen as a reflection of a strong and growing economy that creates favorable conditions for private banks to thrive and generate higher returns for their shareholders.

Chapter 5

Summary, conclusion and recommendation

5.1. Introduction

This chapter is divided into three parts: summary, conclusions, and recommendations, in that order. The summary section outlines the key components of the study, such as its objectives, methodology, and results. The conclusions section explores the main findings in relation to the study's objectives. Lastly, the recommendations section provides suggestions based on the conclusions drawn from the study.

5.2. Summary of findings

The study aimed to investigate the impact of foreign exchange rates on the financial performance of private commercial banks in Ethiopia, focusing on sixteen commercial banks. The researchers used purposive sampling to ensure data accuracy and reliability by collecting information from each bank. They analyzed secondary data obtained from the annual audited financial statements of private commercial banks, the National Bank of Ethiopia, and the Ministry of Finance. A multiple linear regression model was employed, with Return on Equity (bank profitability) as the dependent variable and foreign exchange rates, interest rate spread, inflation rate, and GDP or Gross domestic product as independent variables. Descriptive statistics were also utilized to provide detailed information on the variables studied. The data analysis was conducted using STATA 14.2 statistical software.

The researchers conducted a thorough diagnostic analysis of the collected data before performing regression analysis. They checked for multicollinareity, heteroskedasticity, normality, and autocorrelation to ensure that the classical linear regression model and Ordinary Least Squares (OLS) assumptions were valid. The STATA 14.2 software package was used to carry out these diagnostic tests. The study concluded that regression analysis was the most suitable method for analyzing the financial data. Additionally, the descriptive statistics revealed key statistical values of the secondary data. It was confirmed that the data met the assumptions required for OLS, including homoscedasticity, absence of autocorrelation, absence of multicollinareity, and normally distributed residuals.

The study's random effect regression analysis revealed a notable and adverse association between the fluctuation of the foreign exchange rate (specifically, changes in the Ethiopia Birr against the United States Dollar) and the financial performance of private commercial banks. This indicates that as the exchange rate against the USD rises, the return on equity (ROE) of private commercial banks tends to decrease, with statistical insignificance observed at the 1% level. This finding underscores the importance of exchange rate variations as a critical factor influencing the financial performance of commercial banks.

The random effect regression analysis confirmed that the connection between the interest rate spread and the financial performance of private commercial banks, specifically the return on equity (ROE), was negative and statistically significant. This indicates that as the interest rate spread (the difference between lending and deposit rates) rises, the ROE of private commercial banks in Ethiopia tends to decline, with in a statistically significant manner. This suggests that high interest rates in the Ethiopian banking sector have led to increased borrowing costs for these banks.

Essentially, high interest rates in the Ethiopian banking sector make borrowing expensive for customers, which may deter people from taking out loans. The random regression findings indicated that although there is a positive correlation between inflation rate and Return on Equity for private commercial banks, the relationship is not statistically significant. This suggests that an increase in inflation rate may lead to an improvement in financial performance, as measured by ROE, for private commercial banks, but this relationship is not statistically significant

This research aimed to investigate how exchange rate fluctuations impacted the financial performance of commercial banks in Ethiopia. The study examined the effects of inflation rates, interest rate spreads, foreign exchange rate fluctuations, and the GDP on the financial performance of private commercial banks in Ethiopia from 2001 to 2022. The findings of the study led to the conclusion of several key points.

5.3. Conclusion

This research aimed to investigate how exchange rate fluctuations impacted the financial performance of commercial banks in Ethiopia. The study examined the effects of inflation rates, interest rate spreads, foreign exchange rate fluctuations, and the GDP on the financial performance of private commercial banks in Ethiopia from 2001 to 2022. The findings of the study led to the conclusion of several key points.

Interest rate spread:-due to the fact that interest rate spreads represent the difference between the rates at which banks borrow and lend money. When interest rate spreads are high, it can indicate that banks are charging higher interest rates on loans compared to what they are paying on deposits, leading to higher profitability for the bank.

On the other hand, a high interest rate spread can also imply that there is increased risk in the financial system, which could lead to lower returns on equity for banks. This could be due to factors such as increased default rates on loans, economic instability, or regulatory changes affecting the banking sector.

Therefore, the negative relationship between interest rate spreads and rate of return on equity of commercial private banks in Ethiopia may suggest that while high interest rate spreads can lead to increased profitability for banks in the short term, it may also come with increased risks that can negatively impact the banks' overall financial performance in the long run. As such, it is important for banks to carefully manage their interest rate spreads in order to maintain a healthy level of profitability and mitigate risks in the financial system.

