**Addis Ababa University**

**Department of Accounting and Finance**

# Determinants of profitability of private commercial banks in Ethiopia

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**March, 2025**

# DECLARATIONS

I, Fnot Asfawosen hereby declare that the thesis entitled with "**Determinants of Profitability of Private Commercial Banks in Ethiopia**" is my original work that has not been submitted earlier for award of any degree, diploma or fellowship to any other universities. To the best of my knowledge and belief, the thesis contains no materials previously published or written by another person except where due reference is made.

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## APPROVAL

As members of the Board of Examiners, certify that they have read and hereby recommend to Addis Ababa University to accept the Thesis submitted by Fnot Asfawosen which entitled "**Determinants of Profitability of Private Commercial Banks in Ethiopia**, in partial fulfillment of the requirements for the award of a Master of Science Degree in Accounting and Finance.

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## ACKNOWLEDGEMENTS

I would like to extend my heartfelt gratitude and special thanks for the help I received to complete this thesis work.

First of all, I would like to express my sincere gratitude to Almighty God who gave me the courage to accomplish this rewarding task and kept me to arrive at this destination.

Secondly, I would also like to express my appreciations to my advisor **HabtamuBirhanu(PHD)** for his constructive advices and technical support. I really found him ever smart, committed, and real professional

Thirdly, I respectfully acknowledge to the cooperation of national bank of Ethiopia for providing the necessary data. And my appreciation goes to entire friends; and to my workmates for their encouragements and cooperation.

Last but not the least; I would like to thank my husband **Dereje Mersha** and my friend **Kidist Bekele** for their invaluable support of giving me technical advice and in providing different materials.

# Contents

# ACRONYMS

**FY**: Fiscal Year

**GDP**: Gross domestic product

**IFC**: International Finance Corporation

**IMF**: International Monetary Fund

**MOFED**: Ministry of Finance and Economic Development

**NBE**: National Bank of Ethiopia

**RMP**: -Relative Market Power

**SSA**: Sub-Saharan Africa

**SCP**: -Structure-Conduct-Performance

**WB**: World Bank

# ABSTRACT

*The study seeks to identify the determinants of performance of private banks by considering the new NBE directive of Surrendering percentage of Foreign Exchange Inflow to the National Bank of Ethiopia and other bank specific factors.. In order to realize the objective of the study, mixed research design was used whereby descriptive, econometrics and qualitative approaches were blended. Data were collected mainly from secondary data emerged from annual reports, of all 16 private banks using censes sampling method. For the analysis of data, descriptive statistics and econometrics model (random effect panel regression) were used. Moreover, qualitative data analysis was used to substantiate the arguments obtained through the quantitative analyses. The findings of the study show that managerial efficiency and Net interest margin has found statistically significant and positive relationship with banks' profitability. On the other hand, variables loan provision amount negative and statistically significant relationship with banks' profitability. Therefore, considering the output of the research it is recommended that private commercial banks should increase their managerial efficiency, net interest margin and lowering their NPL position to minimize the provision amount held for each loan loss in order to be profitable. Moreover, the government should revise its policy imposed on private banks and further exploration on the long run impact of the requirement is recommended.*

***Key words: surrender, Performance, return on assets (ROA), factors, Profitability, Panel regression***

## Chapter One

# 1. Introduction

## 1.1. Background of the study

The banking sector is indispensable for a country's economic stability, as it provides the essential funding for national economic activities and channels available capital into revenue-generating projects. (Diamond & Dybvig, 1983; Barro & King, 1994; Levine &Zervos, 1998; Pagano & Stiglitz, 1993). Financial development, characterized by a well-functioning banking sector, has been shown to contribute to economic growth and stability (Bossone, 2018; Armenta et al., 2020; Gregoric & Kocak, 2019; Allen et al., 2011; Carletti et al., 2019; Taghipour, 2019). Alongside their contribution to economic expansion, banks provide the necessary infrastructure for central banks to conduct monetary policy, enabling the maintenance of price stability, exchange rate control, and the promotion of enduring economic development. (Diamond & Dybvig, 1983; Levine & Zervos, 1998).

While numerous studies have explored the drivers of bank profitability in various economic contexts, from developed to emerging nations, by examining internal and external factors like economic growth and inflation their combined influence, there's a notable gap. Existing research tends to emphasize these internal and external variables, neglecting the impact of regulatory changes, such as those recently enacted by the National Bank of Ethiopia.

A range of policy actions have been taken by the National Bank of Ethiopia to stabilize the nation's economy, with a particular focus on controlling the movement of currency to limit exchange rate instability. (NBE, 2022). One such policy measure is the "Retention and Utilization of Export Earnings and Inward Remittances Directive," which has been in effect since January 6, 2022 (NBE, 2022). This directive aims to curb the illegal foreign currency market and promote the use of formal banking services among Ethiopian families receiving remittances (NBE, 2022). This directive compels banks to relinquish a set percentage of their foreign currency income to the National Bank of Ethiopia. The relinquishment is executed by selling foreign currency to the NBE in exchange for Ethiopian Birr. (NBE, 2022).

Initially introduced in 2017 with a 50% surrender requirement (FXD 50/2017), the directive was later amended in 2022 (FXD/79/2022), increasing the surrender requirement to 70% for foreign currency earnings from exports, private transfers, and NGO transfers (NBE, 2022). As stipulated by the NBE in 2022, exporters and recipients of foreign remittances have the right to hold onto 20% of their foreign currency earnings without any time limits, but are required to surrender the remaining 80% to their banks. Recently amended again in 2023(FXD 84/2023).

The NBE has justified these amendments by citing the need to improve foreign reserves and ensure an uninterrupted supply of essential imports (NBE, 2022). However, private commercial banks have expressed concerns that this move will further deplete their foreign currency stocks, potentially impacting their ability to serve customers effectively (Anonymous Bank Official, personal communication, January 4, 2024).

Given the significance of profitability for the growth and survival of banking organizations (Cooper, 2009), to gain valuable insights for policymakers, regulators, and the banking industry, it is imperative to investigate the repercussions of this policy on private bank performance. Specifically, the study should focus on how the surrender of foreign currency influences the financial well-being, stability, and overall profitability of these institutions. This analysis builds on prior studies by integrating data from banks that have recently entered the market.

This study seeks to investigate the influence of factors such as required foreign currency surrender, net interest margin, capital adequacy, loan loss provisions as a proxy for non-performing loans, exchange rate differences, and managerial efficiency on the profitability of privately owned commercial banks.

## 1.2. Statement of Problem

The success and expansion of commercial banks, like any business, are directly tied to their financial results, with profitability being a central goal. As financial intermediaries, they aggregate deposits and allocate them as loans, thereby supporting economic advancement. (Alper and Anbar, 2011). To fulfil their role effectively, banks must operate sustainably by covering costs, generating profits for shareholders, and attracting new investments. For banks to maintain profitability, it is imperative that their leadership recognizes and adeptly controls the primary factors impacting their financial outcomes. Given that profitability is a fundamental component of a bank's enduring viability, a thorough understanding and analysis of its influencing elements are indispensable. By understanding these determinants, bank management can focus on strategies that enhance profitability, ensuring sustainable operations and building confidence among stakeholders.

Recently, the government has undertaken various reforms to address the constraints hindering economic performance. Among these are financial reforms that had not been updated for a long period under the previous regime. To address prevailing macroeconomic issues, a recently implemented regulation, notably the mandated surrender of foreign currency, is anticipated to influence the earnings of commercial banks.

The National Bank of Ethiopia (NBE) has implemented directives requiring private banks to surrender a certain percentage of their foreign exchange earnings to the government. These directives, such as No.FXD/50/2017, FXD/59/2021, and FXD/79/2022, aim to achieve a safe and stable foreign exchange market in Ethiopia by setting limits on foreign exchange exposure and surrendering requirements. The percentage has increased from 30% to 70% since 2017. However, the implications of these surrendering requirements for the performance of private banks in Ethiopia have raised significant concerns.

The foreign exchange control policy, designed to foster a secure and consistent foreign exchange market in Ethiopia by imposing exposure limits and surrender obligations, simultaneously diminishes banks' access to liquid foreign currency. This can create operational difficulties in meeting customer requests and facilitating loan disbursements. By mandating the surrender of a percentage of foreign exchange inflows, private banks may struggle to address customer needs, conduct seamless foreign currency transactions, and expand their lending operations. Consequently, both the operational effectiveness of private banks and the national economy are impacted. These banks encounter numerous obstacles and vulnerabilities within the global, political, regulatory, and economic spheres, which influence their expansion and profitability.

Despite the possible ramifications of the surrender mandates, the specific effects on the performance of Ethiopian private banks have not been extensively investigated through empirical analysis. Additionally, there is a knowledge deficit regarding the mechanisms through which surrendering requirements may influence bank performance indicators, particularly return on assets (ROA).

This study seeks to analyze the determinants of profitability in Ethiopian private commercial banks, examining the role of foreign exchange surrender percentages to the National Bank of Ethiopia and other contributing factors on return on assets (ROA). By addressing this gap in the literature, the research will provide valuable insights into the financial health, stability, and profitability implications of these surrender requirements and other internal bank specific factors.

Employing a quantitative approach, this study will utilize data analysis to assess the influence of foreign exchange regulations on the performance of Ethiopia's private banks. Panel data from 16 banks, spanning 2017 to 2022, will be analyzed using a range of performance metrics, including profitability, liquidity, solvency, efficiency, and growth. To account for bank-specific and time-related variations, along with data heterogeneity and dynamic patterns, various statistical techniques and tests will be applied. The study will conclude with a discussion of the results, their implications, and recommendations for future investigations.

## 1.3. General Objectives of the research

This general objective of the study aims to determine the factors affecting ROA in Ethiopian private commercial banks.

## 1.4 Specific Objectives

The specific objectives are to:-

- Examine the effect of capital adequacy on ROA of private commercial banks in Ethiopia

- Study the effect of Managerial efficiency on ROA of private commercial banks in Ethiopia
- Scrutinize the effect of Net interest margin on ROA of private commercial banks in Ethiopia
- Evaluate the effect of foreign exchange rate difference on ROA of private commercial banks in Ethiopia
- Analyse the effect of percentage of Surrendering amount on ROA of private commercial banks in Ethiopia
- To see the statistical significance of provision amount on ROA of private commercial banks of Ethiopia.

