DETERMINANTS OF PROFITABILITY IN ETHIOPIAN PRIVATE COMMERCIAL BANKS: EVIDENCE FROM 2017–2023

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF HAWASSA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCES (MSC) IN ACCOUNTING AND FINANCING

BY:

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SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF ACCOUNTING AND FINANCE

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DECLARATION

I, the undersigned, declare that this Thesis is my original work and has not been presented for a degree in any other university, and that all sources of materials used for the thesis have been duly acknowledged.

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This is to certify that the thesis entitled *"Determinants of Profitability in Ethiopian Private Commercial Banks: Evidence from 2017–2023"* submitted in partial fulfillment of the requirements for the Degree of Masters of Science (MSc) in Accounting and Finance has been carried out by Temesgen Tesfaye under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department.

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We, the undersigned, members of the boards of examiners of the final open defense by Temesgen Tesfaye have read and evaluated his thesis entitled "*Determinants of Profitability in Ethiopian Private Commercial Banks: Evidence from 2017–2023*" and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment for the degree of Master of Science (MSc) in Accounting and Finance.

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Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the school of Graduate Student (SGS) through the department/School of Graduate committee (DGC/SGS) of the candidates department.

SGS Approval	Signature	Date

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Abstract

The major objective of this study was to examine both bank-specific factors, such as capital adequacy, liquidity, bank size, bank age, asset tangibility and leverage, as well as macroeconomic variables, including GDP growth and inflation, to determine their impact on profitability, as measured by Return on Assets (ROA). The research employed a quantitative approach, and used both descriptive and explanatory research designs to analyze panel data from five private commercial banks. The banks were Awash Bank, Abyssinia Bank, Dashen Bank, Nib Bank, and Zemen Bank and studied over the period from 2017 to 2023. Secondary data were obtained from the audited financial statements of the selected banks and macroeconomic reports from the National Bank of Ethiopia (NBE). The analysis employed EViews 9 software for regression analysis, revealing significant relationships between various factors and profitability, measured by Return on Assets (ROA).Various diagnostic tests, including multicollinearity, heteroscedasticity, normality, and autocorrelation, were conducted to ensure the reliability of the Ordinary Least Squares (OLS) regression model. The study finds indicate that bank size significantly increased ROA by effect size of 7.9% (β = 0.079, p = 0.007), while liquidity positively influenced profitability, with an increase of 11.9% (β = 0.119, p = 0.038). Additionally, leverage showed a positive impact, enhancing ROA by 2.2% (β = 0.022, p = 0.005). Asset tangibility was positively correlated with profitability, although not statistically significant (β = 1.638, p = 0.165). The study also found that GDP growth had a positive effect size on profitability (β = 1.967, p = 0.028), while inflation was inversely related to ROA, though not significantly affect financial performance. Accordingly, the study suggests that private banks need to work on their capital structure and asset management strategies. Managing liquidity to grow stability and profitability and managing debt to reduce financial risk are important. Also, regulators have the responsibility to generate an environment of low inflation and maintained stability in the economy that permits the banking sector to develop. This study adds to the literature on Ethiopian banking profitability and will be useful to policy makers, banks, and researchers in the future.

Keywords: *Bank profitability, capital adequacy, liquidity, leverage, inflation, GDP growth, private commercial banks*

Acronyms/Abbreviation

AGE: Age,

CA: Capital Adequacy,

CPI: Consumer Price Index

GDP: Gross demotic Product

GDPG: Gross demotic Product Growth

GFC: Global Financial Crisis

INFR: Annual Inflation Rate and

LEV: Leverage,

LQ: the Liquidity

MED: Municipal Executive Director

NIM: Net Interest Margin

ROA: Return on Asset

ROAA: Return on Average Assets

ROE: Return on Equity

SIZE: Firm Size,

TNG: Asset Tangibility,

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The banking sector serves as a cornerstone for modern trade and economic development, providing a critical source of finance to drive growth. Profitability is a fundamental concept for both financial and non-financial institutions, with banks playing a pivotal role. Success and growth in the banking industry heavily depend on competitive marketing strategies and performance, making it a key focus for management experts, investors, and economic analysts (Council of Ministers, 2010). The significance of banking profitability lies in its potential to influence overall economic growth and stability. As Hussain and Bhatti (2010) note, the protocols of banking have undergone significant changes in the new millennium compared to previous eras.