Foreign exchange rate:-in conclusion, the study on the impact of foreign exchange rates on the financial performance of private banks in Ethiopia revealed that there is a statistically insignificant negative effect of exchange rate fluctuations on the Return on Equity (ROE) of these banks. The regression analysis showed that a 1 unit rise in the foreign exchange rate (indicating a depreciation of the Ethiopia Birr) led to a decrease in ROE. This result confirms the hypothesis that volatility in the exchange rate adversely affects profitability.

The findings are consistent with previous research by Lake (2013) but also indicate that the relationship between exchange rates and ROE in Ethiopian private commercial banks is weaker and less significant. The depreciation of the local currency has led to challenges such as a shortage of foreign currency, increased demand for imports, and low income from remittances

and foreign transactions. These factors have contributed to the minimal impact of foreign exchange rate fluctuations on the profitability of private banks in Ethiopia.

Inflation rate: - the study found that there is a positive but statistically insignificant relationship between inflation rate and return on equity for sampled Ethiopian private commercial banks. The initial hypothesis that inflation rate has a negative and significant impact on profitability was not supported by the findings The insignificant and positive effect of inflation rate on profitability may be attributed to efficient cost management, a strong customer base, diversified revenue streams, effective risk management practices, and strong regulatory compliance within the sampled private commercial banks in Ethiopia. Overall, the study suggests that Ethiopian private commercial banks have been able to navigate the effects of inflation and maintain profitability through various strategic measures.. Overall, the findings suggest that these banks are able to navigate the challenges of inflation and maintain a positive return on equity through various strategic measures.

GDP (gross domestic product):- the study confirmed that GDP has a significant and positive impact on the profitability of private commercial banks in Ethiopia. The findings suggest that as the overall economy grows, there is an increase in demand for financial services, leading to higher revenues and increased profitability for private banks. The positive relationship between GDP and return on equity can be attributed to various factors such as improved market conditions, increased investment opportunities, and higher levels of consumer spending. These findings highlight the importance of a strong and growing economy in creating favorable conditions for private banks to thrive and generate higher returns for their shareholders and contribute to the overall success of private banks in Ethiopia.

Moving forward, policymakers and stakeholders in the banking sector should continue to monitor the relationship between GDP and private banks' profitability, and take actions to support the growth and development of the economy in order to ensure a favorable environment for private banks to thrive and continue generating higher returns for their shareholders.

5.4 recommendations

Based on the results of the study, the researcher suggested the following recommendations regarding the foreign exchange rate, interest rate, inflation rate, and GDP.

Foreign exchange rate:- Based on the findings of the study, it is recommended that private banks in Ethiopia closely monitor and manage their exposure to foreign exchange rate fluctuations. Some Specific recommendations include implementing hedging strategies, diversifying revenue streams, improving risk management practices, enhancing foreign currency reserves, collaborating with regulators, investing in capacity building, and continuously monitoring and analyzing the foreign exchange market. These measures are essential to mitigate the impact of currency fluctuations on the financial performance of private banks in Ethiopia. Overall, the findings of the study highlight the importance of managing foreign exchange rate risk effectively to safeguard the financial performance of private banks in Ethiopia. By taking proactive measures and implementing the recommendations outlined above, banks can better position themselves to navigate the challenges posed by exchange rate fluctuations and sustain their profitability over the long term.

Interest rate spread: - Based on the findings of the study regarding the negative impact of interest rate spreads on the Return on Equity (ROE) of private commercial banks in Ethiopia, it is recommended that banks monitor and manage their interest rate spreads effectively, diversify revenue streams, enhance risk management practices, improve efficiency and cost management, stay informed and adapt to market changes, regularly monitor and evaluate performance, and collaborate with stakeholders to promote financial stability.

By implementing these recommendations, private commercial banks in Ethiopia can work towards mitigating the negative impact of interest rate spreads on their profitability and ultimately enhance their overall financial performance. While high interest rate spreads may pose challenges for private commercial banks in Ethiopia, proactive measures can be taken to mitigate their negative impact and ensure sustainable financial performance in the long run. By implementing the above recommendations and adapting to the changing economic landscape, banks can navigate challenges effectively and thrive in a competitive market environment

Inflation rate:-Based on the findings of the study, it is recommended that Ethiopian private commercial banks continue to focus on efficient cost management, strengthening their customer

base, diversifying revenue streams, implementing effective risk management practices, and maintaining strong regulatory compliance. These measures have proven to be effective in mitigating the impact of inflation on profitability.

Overall, the study highlights the resilience of Ethiopian private commercial banks in the face of inflation and emphasizes the importance of strategic management practices in maintaining financial performance. It is important for banks to continue to adapt and evolve their strategies to effectively navigate the challenges posed by inflation in order to ensure long-term success and sustainability.