### 1.5. Research Question

Thus, the paper tries to address the research question stated in the statement of the problems are indicated as follows: -

- How do capital adequacy, non-performing loans, managerial efficiency, rate difference, net interest margin, and surrendering amount influence the Return on Assets (ROA) of banks?

Hypothesis is formulated for the effect of each independent variable on ROA of private commercial banks in Ethiopia as provided below.

**H1:** Higher capital adequacy ratios are positively associated and have a significant impact on bank profitability (ROA) with bank profitability (ROA).

**H2:** Higher non-performing loan ratios are negatively associated and have a significant impact with bank profitability (ROA).

**H3:** Increased managerial efficiency is positively associated and significantly influences with bank profitability (ROA).

**H4:** A wider rate difference is positively associated with bank profitability difference and has a significant effect on bank profitability (ROA)

**H5:** A higher net interest margin is positively associated and has a significant impact on bank profitability (ROA).

**H6:** A higher surrendering amount is negatively associated and has a significant impact on bank profitability (ROA).

## 1.7. Significance Of the study

The study investigates the determinants of private commercial bank profitability by examining how foreign exchange surrender directives (directives no. FXD/50/2022 and FXD/79/2022) impact profitability alongside other independent variables. Considering the variety of bank performance metrics employed in previous research, it is essential to analyze the influence of foreign exchange surrender requirements on private banks. This study aims to expand current knowledge by investigating factors that may mediate the relationship between bank performance and the quantity of foreign exchange surrendered. Furthermore, it seeks to elucidate the potential benefits of the country's foreign exchange reserves in addressing the current hard currency scarcity. The paper will also serve as additional document in the area.

## 1.8 Limitation of the Study

A limitation encountered in this research was the inability to access monthly foreign exchange surrender data from the National Bank of Ethiopia, necessitating the consolidation of monthly information into annual totals. This necessitated data interpolation for certain years due to missing data points. Furthermore, due to the lack of direct NPL (Non-Performing Loan) data, the study utilized provision amounts as a proxy variable.

## 1.9 Structure of the study

The structure of this research is divided into five sections. The first chapter offers an overview of the study, including its context, aims, and importance. The second chapter reviews existing literature, covering pertinent theoretical models and empirical research. The third chapter describes the study's design and methods, such as data collection, variables, and analytical approaches. The fourth chapter presents and interprets the results, and the fifth chapter summarizes the main findings and suggests directions for future research.

**Chapter Two**

# 2. Literature Review

## 2.1 Concept and Definition

### 2.1.1 Financial Institutions

In contemporary economic systems, financial entities are vital conduits for capital distribution. They operate as intermediaries, bridging the gap between those who have surplus funds and those who require them for investment or expenditure. This crucial role, encompassing a diverse range of entities such as banks, insurance companies, and investment firms, is fundamental to economic growth and development (Mishkin, F. S. 2013). By facilitating the flow of capital, financial institutions enable investment, innovation, and economic expansion.

Given their systemic importance, the stability of financial institutions is paramount for overall economic health. The failure of a major financial institution can have cascading effects, triggering a chain reaction of defaults and potentially destabilizing the entire financial system. Consequently, it is essential for governments to implement strong regulatory frameworks to maintain the health and stability of the financial system. Such supervision is designed to safeguard consumers, uphold market fairness, and mitigate systemic vulnerabilities that could jeopardize the broader economy.

### 2.1.2 National Bank of Ethiopia

Ethiopia's modern banking era began with a 1905 accord between Emperor Menelik II and Mr. MaGillivray, from the British-owned National Bank of Egypt. This led to the establishment of the Bank of Abyssinia, which the Emperor officially opened on February 16, 1906. Operational management of the Bank of Abyssinia was exclusively handled by the Egyptian National Bank, with its foundation rooted in specific rights and concessions. The National Bank of Ethiopia, however, was established in 1963 via proclamation 206 and initiated its activities in January 1964. Before the issuance of this proclamation, the Bank performed both standard banking services and central bank functions. The proclamation then augmented the Bank's capital to 10 million Ethiopian dollars and provided it with considerable administrative independence and legal standing. After this, the National Bank of Ethiopia was assigned a defined set of duties (NBE, 2018).

### 2.1.3 Profitability

Profitability assesses a company's capacity to generate earnings from its business activities, using income statement data to determine the level of profit achieved. It primarily examines the return a company receives on its investments in inventory and other assets. Profitability is often quantified using ratios, which include measures like gross profit margin, net profit margin, operating margin, and EBITDA. Essentially, these ratios demonstrate the effectiveness of a company's operational profit generation. (www.extension.iastate.edu/agdm)

### 2.1.4 Return on Asset (ROA)

The return on assets, also known as ROA, is a profitability measure that assesses the net income generated by a company's assets during a specific period. It does this by comparing net income to average total assets, providing insight into how well a company's asset base contributes to its profits. Given that a company's assets are intended to drive revenue and profitability, the return on assets (ROA) ratio serves as a tool for both management and investors to evaluate the efficiency with which asset investments are transformed into earnings. Furthermore, ROA can be viewed as a measure of return on investment, as assets typically represent a company's largest capital expenditure. A company's investment in capital assets is assessed by its ability to generate profits, which serves as the return on that investment (Gemechu, 2016). The ROA is calculated by taking the company's net income and dividing it by the total value of its assets.

The study of bank performance, particularly profitability, commenced in the late 1970s and early 1980s, with initial investigations grounded in two industrial organization models: Market Power and Efficiency Structure (Athanasoglou et al. 2006). The balanced portfolio theory has also expanded the understanding of bank profitability. This part of the study will provide a detailed examination of these and other theories related to bank profitability and its influencing factors.

### 2.1.5 The Market Power Theories

Tregenna (2009) argues that, among the various elements impacting bank performance, the economy's market structure plays a predominant role. The link between market structure and performance is typically analyzed through the Structure-Conduct-Performance (SCP) model.

The foundational Structure-Conduct-Performance (SCP) model suggests that market performance is a direct outcome of the pre-existing market structure, which affects how banks operate. The paradigm posits that greater concentration among banks encourages cooperation, allowing them to potentially establish elevated prices and achieve significant profitability. Tregenna (2009) explains that, within the SCP framework, banks in markets with greater concentration can more readily enhance their profitability. This is due to their ability to exploit a monopolistic environment by reducing deposit rates and charging higher loan rates, a practice less viable for firms in less concentrated settings. In contrast, the Relative Market Power (RMP) hypothesis suggests that a bank's profitability is determined by its market share. It posits that only those banks offering unique products are capable of affecting prices, wielding market power, and achieving profits beyond competitive levels (Tregenna, 2009).

### 2.1.6 The Efficiency Theory

According to the Efficiency theory, banks that achieve superior operational efficiency compared to their rivals enjoy greater profitability due to reduced operating expenses. These efficient banks also tend to secure a significant portion of the market. As a result, disparities in efficiency lead to an imbalanced market distribution and increased concentration. Furthermore, Rather than focusing on managerial or technological differences, the scale approach emphasizes the role of economies of scale. Larger firms can reduce their per-unit costs and increase their profit margins by utilizing these economies. These firms tend to have a larger market presence, which can result in heightened market concentration and profitability (Athanasoglou et al., 2006)

### 2.1.7 The Balanced Portfolio Theory

The balanced portfolio theory is considered a cornerstone in research on bank performance (Sharpe, 1964). This theory suggests that the ideal composition of assets within an investor's portfolio is determined by strategic decisions based on factors like the expected returns of each asset, the associated risks, and the overall portfolio size. According to their view, achieving maximum profitability is contingent upon the range of assets and liabilities that management can effectively control, as well as the operational expenses associated with each asset component.

### 2.1.8 Risk-Return Trade off Theory, the Signaling and Bankruptcy Cost Hypotheses

The structure of a bank's balance sheet can play a role in its profitability, with theoretical viewpoints presenting diverse potential outcomes. Financing theory proposes that increased risk through higher leverage, shown by a decreased equity-to-asset ratio, correlates with increased expected returns. This is attributed to the idea that entities only seek greater risk when they foresee greater returns, a concept known as the risk-return trade-off (Van Ommeren, 2011). On the other hand, theoretical explanations exist that indicate a beneficial relationship between a high equity-to-asset ratio and profitability. These explanations are based on signaling theory and bankruptcy cost considerations. Signalling theory posits that a bank with a higher equity ratio is perceived more positively by the market (Berger, 1995). Because of their reduced earnings, less profitable banks cannot effectively demonstrate financial strength through high equity ratios. Therefore, banks with lower leverage generally exhibit better profitability than those struggling to raise equity. Additionally, the bankruptcy cost argument asserts that banks hold more equity to prevent periods of financial hardship, particularly when the potential costs of bankruptcy are high (Berger, 1995).

### 2.1.9 Return on Assets (ROA) proxy

Return on assets (ROA), calculated by dividing total net income by total assets, is commonly employed as an indicator of a bank's profitability. Golin (2001) identifies ROA as a primary measure of bank profitability. This view is supported by studies conducted in various countries, including Ethiopia (Samuel, 2015), Ghana (Bami, 2014), Nigeria (Obamuyi, 2013), and Greece (Kosmidou, 2008).

Following the arguments of Obamuyi (2013) and Ben Naceur and Goaied (2008), this research supports the view that return on assets (ROA) is a more effective indicator of bank profitability than return on equity (ROE). ROA provides insight into the profit generated per asset unit, demonstrating a bank's efficiency in utilizing both financial and tangible assets. In contrast, ROE does not account for financial leverage. Additionally, Sufian and Chong (2008) emphasize that ROA is influenced by both bank policy and external factors, such as economic conditions and regulatory frameworks. Rivard and Thomas (1997) further assert that ROA is the most suitable measure of a bank's capacity to generate returns from its asset portfolio, as it is not skewed by high equity multipliers. According to Bashir (2003), a key disadvantage of return on equity (ROE) is that it only assesses how well a bank generates profits from shareholder investments, as it's the ratio of net income to total equity. This metric overlooks the influence of debt or financial leverage. Therefore, a high ROE can be misleading, as it may simply be the result of a small capital or equity base, rather than strong overall profitability. ROE only shows how shareholders' funds being used to generate profits, but it does not take into account of liabilities such as borrowed funds and bonds, thus ROA is better since its denominator is total assets which already incorporated the liabilities and equity. This is also supported by Davydenko (2010); he mentioned that high ROE means low level of capital, resulting in high level of financial leverage which is undesirable and associated with high degree of risk. He further added that ROE is not optimal to measure bank's profitability since the level of capitalization is often determined by regulators.

Conversely, some researchers question the use of return on assets (ROA) as a sole measure of bank profitability. Alexiou and Sofoklis (2009) contend that ROA can be misleading because it does not account for off-balance-sheet activities. Similarly, Goddard, Molyneux, and Wilson (2004) chose return on equity (ROE) in their study of European bank profitability, arguing that off-balance-sheet activities contribute significantly to profits, making ROE a more relevant metric.

## 2.2 Empirical Literature

While research on the factors influencing bank profitability is extensive in developed and emerging economies, studies focusing specifically on banks operating in Ethiopia are limited. Therefore, this section will examine recent empirical findings regarding the determinants of bank profitability, with a particular emphasis on relevant studies.

### 2.2.1 Review of previous studies outside of Ethiopia

Research conducted by Koroleva et al. (2021) revealed that internal elements, including size, credit quality, and liquidity, are key drivers of positive bank profitability. The study further demonstrated that state-owned banks exhibited higher profitability, attributed to their larger scale, superior credit ratings, and greater liquidity. Conversely, Koroleva et al. (2021) observed that external factors, specifically the standardized residuals of GDP, negatively affected bank profitability. In a separate study, Ngweshemi and Isiksal (2021) found that macroeconomic factors such as GDP and inflation rates did not significantly influence bank profitability. Another study, Azam and Siddiqui (2012) discovered that in Pakistan, foreign banks outperformed domestic banks in terms of profitability. This advantage could be attributed to foreign banks' access to broader capital sources and specialized knowledge, enabling them to pursue higher-risk, higher-return strategies.

A study conducted by Pasiouras and Kosmidou (2007) analyzed the determinants of profitability for both domestic and foreign commercial banks across 15 European Union nations, utilizing data from 1995 to 2005. In their analysis Pasiouras and Kosmidou (2007) assessed bank profitability using ROA and examined various factors that influence it. Their research indicated that the most significant drivers of profitability for both domestic and foreign banks were capital strength, measured by the equity-to-asset ratio, and management efficiency, assessed by the cost-to-income ratio. Furthermore, Pasiouras and Kosmidou (2007) observed that while liquidity had a statistically significant impact on the profitability of both domestic and foreign banks, the nature of the relationship differed. Liquidity positively influenced domestic bank profitability but negatively affected foreign bank profitability. Additionally, their study revealed an inverse relationship between bank size and profitability for both domestic and foreign institutions.

Guru et al. (2009) examined the factors influencing bank profitability in Malaysia, analyzing data from 17 commercial banks between 1998 and 2006. They focused on internal determinants, including liquidity, capital adequacy, and expense management, and concluded that efficient expense management was a primary driver of high bank profitability.

Kosmidou (2008) explored the determinants of bank performance by analyzing 23 banks with time series data from 1990 to 2002. Using return on assets (ROA) as the dependent variable, the study incorporated both internal and external factors. Results indicated that higher capital levels, lower cost-to-income ratios, and larger bank size all had a positive relationship with ROA.

To identify the factors influencing bank profitability, Imad Z. Ramadan et al. (2011) conducted a study on 10 Jordanian banks. They utilized panel data covering the period from 2001 to 2010. Both return on assets (ROA) and return on equity (ROE) were employed as dependent variables, with a range of internal and external factors serving as independent variables. The research indicated that bank capital, active lending practices, minimal credit risk, and efficient cost management were key determinants of bank profitability. However, the study found no correlation between bank size and profitability within the Jordanian banking sector.

A research conducted by Saira Javaid et al. (2011) examined the profitability of 10 Pakistani commercial banks from 2004 to 2008, revealing that internal factors like assets, loans, equity, and deposits significantly affected return on assets (ROA). Notably, while equity and deposits showed a strong influence, bank size, as measured by total assets, did not significantly impact profitability.

Ben Naceur and Goaied (2008) investigated how bank characteristics, financial structure, and macroeconomic conditions influenced Tunisian banks' net interest margins and profitability from 1980 to 2000. Their study revealed that banks with higher interest rate margins and profitability tended to hold more capital and incur higher overhead expenses, while bank size showed an inverse relationship with profitability.

Madishetti et al. (2013) investigated the factors influencing Tanzanian commercial bank profitability between 2006 and 2012. They examined both internal factors, such as liquidity risk, credit risk, operational efficiency, assets, and capital adequacy, and external factors, including GDP growth and inflation. Their findings indicated that internal factors significantly impacted profitability, while external factors had no discernible effect.

Abuzar (2013) examined the factors influencing the profitability of Islamic banks in Sudan. The study found that profitability was positively correlated with costs, bank size, and liquidity. Furthermore, it concluded that internal factors significantly affected profitability, while external factors had minimal impact.

Eljelly (2013) sought to identify the factors influencing the profitability of Islamic banks in Sudan, a nation with a comprehensive Islamic economic and banking framework. The study utilized return on assets (ROA), return on equity (ROE), and net financing margin (MARG) to measure bank profitability. The research revealed that internal factors, including costs, liquidity, and bank size, significantly impacted profitability, while external macroeconomic factors were deemed irrelevant and had no substantial effects.

Ani, W.U. et al. (2012) analyzed the determinants of profitability in 147 Nigerian banks using pooled ordinary least squares regression over the period 2001-2010. Their findings indicated that bank size did not positively correlate with profitability, but a higher capital asset ratio did lead to increased bank profits.

Hoffmann (2011) examined the factors influencing Kenyan bank profitability from 1995 to 2007. The study revealed an inverse relationship between profitability and capital ratios, suggesting that banks were operating with excessive caution and forgoing potentially profitable opportunities. Consistent with other research, the study found no significant correlation between bank size and profitability

### 2.2.2 Review of previous studies on Ethiopia

Research specifically examining the factors influencing commercial bank profitability in Ethiopia is scarce, despite the consideration of various internal and external variables. Existing literature, however, commonly explores a range of bank-specific, industry-specific, and macroeconomic factors as determinants of bank profitability.

In a study on the Ethiopian banking industry, Amdemikael (2012) sought to determine the factors influencing profitability. The research examined bank-specific, industry-specific, and macroeconomic factors impacting the profitability of eight Ethiopian commercial banks from 2000 to 2011. A blended research approach was employed, integrating documentary analysis with detailed interviews. He utilized return on assets (ROA) as the measure of bank profitability and examined its relationship with several independent variables. These included capital strength, operational efficiency, income diversification, liquidity risk, bank size, asset quality, industry concentration, real GDP growth, and inflation. The study revealed that capital strength, income diversification, bank size, and GDP growth positively and significantly influenced bank profitability. Conversely, operational efficiency and asset quality exhibited a significant negative correlation with profitability. Liquidity risk, industry concentration, and inflation, however, did not show statistically significant relationships.

Samuel Alemu (2015) conducted a study on the factors influencing commercial bank profitability in Ethiopia, utilizing data from eight banks between 2002 and 2013. Employing a mixed research approach, the study analyzed secondary financial data through multiple linear regression models, with Return on Asset (ROA) as the profitability measure. To examine the impact on bank profitability, Samuel Alemu (2015) employed a fixed effects regression model and supplemented the documentary analysis with primary data. The study's results indicated that bank size, capital adequacy, and GDP growth had a statistically significant and positive correlation with bank profitability. Conversely, Samuel Alemu (2015) found that liquidity risk, operational efficiency, funding cost, and banking sector development had a statistically significant negative impact on bank profitability. However, management efficiency, employee efficiency, inflation, and foreign exchange rates showed no statistically significant relationship. Habtamu (2012) analyzed the factors influencing the profitability of private commercial banks in Ethiopia. Employing a quantitative research approach, the study utilized panel data from seven banks spanning 2002 to 2011. Secondary financial data was analyzed using multiple linear regression models, with Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) serving as the profitability measures. Habtamu (2012) employed a fixed effects regression model to examine how capital adequacy, asset quality, managerial efficiency, liquidity, bank size, and real GDP growth rate affected the three primary bank profitability measures: ROA, ROE, and NIM. In addition, manager perspectives on profitability determinants were gathered through primary data analysis. The empirical results show that those bank-specific elements, such as capital adequacy, managerial efficiency, and bank size, along with macroeconomic factors like GDP levels and regulation, significantly affected the profitability of private commercial banks in Ethiopia.

Birhanu (2012) aimed to identify the impact of bank-specific, industry-specific, and macroeconomic factors on the profitability of the Ethiopian commercial banking sector between 2000 and 2011. The study utilized Ordinary Least Squares (OLS) estimation to assess the influence of internal and external determinants on average return on assets and net interest margin. The study showed that most bank-specific factors, specifically excluding bank size, expense management, and credit risk, had a significant and positive impact on bank profitability, aligning with expectations. Conversely, Birhanu (2012) found that bank size, expense management, and credit risk had a significant negative effect on commercial bank profitability. Furthermore, the study did not find any evidence of market concentration influencing profitability. In terms of macroeconomic factors, the study revealed that GDP positively and significantly influenced both asset returns and interest margins. However, interest rate policy only showed a significant positive impact on interest margins.

Melaku (2016) analyzed the factors influencing profitability in Ethiopian private banks, utilizing audited financial statements from six selected commercial banks spanning the years 2004 to 2011. The research utilized return on assets (ROA) to measure profitability and explored its relationship with both internal bank factors and external variables. In the analysis, utilizing descriptive statistics and fixed effects estimation, revealed that bank-specific factors were more influential in determining profitability than external factors. Specifically, asset size, capitalization, labor productivity, liquidity, and non-interest income showed a significant positive correlation with profitability, while credit risk and overhead efficiency had a significant negative impact.