Additionally, private commercial banks should monitor inflation rates closely and adjust their interest rates accordingly to maximize their earnings during periods of inflation. They should also continue to invest in technology and innovation to improve operational efficiency and customer satisfaction, which can help offset the negative effects of inflation on profitability.

It is also recommended that further research be conducted to explore the impact of inflation on the banking sector in Ethiopia, taking into consideration other macroeconomic factors and external influences. This will provide a more comprehensive understanding of how inflation affects the financial performance of private commercial banks in the country and enable them to develop more effective strategies for managing inflation-related risks.

Gross domestic product: - Based on the findings of the study and the positive and significant relationship between GDP and return on equity for private commercial banks in Ethiopia it is recommended that they closely monitor and analyze the country's economic performance to anticipate changes in financial service demand. Expanding operations and introducing new products in line with economic growth, prioritizing customer acquisition and retention, and collaborating with stakeholders can help private banks capitalize on opportunities for increased profitability. Additionally, policies promoting investment and consumer spending support for expanding services into underserved markets, and investment in financial education can further enhance profitability. Strengthening regulatory frameworks to ensure transparency, stability, and efficiency in the banking sector will also support the growth and sustainability of private banks in Ethiopia.

By implementing these recommendations, private commercial banks in Ethiopia can strengthen their position in the market, drive sustainable growth, and maximize returns for their shareholders and stakeholders

5.5. Ideas or suggestion for additional or further study.

To achieve the study's goal, the researcher analyzed macro-economic variables like interest rate spread, exchange rates, inflation, and GDP (gross domestic product). However, it is important to consider additional variables like government policies and bank specific factors, these variable factors include bank size, capitalization, asset composition, operational efficiency and management efficiency in future studies. Furthermore, the study was limited to the banking industry, but research in other sectors such as manufacturing, agriculture, and tourism could provide valuable insights for policy-making. It is also recommended to conduct studies at different time frames to observe potential changes. This study highlights the importance of examining foreign exchange rate risks and risk management in various industries for a comprehensive understanding.

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Appendices

Appendix I descriptive statistics of secondary data

```
sum ROE USDBIRR IRSPREAD GDP INFL
    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         ROE |       176    .2428131    .1084697     -.0356       .522
     USDBIRR |       176      19.425    12.59452       8.33      49.56
  IRSPREAD   |       176   .0698375    .0190853        .01      .0975
         GDP |       176   .0868955    .0342826     -.0209      .1264
        INFL |       176   .1301364    .1095012      -.011       .364
```

Source stata 14.2

Appendix II : examination of heteroskedasticity through the white test using secondary data

```
estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of ROE
         chi2(1)      =     2.42
         Prob > chi2  =   0.1196
```

Source stata 14.2

Appendix III: presents a correlation table for the independent variables

```
. corr USDBIRR irspread GDP INFL
(obs=176)
             | USDBIRR  irspread       GDP      INFL
-------------+------------------------------------------------
  USDBIRR| 1.0000
    irspread |   0.2733    1.0000
         GDP |  -0.1827   -0.1807    1.0000
        INFL |   0.3185   -0.0184    0.2229    1.0000
```

Source stata 14.2

Appendix IV variance inflation factor

```
vif
    Variable |       VIF         1/VIF
-------------+----------------------------------
     USDBIRR |      1.29        0.775214
        INFL |      1.23        0.811856
         GDP |      1.15        0.868262
    irspread |      1.11        0.902075
-------------+----------------------------------
    Mean VIF |      1.20
```

Source stata 14.2

Appendix V: represents normality test

```
ktest ROE
        Skewness/Kurtosis tests for Normality ------ joint ------
    Variable |       Obs       Pr(Skewness)   Pr(Kurtosis)   adj chi2(2)    Prob>chi2
-------------+-------------------------------------------------------------------------------
         ROE |       176          0.6946         0.5959           0.44          0.8026
```