Gemechu (2016) investigated the factors influencing bank profitability within the Ethiopian banking sector. The research utilized balanced panel data from eight commercial banks operating in Ethiopia, covering the years 2002 to 2012. The study used Ordinary Least Squares (OLS) estimation to analyze the effect of various factors on Ethiopian commercial bank profitability. The study's results demonstrated that, with the exception of credit risk and expense management, all bank-specific determinants had a statistically significant and positive impact on profitability. Conversely, the study found that credit risk, expense management, and regulatory factors had a statistically significant negative impact on bank profitability. However, all macroeconomic variables examined, including economic growth, interest rate spread, and exchange rate, showed a statistically significant positive correlation with profitability.

## 2.3 Summary and Knowledge Gap

While numerous studies have examined the performance of Ethiopian private commercial banks, using ROA and ROE to assess liquidity and profitability, they predate the National Bank of Ethiopia's 2017 directive requiring banks to surrender a portion of their foreign currency. Consequently, these studies do not account for the impact of this new policy. This research aims to fill this gap by analyzing the effects of the foreign currency surrender requirement, alongside other relevant factors, on private commercial bank performance.

**Dependent Variable** **Independent Variables**

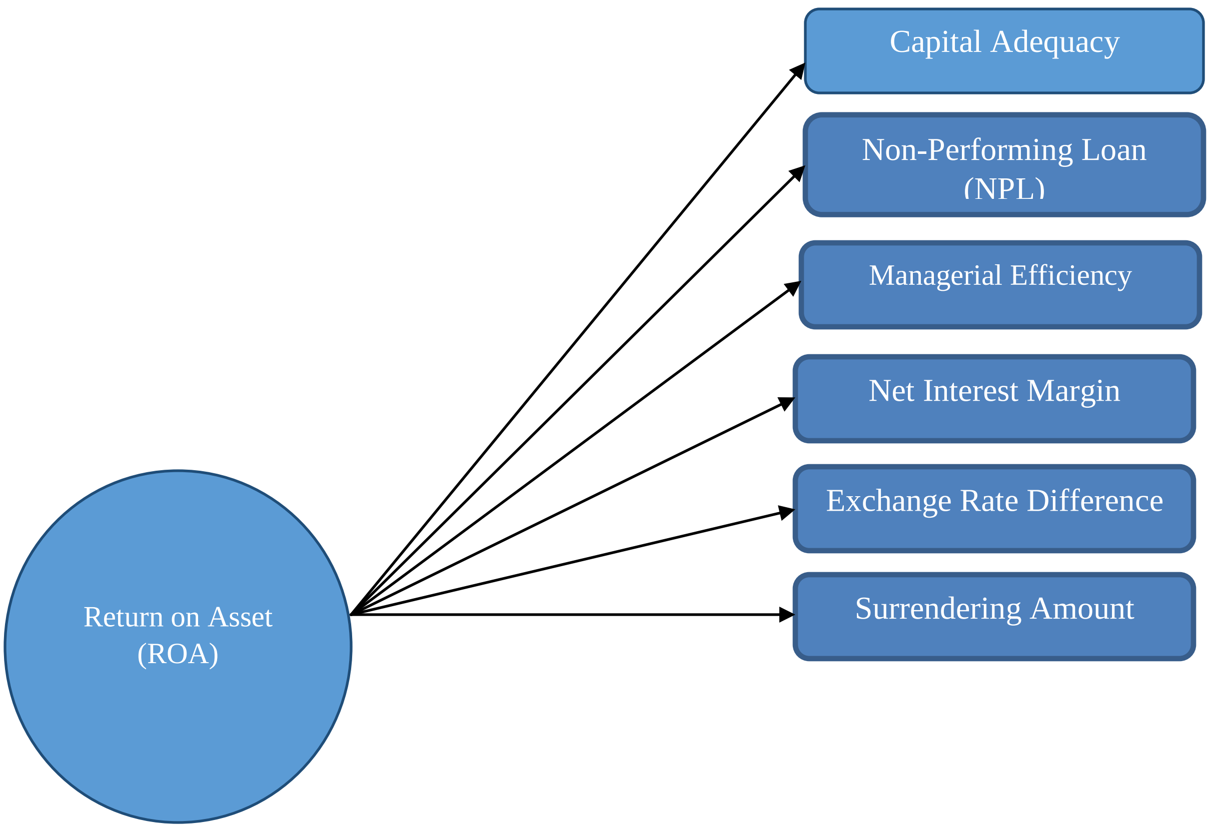


**Table 2 List of Private Commercial Banks in Ethiopia**

| No | Private Commercial Bank | Year of Establishment |
|---|---|---|
| 1 | Awash International Bank | 1994 |
| 2 | Dashen Bank | 1995 |
| 3 | Abyssinia Bank | 1996 |
| 4 | Wegagen Bank | 1997 |
| 5 | United Bank | 1998 |
| 6 | Nib International Bank | 1999 |
| 7 | Cooperative Bank of Oromia | 2004 |
| 8 | Lion International Bank | 2006 |
| 9 | Oromia Bank | 2008 |
| 10 | Zemen Bank | 2008 |
| 11 | Bunna International Bank | 2009 |
| 12 | Birhan International Bank | 2009 |
| 13 | Abay Bank | 2010 |
| 14 | Addis International Bank | 2011 |
| 15 | Global Bank | 2012 |
| 16 | Enat Bank | 2013 |
| 17 | Zemzem Bank | 2022 |
| 18 | Goh Betoch Bank | 2022 |
| 19 | HijiraBank | 2022 |
| 20 | SinqeeBank | 2022 |
| 21 | Shabale Bank | 2022 |
| 22 | AhaduBank | 2022 |
| 23 | Tsedey Bank | 2022 |
| 24 | Amhara Bank | 2022 |
| 25 | GadaaBank | 2023 |
| 26 | SidamaBank | 2021 |
| 27 | Ramis Bank | 2022 |
| 28 | OmoBank | 2022 |
| 29 | Tsehay Bank | 2022 |
| | | |

**Source, NBE, 2023**

# Chapter Three

## 3. Research design & Methodology

### 3.1 Research Design

This study will utilize an explanatory research design to identify the factors influencing the profitability of private commercial banks in Ethiopia. To analyze the relationships between the independent and dependent variables, a quantitative research approach will be employed. As Creswell (2014) notes, quantitative research is suitable for hypothesis and theory testing through the examination of variable relationships. Therefore, quantitative data will be used to address the research questions and test the stated hypotheses

### 3.2 Source of Data

Ethiopia currently has 29 private commercial banks, but 13 of these are recent additions to the market, including Hijra, Zemzem, Goh Betoch, Siinqee, Shebele, Tsehay, Amhara, Tsedey, Geda, Ahadu, Omo, Ramis, and Sidama. Due to their status as new entrants, these 13 banks will be excluded from this study. This study will utilize secondary data from the financial statements of 16 Ethiopian private commercial banks, covering the years 2017 to 2023. Panel data, incorporating both time series and cross-sectional aspects, will be employed to analyze the influence of several independent variables including deposit funds, capital adequacy, non-performing loans, bank size, loan amounts, foreign exchange surrender percentages, interest income, market share, total assets, operating income, interest income, operating expenses, rate differences, number of branches, and managerial efficiency on bank performance, as measured by Return on Assets (ROA).

### 3.3. Scope of the study

This research aims to determine the factors influencing the profitability of private commercial banks in Ethiopia. Given that the National Bank of Ethiopia's mandate requiring private banks to surrender foreign exchange began in 2017, the study will analyze six years of annual data (2017-2023) alongside other relevant independent variables. This research will utilize appropriate financial reports from specific private commercial banks as its secondary data source. To select these banks, a purposive sampling method will be employed. The chosen banks are: Awash Bank

(AB), Dashen Bank (DB), Bank of Abyssinia (BOA), Cooperative Bank of Oromia (COOP), Oromia Bank (formerly Oromia International Bank) (OIB), Zemen Bank (ZB), Global Bank Ethiopia (formerly Debub Global Bank) (DG), Wegagen Bank (WB), United Bank (UB), Nib International Bank (NIB), Bunna International Bank (BIB), Berhan International Bank (BIB), Lion International Bank (LIB), Addis International Bank (AIB), and Enat Bank (EB).

## 3.4 Population of the Study

This study's target population encompasses all private commercial banks operating within Ethiopia. Based on data from the National Bank of Ethiopia, there are currently 29 registered private commercial banks. Therefore, the total target population for this research consists of these 29 banks.

## 3.5 Sample Size and Sampling Method

To select the sample of private banks from the total of 29, this study will employ purposive sampling. Only 16 banks, those with more than five years of operational experience, will be included. Purposive sampling involves selecting units based on their relevance to the research questions. Consequently, banks with less than five years of experience will be excluded. This result in a panel data matrix of 16 banks observed over six years, yielding 96 total observations.

### 3.6 Method of Data Analysis Approaches

### 3.6.1 Descriptive Statistics

To achieve the study's objectives and analyze the impact of the National Bank of Ethiopia's foreign exchange surrender policy on the performance of private commercial banks, both descriptive and econometric methods, specifically fixed effects panel data regression, will be employed. Descriptive analysis will be used to explore the relationships between performance indicators, such as loan volume, deposit levels, capital adequacy, and other selected variables, and the dependent variables. Furthermore; to organize and analyze the collected data, appropriate descriptive statistics will be employed, including percentages, tables, ratios, means, medians, and standard deviations.

### 3.6.2 Quantitative analysis

In quantitative research, clearly defining dependent and explanatory variables is essential for external understanding of their relationships. Bank profitability is commonly assessed using return on equity (ROE), net interest margin, and return on average assets (ROA), which are influenced by internal and external factors (Creswell, 2009). For this study, return on asset (ROA) will be used as the metric to reflect the performance of Ethiopian private commercial banks.

For the analysis, panel regression models will be employed. Panel data, which combines both time-series and cross-sectional data, is particularly suitable for this research. The time-series aspect is represented by the study period (2017/18–2022/23), while the cross-sectional aspect is represented by the selected Ethiopian commercial banks. Panel data is favoured over solely time-series or cross-sectional data due to its ability to control for individual differences and its reduced risk of multicollinearity (Altai, 2005). The analysis will be conducted using STATA 15 software, which is well-suited for panel regression modelling.

#### 3.6.3 Model Specification

The selection of an appropriate analytical model depends on the variables involved and the characteristics of the data. Determining the nature of the relationship, specifically whether it is linear or non-linear, is essential for accurate prediction. In this research, panel data, and therefore panel regression, will be employed to analyze the dependent variable, ROA, which is collected over a period of time from multiple banks.

Using a panel data regression model can assist researchers in accounting for bank heterogeneity, providing individual bank-septic estimates, facilitating the study of more complex behavioural models, and reducing aggregation bias. Thus, the regression model is represented as follows in this regard: -

$$Yit = \beta 0 + \beta 1X1it + \beta 2X2it + \varepsilon it \ldots\ldots\ldots\ldots \textit{Equation (1)}$$

Where

- Y refer to the dependents variable which is profit (which is expressed by ROA)
- $X_i$refers to the independent variables
- $ß_i$ refers to the value of the parameter

- $\varepsilon$refer to error term
- i stands for the i^th cross-sectional unit, i = 1, ..., N
- t stands for the t ^th time in period, i = 1, ...,

The following equation will incorporate all relevant explanatory variables necessary for this study. The dependent variable, bank profitability, will be measured using Return on Assets (ROA): capital adequacy (CA), Provision amount proxy for non-performing loan (NPL), surrendering (SUR), Net interest Margin (NIM) and managerial efficiency (MEF).

$$ROA_{it} = \beta 0 + \beta_1 CA_{it} + \beta_2 NPL_{it} + \beta_3 SUR_{it} + \beta_4 NIM_{it} + \beta_5 RD_{it} + \beta_6 MEFit + \varepsilon_{it}$$

### 3.6.4 Operational Definition of Variables

**Table-3 List of Variables and Expected Relation among Variables**

| Name of Variable | Stata. Name | The Variable is | Definition | Expected Sign |
|---|---|---|---|---|
| Return on Asset | ROA | Dependent | continuous variable and measured in Percentage | + |
| Capital adequacy | CA | Independent | continuous variable and measured in Birr | + |
| Provision amount (Proxy) | NPL | Independent | continuous variable and measured in Birr | - |
| Surrendering | SUR | Independent | continuous variable and measured in Birr | - |
| Net interest Margin | NIM | Independent | continuous variable and measured in Birr | + |
| Exchange Rate difference | RDF | Independent | continuous variable and measured in Birr | - |
| Managerial efficiency | MEF | Independent | continuous variable and measured in percentage | + |
| β0 | β0 | constant term | constant term | |
| Bi | βi | coefficients of the regression model | Explanatory variables of dependent variable | |
| **E** | ε | Stochastic error | Stochastic error term of the model | |

**Source: - own computation**

### 3.6.5 Dependent variable

Bank profitability is evaluated using different metrics, such as return on assets (ROA), return on equity (ROE), and net interest margin (NIM). Specifically, ROA indicates how effectively a bank generates profits from its assets, while ROE reflects the bank's profitability relative to its equity. Net interest margin (NIM) calculates the variance between a bank's interest revenue and expenditures, thereby showing its effectiveness in generating profits from its lending operations. By examining these measures, researchers can understand the factors that drive bank profitability and pinpoint elements that either support or impede financial performance.

Researchers have utilized a range of profitability measures. For example, some studies have focused solely on return on assets (Flamini et al., 2009; Kosmidou, 2008; Samuel, 2015), while others have used return on equity (Hoffmann, 2011). Combinations of these measures have also been employed, such as return on assets and return on equity (Athanasoglou et al., 2006; Abel & Roux, 2016; Aminu, 2013; Alper Anbar, 2011), return on assets and net interest margins (Gemechu, 2016; Naceur, 2003; Birehanu, 2012), and all three measures: return on assets, return on equity, and net interest margins (Sufian & Habibullah, 2009; Naceur & Omran, 2011). This research will assess bank profitability, utilizing return on assets (ROA) as the primary measure, and examining its relationship with both internal and external factors."

### 3.6.6 Return on Asset (ROA)

Return on assets (ROA) evaluates a bank's efficiency in generating profit from its asset base. It is derived by dividing net income by total assets. A greater ROA value signifies that a bank is producing more profit per unit of assets, indicating effective resource management (Khraibi, M., 2023).

Return on assets (ROA) also reflects management's effectiveness in converting assets into net profits. For this study, ROA will be calculated by dividing net profit after tax by total assets. ROA is considered the most relevant metric for assessing bank profitability because it effectively demonstrates a firm's ability to generate returns from its assets (Akbas, 2012; Kosmidou, 2008; Naceur and Goaied, 2008). Return on assets (ROA) quantifies the profit generated for each unit of assets and, crucially, highlights management's effectiveness in utilizing the bank's investment and financial resources to generate profit. As Golin (2001) suggests, ROA is a key metric for evaluating a bank's ability to profit from its total assets.

$$\textbf{Return on Asset (ROA)} = \frac{\textbf{ProfitafterTax}}{\textbf{Total Asset}}$$

### 3.6.7 Independent variables

Also known as predictors or explanatory variables are variables that are manipulated or changed by researchers in an experiment or study to determine their effect on a dependent variable. In other words, independent variables are the presumed causes of a change in the dependent variable (Creswell, J. W., 2013). It is altered by the researcher in order to examine the dependent variable. Changes in the dependent variable are directly influenced by variations in the independent variables. This study examines both internal and external factors related to banks as independent variables, analyzing and documenting their effect on the dependent variable. The following variables will be considered as independent variables.

**Capital adequacy: -** Capital adequacy, which indicates a bank's financial robustness or capital structure, is often represented by the equity-to-asset ratio in banking studies. This ratio serves as an indicator of capital strength, with banks possessing a higher equity-to-asset ratio generally considered more secure against potential losses or liquidity challenges

$$\textbf{CapitalAdequacy}\ (\textbf{CAP}) = \frac{\textbf{Equity}}{\textbf{TotalAsset}}$$

Studies such as those by Bourke (1989), Hassan and Bashir (2003), and Samuel (2015) have demonstrated that banks with strong capital positions tend to perform better financially. This is likely because these banks have lower potential bankruptcy costs, which in turn leads to reduced funding expenses and risk. Consequently, it is anticipated that capital adequacy will positively correlate with the dependent variables in this study.

**Non-performing loan: -** The National Bank of Ethiopia (NBE) Directive MFI/28/2016 defines non-performing loans as credit facilities that are overdue by more than 90 days. A higher level of non-performing loans is generally associated with decreased bank profitability. In this study, loan loss provisions will serve as a proxy for non-performing loans. Consequently, a negative correlation with the dependent variables is anticipated.

**Surrendering: -** According to National Bank of Ethiopia (NBE) Directive FXD/50/2017, private banks are mandated to relinquish a portion of their foreign exchange earnings to the central bank. Specifically, each month, private banks must surrender a percentage of their foreign currency inflows, and in return, the NBE credits their payment and settlement accounts with the equivalent amount in Ethiopian Birr, using the current buying exchange rate. Given the recent implementation of this directive, which has been in effect for only a year, there is a lack of existing research analyzing its impact on bank profitability, specifically return on assets (ROA). Consequently, a negative relationship between this factor and the dependent variables is anticipated.

**Net Interest Margin (NIM): -** reflects the spread between interest income from loans and investments and interest expenses on deposits and borrowings. A larger NIM typically indicates better profitability from a bank's primary lending operations. This directly increases net interest income, which is a significant factor in overall net income, thereby enhancing Return on Assets (ROA) (Gemechu, 2016; Naceur, 2003; Birehanu, 2012).

**Managerial efficiency: -** reflects the spread between interest income from loans and investments and interest expenses on deposits and borrowings. A larger NIM typically indicates better profitability from a bank's primary lending operations. This directly increases net interest income, which is a significant factor in overall net income, thereby enhancing Return on Assets (ROA) (Gemechu, 2016; Naceur, 2003; Birehanu, 2012).

**Rate difference: -** calculated by subtracting the NBE's buying exchange rate from the private banks' mid-exchange rate, indicates potential exchange losses. As this difference widens, banks experience greater losses. Consequently, a negative relationship with the dependent variable is expected.

**Gross Domestic Product GDP:** - This refers to the aggregate market value of all final products and services produced within a nation's geographical boundaries during a defined period, typically one year. Generally, it stimulates loan demand from businesses and consumers. This increased lending activity can lead to higher interest income for banks, boosting their profitability and consequently, their Return on Assets (ROA) (Ozturk, 2016). Jahan (2020) highlights that a company's profitability, particularly for banks is influenced by a combination of its own strategic decisions and broader economic conditions. Due to the interconnectedness of global markets, significant financial events, such as the 2008 crisis, can have widespread repercussions across numerous countries.

**Inflation: -** is a persistent rise in the overall cost of goods and services within an economy, resulting in a decline in the value of money. This means that the same amount of money buys less over time. Elevated inflation can diminish the real value of loan repayments, thereby increasing the likelihood of defaults and adversely affecting loan quality. Furthermore, it can create instability and discourage investment, which impedes economic expansion and reduces the demand for loans (Mishkin, F. S., 2013).

## Chapter Four

# 4. RESULTS AND DISCUSIONS

This section details the findings of our examination into the effect of mandatory foreign exchange surrender on the performance of Ethiopian private banks. We will present both descriptive and econometric results. Initially, we will explore descriptive statistics, including means and percentages, to establish an understanding of the data's overall trends. Subsequently, we will employ a fixed effects panel regression model to conduct econometric analysis, which will identify the key drivers of private bank Return on Assets (ROA). This analysis will shed light on how the foreign exchange surrender policy has affected private bank performance.

This analysis of the factors influencing Ethiopian commercial bank performance, as measured by ROA, utilizes panel data. This data structure allows for the observation of all variables across both a time series, from 2017 to 2023, and a cross-section of sixteen private Ethiopian commercial banks.

## 4.1. Trend of Private Bank’s Performance

### 4.1.1. Profitability Trend of Ethiopian Bank’s

As the data gathered from 2017 to 2023 shows, each private banks operating in Ethiopia has registered an increasing trend in their net profit. The average net profit register by all sixteen banks in 2017 was Birr 352.75 million and the same figure was grown by 302% within six years and stood to Birr 1,417.73 billion in 2023. The average profit of the banks exhibited fluctuations from year to year. However, the rate of change in average profit declined from 2019 to 2022, decreasing to 42%, 32%, 25%, and 11%, respectively. A slight increase, with an average rate of growth of 54%, was observed in 2023.