Source stata 14.2

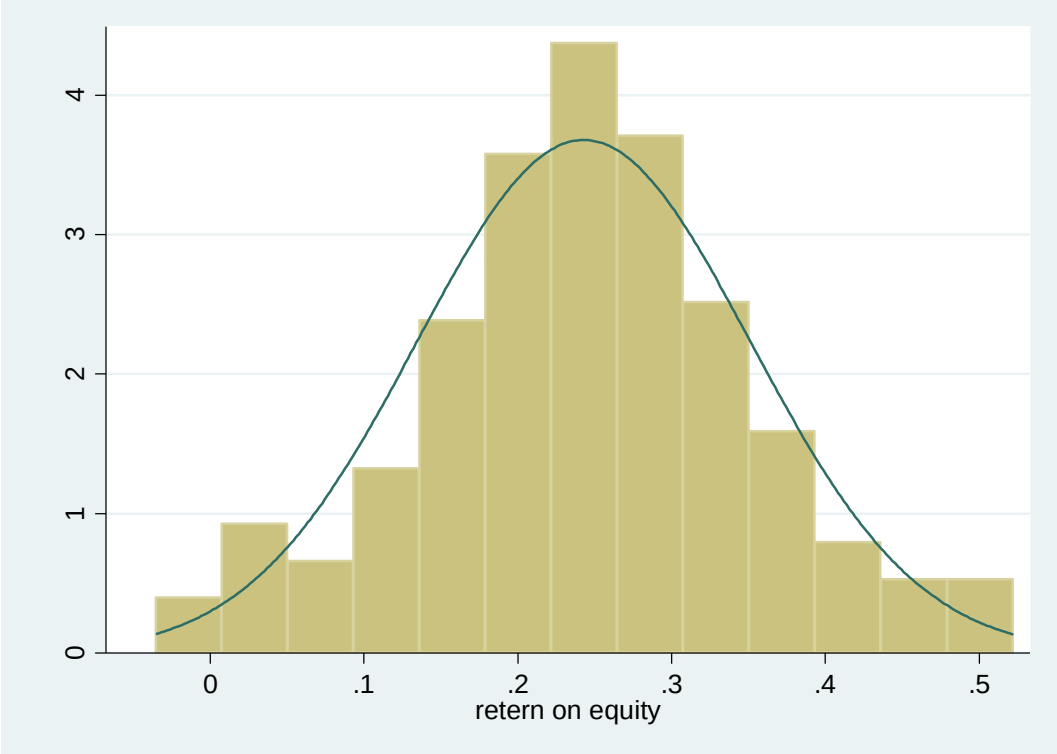
Appendix VI: the kurtosis and skewness tests were conducted to assess the normality of the data.

```
sum ROE,detail
                        ROE
-------------------------------------------------------------
      Percentiles      Smallest
 1%      -.0203       -.0356
 5%        .032       -.0203
10%       .1037       -.0126              Obs                 176
25%      .18325         .0115             Sum of Wgt.         176
50%       .2398                           Mean           .2428131
                      Largest             Std. Dev.      .1084697
75%       .30945       .4887
90%       .3842        .4906             Variance       .0117657
95%       .4174        .4922             Skewness       -.0698595
99%       .4922         .522             Kurtosis       3.101575
```

Source stata 14.2

Appendix VII: presents a histogram illustrating the roe of the secondary data.

```
histogram ROE , normal
(bin=13, start=-.0356, width=.04289231)
```



Appendix VII: presents The Durbin Watson Test is used to detect serial correlation in a dataset.

```
.tsset time
      time variable: time,1 to 176
            Delta: 1 unit
. estat dwatson
Durbin-watson d-statistic(5,176)= 1.320514
```

Source: stata 14.2

Appendix VIII: displays the correlation between the dependent and independent variable

Corr ROE USDBIRR Irspread GDP INFL
(obs=176)

ROE	USDBIRR	irspread	GDP	INFL
ROE	1.0000			
USDBIRR	-0.1951	1.0000		
Irspread	-0.2562	0.2733	1.0000	
GDP	0.4561	-0.1827	-0.1807	1.0000
INFL	0.1831	0.3185	-0.0184	0.2229	1.0000

Source : stata 14.2

Appendix X Hausman Test of Model Selection between Random Effect and Fixed Effect

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
USDBIRR	-.0190048	-.0211122	.0021075	.0010192
Irspread	-1.030163	-.6142908	-.415872	.3022312
GDP	.1005287	.08 9539	.0109897	. 0053409
INFL	.0875014	.0623283	.0251731	.0117811

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(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 4.23
Prob>chi2 = 0.3870 .
(V_b-V_B is not positive definite)

Appendix IX Random Effect Regression out put

```
reg ROE USDBIRR Irspread GDP INFL
      Source |       SS       df       MS              Number of obs   =       176
-------------+------------------------------           F(4, 171)       =     15.01
       Model |  .535166357     4  .133791589            Prob > F        =    0.0000
    Residual |  1.52382662   171  .008911267            R-squared       =    0.5199
-------------+------------------------------           Adj R-squared   =    0.5026
       Total |  2.05899298   175  .011765674            Root MSE        =     .0844
------------------------------------------------------------------------------
         ROE |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    USDBIRR |  -1.115385   .6435142    -1.73   0.085    -2.38564    .1548693
  Irspread  |    -.85621   .3936677    -2.17   0.031   -1.633284   -.0791361
        GDP |   1.184698   .223384     5.30   0.000     .743753    1.625644
       INFL |   .1367771   .0723256    1.89   0.060    -.0059889    .279543
      _cons |   .2035304   .0364096    5.59   0.000     .1316603    .2754006
------------------------------------------------------------------------------
```