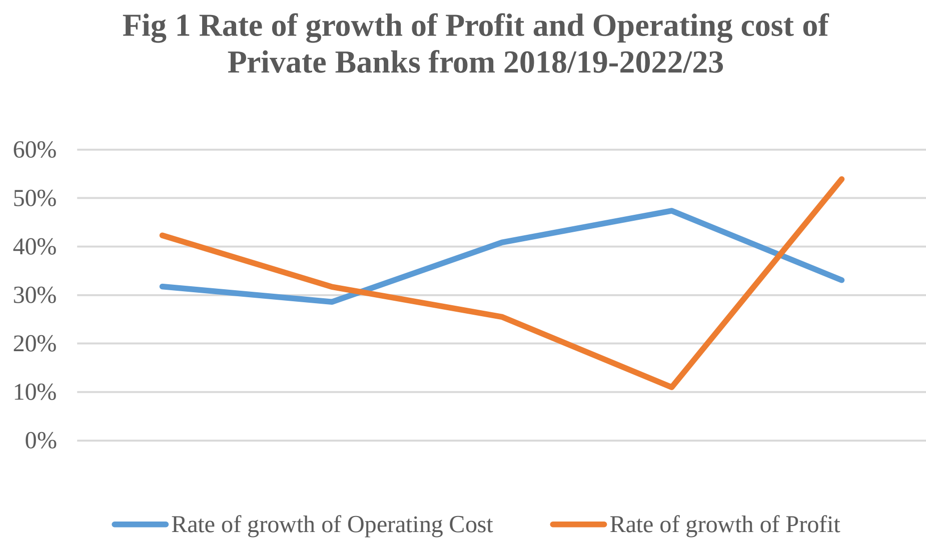
Moreover, next to interest income, banks have generated income from service or operating income which is mainly composed of service charge from foreign payments. With this scenario, the average operating income collected by the banks are increased from time to time. After the introduction of the proclamation under consideration, the rate of change in average operating cost was increase from 2018 – 2023 and slightly decreased in 2022/23. Diagram below shows the average profit and operating cost generated by local private banks for the period of 2018 to 2023.

The decline in the performance of Ethiopian banks during the period encompassing the COVID-19 pandemic and the conflict with Tigray forces can be attributed to a complex interplay of factors, impacting both their operational and financial stability.

Firstly, the COVID-19 pandemic severely disrupted international trade, a vital component of the Ethiopian economy. This disruption led to decreased export revenues, impacting businesses' ability to service their loans. Consequently, banks experienced a surge in non-performing loans (NPLs), eroding their asset quality and profitability. The pandemic also triggered a general economic slowdown, reducing overall loan demand and impacting fee-based income. The uncertainty surrounding the pandemic further contributed to a risk-averse lending environment, hindering the banks' ability to generate revenue.

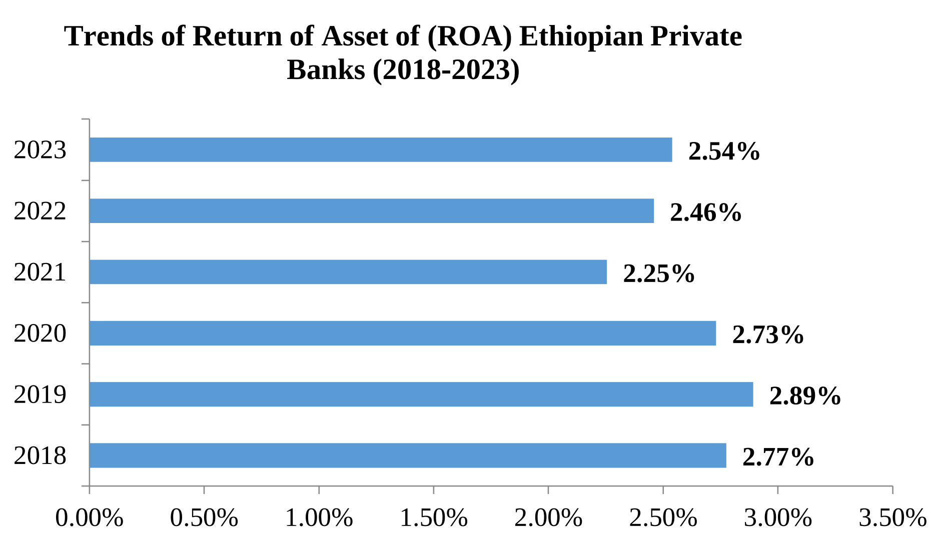
Secondly, the conflict with Tigray forces exacerbated the economic challenges. The war created significant instability, disrupting supply chains, and hindering economic activity in large portions of the country. This led to increased uncertainty and a decline in investor confidence, further impacting loan repayment capacity and increasing NPLs. The war also resulted in significant government expenditure, potentially diverting resources away from other sectors and contributing to inflationary pressures, which negatively affected the banking sector. Moreover, the conflict necessitated increased military spending, which can impact the availability of funds for other economic sectors.

Furthermore, the combined effect of the pandemic and the conflict created a challenging operational environment for Ethiopian banks. Restrictions imposed to curb the spread of COVID-19, coupled with security concerns related to the war, limited branch operations and customer interactions. This led to increased operational costs and reduced revenue generation. Additionally, the disruptions in international trade and the domestic conflict likely affected the exchange rate, creating volatility that impacted banks' foreign currency holdings and trading activities. Finally, the regulatory environment could have been affected by the crisis, leading to new regulations or changes to existing ones that could have put strain on the banks.




#### 4.1.2. Trends Return on Asset (ROA) of Ethiopian Bank's

Return on Assets (ROA), a measure of how effectively management transforms bank assets into net income, serves as a crucial metric for bank profitability, as noted earlier. The data gathered from sixteen private Ethiopian commercial banks demonstrates variability in their average ROA between 2018 and 2023. Specifically, the average ROA for these banks was observed to be 2.77%, 2.89%, 2.73%, 2.25%, 2.46%, and 2.54% in 2018, 2019, 2020, 2021, 2022, and 2023, respectively. This data indicates a decline in ROA from 2.89% in 2019 to 2.25% in 2021, followed by a subsequent increase to 2.54% in 2023. The peak ROA was recorded in 2019 at 2.89%, while the lowest point was reached in 2021 at 2.25%.



*Source: - own computation, 2024*

### 4.2. Descriptive statistics

Table 4.1 presents a summary of the key variables used in the regression analysis, providing descriptive statistics such as the mean, standard deviation, and range (minimum and maximum values) for each variable across the analyzed period. These statistics are summarized in the table below.

**Table 4:- Descriptive Analysis**

| Variable | Mean | Std dev. | Min | max |
|---|---|---|---|---|
| ROA | 2.608252 | 0.8317424 | 0.3257256 | 4.898819 |
| CA | 0.1380774 | 0.029539 | 0.078715 | 0.214108 |
| NPL | 546.6839 | 604.7287 | 18.43 | 2714.855 |
| SUR | 8.84e+07 | 1.14e+08 | 6853027 | 8.48e+08 |
| NIM | 2564.711 | 2821.208 | 133.198 | 15872.89 |
| RDF | -0.382945 | 0.1046156 | -.5327606 | -0.2587 |
| MEF | 60.43855 | 30.25883 | 1.392272 | 145.4667 |

### 4.3. Econometrics Analysis

This portion of the study will examine the connections between a bank's ROA and a range of factors, encompassing both internal and external influences, such as capital adequacy, loan provision amounts, and the mandatory surrender of foreign exchange, among others.

To achieve this, econometric analysis will be employed to identify significant variables which contribute a lot in explaining the independent variable and assess the connections between ROA and the independent variables. Unlike descriptive analysis, econometric analysis allows for statistical inference. Given the panel data nature of the dataset, a panel regression model is the appropriate approach to address the research questions.

Panel data, which tracks multiple subjects over time, allows for the management of factors that are not directly measured, such as cultural norms or variations in company operations. It also accommodates variables that evolve over time but remain constant across the observed subjects. This ability to account for individual differences makes panel data suitable for complex, hierarchical analytical models (Green, 2008).The study benefits from the use of panel data, as it effectively manages variations between banks that are not directly measured and reflects the evolving nature of the banking sector. A balanced panel dataset is particularly advantageous, offering greater statistical strength, reduced bias, and more efficient estimations. By employing a fixed effects model, the study aims to determine the precise impact of the independent variables on bank profitability, while also considering unique, time-constant characteristics of each bank

```
. xtset banknum Year
       panel variable:  banknum (strongly balanced)
        time variable:  Year, 2018 to 2023
                delta:  1 unit
```

### 4.3.1 Post Estimation Tests

#### 4.3.1.1 Unit Root Test

To ensure the validity of panel data analysis, it is crucial to employ unit root tests. These tests assess whether time series data exhibits stationarity, which implies that its statistical characteristics are stable over time. Without stationarity, there's a risk of spurious regression, leading to the identification of misleading correlations. To prevent this, unit root tests are performed on all variables. To account for serial correlation, the research employed the Augmented Dickey-Fuller (ADF) test, which incorporates lagged differences of the dependent variable. Based on the test statistic, there is sufficient evidence to reject the null hypothesis, indicating that the data is stationary.

The study identified a mix of variable stationary results, indicating different orders of integration. Capital Adequacy, Managerial Efficiency, and Rate Difference are stationary at levels, meaning they are I(0). This implies their statistical properties are already stable, and they can be used directly in the regression models without further transformation. Conversely, Surrendering Amount is stationary at lag 1, indicating it is I(1). This variable requires first differencing to achieve stationary. Similarly, Net Interest Margin and Provision Amount are stationary at lag 2, meaning they are I(2) and necessitate second differencing. These findings have significant implications for the analysis and must transform the I(1) and I(2) variables to their stationary forms before including them in your regression models.

#### 4.3.1.2 Hausman Test

Prior to choosing a panel data regression model, whether fixed, random, or pooled, it is essential to identify the most suitable model for the study. To differentiate between fixed and random effects, a Hausman test was performed. The Hausman test evaluates the differences between the coefficient estimates from random and fixed effects models. Fixed effects allows for correlation between individual-specific effects and the predictors. A significant difference in the test results suggests that the fixed effects model is more appropriate, as it ensures consistent estimates even if individual effects are correlated with the regressors. With a p-value of 0.6096, the Hausman test did not reach statistical significance at the 5% level. This outcome supports the use of a random effects model for the data analysis.

When individual-specific effects are considered unrelated to the independent variables, a random effects model is utilized in panel data analysis. This model treats these individual effects as random components of the error term. It is especially appropriate when the observed subjects are randomly drawn from a larger population, supporting the assumption that their unobserved traits are independent of the observed variables. The random effects model offers the benefit of efficiency, leveraging both within- and between-subject variation, which enables the estimation of coefficients for variables that do not change over time.

However, the validity of the random effects model hinges on the critical assumption of no correlation between the individual effects and the regressors. If this assumption is violated, the model's estimates will be biased and inconsistent.

```
                      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(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        1.82
                Prob>chi2 =      0.6096
                (V_b-V_B is not positive definite)
```

#### 4.3.1.2 Heteroscedasticity

A key assumption of the classical linear regression model is homoscedasticity, meaning the error terms maintain a consistent variance across all data points. However, this assumption can be violated by heteroscedasticity, where the variance of the error terms varies across observations. A Breusch-Pagan test was performed to identify heteroscedasticity, revealing a statistically significant p-value of 0.000, confirming its presence. To counteract this issue, a robust random effects model was utilized, which is designed to yield consistent and efficient estimates despite heteroscedasticity, thereby ensuring the findings' reliability.

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        ROA[banknum,t] = Xb + u[banknum] + e[banknum,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+-----------------------------
                     ROA |   .7637887       .8739501
                       e |   .1423379        .377277
                       u |   .2197647       .4687907

        Test:   Var(u) = 0
                             chibar2(01) =    26.02
                          Prob > chibar2 =   0.0000
```

### 4.3.1.3 Multicollinearity Problem

The correlation matrix presented below demonstrates that the independent variables in this study exhibit weak correlations among themselves. This suggests that multicollinearity, a problem arising from high correlations between independent variables, is not present. Kennedy (2008) suggests that multicollinearity is a concern when correlation coefficients surpass 0.86. In this study, no such high correlations were observed, reinforcing the absence of multicollinearity. This lack of strong correlations contributes to the increased reliability of the regression results.

```
. corr CA dSUR ddNPL ddNIM RDF MEF
(obs=64)

             |       CA     dSUR    ddNPL    ddNIM      RDF      MEF
-------------+------------------------------------------------------
          CA |   1.0000
        dSUR |  -0.1994   1.0000
       ddNPL |  -0.1303  -0.1548   1.0000
       ddNIM |  -0.2951   0.4724   0.0701   1.0000
         RDF |   0.0826  -0.1202   0.0909  -0.2269   1.0000
         MEF |   0.6861   0.0676  -0.0481  -0.0511   0.1548   1.0000
```

#### 4.3.1.4 Pesaran's Test of Cross-Sectional Independence

Studies using panel data often reveal considerable interdependence among cross-sectional units. This phenomenon can arise from a range of sources, such as shared disturbances, unmeasured factors, spatial relationships, and unique pairwise dependencies. Pesaran's test is a standard method for identifying this cross-sectional dependence. A p-value exceeding the chosen significance level in this test suggests that the independent variables do not exhibit significant cross-sectional dependence. In this particular study, the obtained p-value of 0.7971 is greater than typical significance thresholds, indicating the absence of such dependence. Therefore, we conclude that there is no evidence of cross-sectional dependence among our explanatory variables.

```
. xtcsd, pesaran


Pesaran's test of cross sectional independence =     0.257, Pr = 0.7971
```

#### 4.3.1.5 Normality Test

While robust random effects models are less sensitive to normality violations compared to traditional OLS models, examining the normality of residuals remains crucial. Normality tests, alongside other diagnostic checks, help assess the overall model fit and robustness. Even though robust standard errors are employed, significant deviations from normality can indicate potential issues with the model specification, such as omitted variables or non-linear relationships. Furthermore, normality assumptions underpin many statistical inference procedures, and although robust methods mitigate some of the concerns, examining residual distribution provides valuable insights into the model's performance and the reliability of the results. To validate the assumption of normally distributed error terms within the population, this study employed diagnostic tests, specifically the sktest. If the resulting p-value exceeds the chosen significance level, it suggests that there is insufficient evidence to reject the null hypothesis, which posits a normal distribution of the error terms.

Ho: Error Terms are normally distributed.

Ha: Not Ho

```
. sktest residual

                   Skewness/Kurtosis tests for Normality
                                                          ────── joint ──────
    Variable │        Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)   Prob>chi2
─────────────┼────────────────────────────────────────────────────────────────
    residual │         64     0.1391        0.1130        4.71         0.0951
```

The STATA output shows a p-value of 9.51%, which is above the standard significance levels. This indicates that we cannot reject the null hypothesis, suggesting that the error terms of ROA are normally distributed. In summary, the normality test confirms that the residuals of ROA follow a normal distribution.

## 4.4 Estimation Results

### 4.4.1 Determinant Factors of Banks Performance

The findings and analysis of the regression, which explores how mandatory foreign exchange surrender to the central bank affects bank profitability, are presented in this section. A random effects panel regression model, incorporating both time-based and cross-bank data, was used to thoroughly investigate this relationship. To validate the model's robustness, a Hausman test was performed to select the optimal estimation method. The test results indicated that a fixed effects model was more suitable than a random effects model. Furthermore, the data was assessed for multicollinearity, a statistical problem that can compromise regression accuracy. A correlation analysis demonstrated that multicollinearity was not present among the independent variables. To account for possible variations in error term variance, a robust random effects model was implemented. The subsequent table illustrates the results of the regression, demonstrating the relationships between bank profitability and the independent variables.

```
. xtreg ROA CA dSUR ddNPL ddNIM RDF MEF,re robust

Random-effects GLS regression                   Number of obs     =         64
Group variable: banknum                         Number of groups  =         16

R-sq:                                           Obs per group:
     within  = 0.4999                                         min =          4
     between = 0.5923                                         avg =        4.0
     overall = 0.5638                                         max =          4

                                                Wald chi2(6)      =     167.79
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000

                                (Std. Err. adjusted for 16 clusters in banknum)
------------------------------------------------------------------------------
             |               Robust
         ROA |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          CA |   1.771405   4.698541     0.38   0.706    -7.437565    10.98038
        dSUR |  -1.71e-09   1.13e-09    -1.51   0.131    -3.92e-09    5.09e-10
       ddNPL |  -.0005085   .0002069    -2.46   0.014    -.0009141   -.0001029
       ddNIM |   .0002003   .0000866     2.31   0.021     .0000307      .00037
         RDF |  -.1361514   .7054511    -0.19   0.847     -1.51881    1.246507
         MEF |   .0234002   .0040048     5.84   0.000      .015551    .0312494
       _cons |   .9291087   .6239738     1.49   0.136    -.2938574    2.152075
-------------+----------------------------------------------------------------
     sigma_u |  .46879072
     sigma_e |  .37727701
         rho |  .60691277   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

**ROAit = 0.93 -0.00051NPL+0.002NIM+0.023MEF**

A robust random effects model was utilized to manage potential inconsistencies in error term variance. The table that follows presents the regression results, showcasing the associations between bank profitability and the explanatory variables.

**Significant of explanatory variables:** The regression analysis reveals that managerial efficiency and net interest margin positively influence bank profitability, with statistically significant results. Conversely, loan loss provisions, representing non-performing loans, show a statistically significant negative impact on profitability. These findings are validated by p-values below the 5% significance level. However, other variables in the model did not demonstrate statistically significant relationships, as their p-values were above the 5% threshold.

**Net Interest Margin**: - The observed statistically significant positive correlation between NIM and ROA holds considerable importance for bank management decision-making. This finding underscores the critical importance of NIM as a key driver of bank profitability. To enhance ROA, banks should prioritize strategies aimed at maximizing NIM, such as:

**Managerial efficiency**: - The analysis indicated that a 1% improvement in managerial efficiency correlates with a 0.023% rise in ROA. This result mirrors the positive link between managerial efficiency and profitability observed in studies by Habtamu (2012) and Samuel (2015). However, it's worth noting that not all research agrees, as Birehanu (2012) reported a negative correlation. Variations in research outcomes, potentially stemming from differing research approaches, sample sizes, and unique bank attributes, may explain this inconsistency. Managerial efficiency, typically assessed by the operating expense to income ratio, is a critical metric for evaluating a bank's management effectiveness. Studies indicate a significant positive link between managerial efficiency and profitability, specifically ROA. Consequently, banks demonstrating greater managerial efficiency typically exhibit higher levels of profitability.

**Provision amount held loss Loan:-** The relationship between NPLs and provision amounts is intrinsically linked. For every increment in NPLs, banks must allocate a proportional increase in their provision amount. This allocation acts as a buffer, estimating the uncollectible portion of those loans. Banks meticulously calculate these provisions, considering factors such as the borrower's financial health, collateral values, and historical loss data. The higher the estimated loss severity per NPL, the larger the required provision. Consequently, for each NPL, banks must maintain a sufficient provision amount, ensuring they have adequate reserves to cover potential losses. This process directly impacts the bank's financial health, as the provision amount, deducted from earnings, effectively diminishes the bank's overall profitability, highlighting the critical importance of effective NPL management.

**Chapter Five**

## 5. Conclusion and Recommendations

The preceding chapter presented a comprehensive analysis of the research findings. In this chapter, I will concisely summarize the key insights gleaned from the study. Furthermore, I will delve into specific recommendations that are rooted in these findings. These recommendations aim to provide actionable guidance for addressing the identified issues and improving the situation.

### 5.1. Conclusion

This research investigated how requiring private commercial banks in Ethiopia to surrender a portion of their foreign currency earnings to the National Bank of Ethiopia (NBE) affected their performance. The study employed secondary data and utilized a range of statistical methods, including correlation, descriptive analysis of variance, and regression analysis, to achieve this goal. Bank profitability was evaluated using Return on Assets (ROA) as the key metric. The study utilized a random effects regression model to analyze panel data spanning 2018 to 2023, which included all operational private commercial banks in Ethiopia.

The study indicates managerial efficiency (quality of management) has positive and significantly affect profitability of private commercial banks. This suggests that effective management is a crucial determinant of profitability in the private banking sector.

The study also found that net interest margin also affect ROA significantly. To capitalize on this, banks should prioritize strategies to enhance NIM through optimizing interest rates, improving asset-liability management, and focusing on high-yielding loan portfolios.

The study reveals provision amount  negatively affects bank profitability. Reducing NPL amount leads to lower provision amount held for every loan loss. The study concludes that banks with lower non performing loan  tend to have higher profits. This suggests that commercial banks can enhance their profitability by implementing effective cost control measures and strengthen its monitoring and follow up of its loan disbursed.

### 5.2. Recommendations

Based on the findings of the study the following possible recommendations were forwarded: -

- Considering the beneficial effect of managerial efficiency on private commercial bank profitability, banks should prioritize increasing operating income and reducing operating expenses. Implementing various cost management strategies is essential to enhance overall managerial efficiency and, consequently, improve profitability.
- **Net interest margin:** The research demonstrated a statistically significant positive link between net interest margin and bank ROA, indicating that banks should strategically manage interest income. This involves optimizing loan and investment portfolios by focusing on high-return assets and appropriate pricing, while also reducing interest expenses through cost-efficient deposit acquisition and diverse funding. Effective asset-liability management and precise interest rate predictions are vital for controlling interest rate risk. A balanced strategy that maximizes income, minimizes expenses, and manages risk effectively is essential for maintaining and enhancing NIM.
- **Improving Loan Portfolio Quality**: Banks can mitigate the negative effects of non-performing loans (NPLs) on ROA and reduce provision amounts by concentrating lending on high-profit, low-risk sectors. Implementing proactive NPL management, including early detection, prompt intervention, and efficient recovery strategies, allows banks to significantly decrease the need for large provisions and improve profitability.

# References

Abreu, M., & Mendes, V. (2002), “Commercial bank interest margins and profitability: evidence from European countries”, Porto working paper series. Aburime, T. U. (2008). Determinants of Bank Pro#tability: Macroeconomic Evidence $om Nigeria (September 2). Available at SSRN: h*p://ssrn.com/abstract=1231064 or h*p://dx.doi. org/10.2139/ssrn.1231064. Acaravci, S. K. & Calim, A. E. (2013). Turkish banking sector’s profitability factors. International Journal of Economics and Financial Issues, 3(1), 27-41.

Adekola, O.A., (2016), The Effect of Banks Profitability on Economic Growth in Nigeria, IOSR Journal of Business and Management, Volume, 18(3), PP 01-09

Akbaş, H.M, Determinants of bank profitability: an investigation on Turkish banking sector, ocak 2012.103-110.

Alexiou, C. & Sofoklis, V. (2009). Determinants of bank profitability: Evidence from the Greek banking sector. Economic Annals, 54(182), 0013-3264.

Alper, D. & A. Anbar (2011), Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey, Business and Economics Research Journal, Volume 2. No.2, pp.139 -152.

Amdemikael, (2012), Factors affecting profitability: an empirical study on Ethiopian banking commercial banks, Unpublished Master’s thesis, Addis Ababa University.

Aminu, A.B. (2013), The Determinants of Bank’s Profitability in Nigeria, MSc project paper,

Anghel, M.A.and L. Paschia (Dincă) (2013), using the CAPM model to estimate the profitability of a financial instrument portfolio, Annales Universitatis Apulensis Series Oeconomica, 15(2), 541-551.

Athanasoglou P. P, Sophocles N. B, Matthaios, D.D. 2005, Bank-specific, industry-specific & macroeconomic determinants of bank profitability. Working paper, Bank of Greece. pp 3-4.

Athanasoglou, P. Delis, M. & Staikouras, C., 2006, Determinants of bank profitability in the South Eastern European Region, Bank of Greece Working Paper. 47.

available at http://www.nbe.gov.et/pdf/directives/bankingbusiness/accessed on August

Badola, B. and Verma R. (2006). Determinants of profitability of banks in India a multivariate analysis, Delhi Business Review X, Vol. 7, No. 2, pp. 11 – 19.

Bashir, A. M. (2003). Determinants of profitability in Islamic banks: Some evidence from the Middle East. Islamic Economic Studies, 11(1), 31-54.

Bashir, A. M. (2003). Risk and profitability measures in Islamic banks: The case of two Sudanese banks. Islamic Economic Studies, 6(2), 189-201.

Bennaceur, S. & Goaied, M. (2008). The Determinants of commercial bank interest margin and profitability: Evidence from Tunisia. Frontiers in Finance and Economics, 5(1), 106-130.

Berhanu B. (2015). Determinants of Banks Liquidity and their Impact on Profitability: Evidenced from eight commercial banks in Ethiopia. Unpublished Master's thesis, Addis Ababa University.

Bikker J.A., Hu, H., 2002, Cyclical Patterns in Profits, Provisioning and Lending of Banks and Pro-cyclicality of the New Basel Capital Requirements. BNL Quarterly Review 221, pp143175 Birhanu, (2012), Determinants of Commercial Banks Profitability: An Empirical Evidence from the Commercial Banks of Ethiopia, MSc project paper, Addis Ababa University.

Bourke P, 1989, Concentration and other determinants of bank profitability in Europe, North America and Australia, Journal of Banking and Finance, 65- 79. Brooks C 2008, Introductory Econometrics for Finance, 2nd edn, Cambridge University Press, New York Chinoda, T. (2014). The Determinants of Commercial Banks Profitability in Zimbabwe (20092014). IOSR Journal of Economics and Finance, 5(6), 69-80

Cooper DR & Schindler PS. (2003): Business Research Methods, 8th edition. New York:

Creswell, W.( 2009). Research design: quantitative, qualitative and mixed methods approaches, 3rd edn, Sage Publications, California.

Flamini, V., McDonald, C. and Schumacher, L. (2009). The Determinants of Commercial Ban profitability in Sub-Saharan Africa. IMF working paper, (09/15).

Funacova , P. and p. Thorton (2011). The determinants of European bank profitability, Journal of Banking and Finance 16 (6), 1173-1178.

Gemechu, (2016), Determinants of banks' profitability: evidence from banking industry in Ethiopia, International Journal of Economics, Commerce and Management, Vol. IV, Issue 2, pp.442-463.

Golin, J. (2001), "The bank credit analysis handbook: A guide for analysts, bankers and Investor. John Wiley & Sons (Asia).

Guru B., J., Staunton and Balashanmugam. (2009). Determinants of commercial bank profitability in Malaysia. University Multimedia working papers, pp. 19 - 27.

Habtamu, (2012), determinants of bank profitability: an empirical study on Ethiopian private commercial banks. Unpublished Master's thesis, Addis Ababa University.

Hoffmann, P.S. (2011). Determinants of the Profitability of the US Banking Industry, International Journal of Business and Social Science, 2(22), 255 – 269.

Kosmidou, K., Pasiouros, F., and Tsaklanganos, A. (2008). Domestic and Multinational Determinants of forien Bank profit: The case of Greek banks operating abroad. Journal of Multinational Financial Management, Issue,17, pp. 1- 15.

Leykun, F., Sharma, D., (2017), Determinants of Banks' Profitability: Review and Assessment, international journal of management and business studies, Vol. 7, Issue 1.

Molyneux, P. and Thornton, J. 1992, Determinants of European Bank Profitability: A Note. Journal of Banking and Finance, 16: 1173-1178.

Naceur, S. (2003), the determinants of the Tunisian banking industry profitability: Panel evidence, University Libre de Tunis, Working Papers.

Naceur, S. B. & Omran, M. (2011). The effect of bank regulations, competition, and financial reforms on banks' performance, Emerging Markets Review, 12(1), 1-20.

National Bank of Ethiopia NBE (2013/14) Annual Report.

National Bank of Ethiopia NBE (2014/15) Annual Report.

National Bank of Ethiopia NBE (2015/16) Annual Report.

National Bank of Ethiopia NBE (2016/17) Annual Report.

National Bank of Ethiopia NBE (2017/18) Annual Report.

National Bank of Ethiopia, Licensing and Supervision of Banking Business Proclamation No.84/1994 (1994). Single Borrower Loan Limit Business Directive No. SBB/29/2002 [Online], available at http://www.nbe.gov.et [accessed on jan 03, 2014 ].

NBE Annual Report 2017/18, the position and performance of commercial banks in Ethiopia

NBE 30% surrender Directives (Directive No. FXD/50/2017 /2017)

NBE Directive No. SBB/29/2002, (2002), amendment on single borrower limit, available at

NBE Directive No. SBB/4/95, (1995), legal reserve requirement, available

Obamuyi, T. M. (2013). Determinants of bank"s profitability in a developing economy: Evidence from Nigeria. Organizations and Markets in Emerging Economies, 4(2), 97-109.

Odunga R. M., Nyangweso P. M., Carter D. A. & Mwarumba, M. (2013). Credit Risk, Capital Adequacy and Operating Efficiency of Commercial Banks in Kenya. International Journal of Business and Management Invention, 2 (9), 6-12

Pasiouras, F. & Kosmidou, K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. Research in International Business and Finance, 21(2), 222–237

Pasiouras, F., (2008). International evidence on the impact of regulations and supervision on banks' technical efficiency: an application of two-stage data envelopment analysis. Review of Quantitative Finance and Accounting 30, 187-223. Available at http://www.bath.ac.uk/management/research/pdf/2007-01 accessed on June 23, 2014

Samuel (2015), Determinants of commercial banks profitability: the case of Ethiopian commercial banks. Unpublished Master's thesis, Addis Ababa University.

Spong k. (2000),Banking regulation. Its purposes, Implementation and effects. Fifth edition,

Sufian, F. & Chong, R. ( 2008).Determinant of bank profitability in a developing economy: empirical evidence from the Philippines, Asian Academy of Management Journal of Accounting & Finance, vol. 4, no. 2, pp. 91-112.

Tregenna, F.( 2009).Fat years: the structure and profitability of the US banking sector in the pre-crisis period, Cambridge Journal of Economics, vol. 33, no. 4, pp. 609-632.

Van Ommeren, S.( 2011).An examination of the determinants of banks profitability in the European banking sector, Msc thesis, Erasmus University.

Vittas D., (1992), Financial Regulations- changing the rule of game, The international bank

Williams M., (1996), Liberalizing a regulated banking System, Published by Avebury,