Financial performance, as defined by Murthy and Sree (2003), pertains to the execution of financial activities and is a key indicator of an institution's financial health over a specified period. Bank profitability can be determined by both bank-specific (endogenous) and macroeconomic (exogenous) factors. Performance is often evaluated in terms of competition, concentration, efficiency, productivity, and profitability. This metric can also be used to benchmark firms within the same industry or compare aggregate sectors. The performance of commercial banks is particularly critical for national development, as poor financial outcomes can lead to bankruptcy and trigger economic recessions (Ongore & Kusa, 2013). High-performing banks, on the other hand, enhance shareholder profitability and foster economic growth by expanding investment opportunities (Panayiotis et al., 2006). Thus, firms with superior performance are better equipped to withstand economic shocks, thereby contributing to the stability of the financial system (Athanasoglou et al., 2008). Given the interconnectedness between the banking sector’s health and economic growth (Levine, 1998), understanding the factors influencing bank profitability is critical for stakeholders, including bank managers, regulatory authorities, central banks, and policymakers.

Profitability metrics such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) are commonly employed to measure the financial performance of banks. ROA evaluates how efficiently a bank manages its costs and resources while ROE, often termed Return on Investment (ROI), assesses the return generated from shareholders' equity, factoring in asset turnover and debt-

equity management. NIM measures the difference between interest income and interest expenses relative to interest-earning assets like loans and advances (Murthy & Sree, 2003). These metrics are widely recognized in the literature for assessing bank performance (Alexandru, 2008; Ezra, 2013).

Several studies have explored bank profitability across different contexts, focusing on bank-specific, industry-specific, and macroeconomic factors. For example, Goddard et al. (2004) used panel data and dynamic panel estimation to examine profitability determinants in six European countries (Denmark, France, Germany, Italy, Spain, and the UK) between 1992 and 1998. Their findings highlighted that bank-specific factors such as size, capital-asset ratio, credit risk, and ownership significantly affect profitability, as measured by Return on Equity (ROE). However, the study found limited evidence of a systematic relationship between ownership type (an industry-specific determinant) and profitability.

In the Sub-Saharan African (SSA) context, bank profitability has also been extensively studied. For instance, Flamini et al. (2009) analyzed data from 389 banks across 41 SSA countries to assess profitability determinants measured by Return on Assets (ROA). The study revealed that bank-specific, industry-specific, and macroeconomic factors significantly influence profitability. Notably, it concluded that bank profits in SSA are relatively high compared to other regions, underscoring the region's unique financial landscape.

In Ethiopia, commercial banks play a crucial role as financial intermediaries in facilitating economic growth by channeling funds from savers to borrowers. This intermediary role underscores their importance to the economy's overall stability. Ethiopia’s banking sector has undergone significant reforms since the fall of the Derg regime in 1991. The Economic Policy Reform Program introduced under the Ethiopian People's Revolutionary Democratic Front (EPRDF) liberalized several sectors of the economy, including banking. These reforms enabled the emergence of privately owned banks, breaking the monopoly previously held by state-owned institutions. The establishment of the Licensing and Supervision of Banking Business Proclamation No. 84/1994 allowed private banks to operate legally for the first time in decades. As a result, the banking sector began to diversify, increasing competition, improving financial innovation, and expanding outreach (Demirgüç-Kunt & Levine, 2008; NBE, 2022).

However, despite liberalization, state-owned banks, particularly the Commercial Bank of Ethiopia (CBE), still dominate the sector. CBE holds more than half of total assets and deposits in the industry,

making it a major outlier (IMF, 2022). Given its scale, privileged access to government deposits, and policy-driven credit mandates, including directed lending to large-scale government projects, its financial metrics are not fully comparable to those of private banks. Therefore, this study intentionally excludes CBE from the analysis to avoid statistical distortion and to ensure a fair and unbiased comparison among market-driven, profit-oriented private commercial banks. Including CBE would likely skew the results due to its scale and role in implementing quasi-fiscal policies. This approach aligns with empirical practices in similar studies that seek to isolate the determinants of profitability within competitive banking environments (Flamini et al., 2009; Getenet & Erge, 2021).

In addition, the impacts of banking liberalization post-1991 have been both positive and transformative. The number of private banks has increased, financial inclusion has expanded in urban areas, and employment in the financial sector has grown significantly (World Bank, 2021). However, challenges such as regulatory limitations, underdeveloped capital markets, and restrictions on foreign bank entry remain ongoing concerns (Kiyota, Peitsch & Stern, 2007). Still, liberalization has set the foundation for a competitive and resilient banking sector that increasingly drives Ethiopia's economic transformation.

Despite the strategic role of banks and the sector's evolution, limited empirical research has been conducted on the determinants of profitability in Ethiopia's private banking sector. Existing studies often neglect key bank-specific and macroeconomic variables or fail to address recent structural and regulatory changes. This study seeks to fill that gap by focusing exclusively on private commercial banks and examining both internal and external profitability determinants using robust econometric techniques and current data.

1.2 Statement of the Problem

The profitability of commercial banks and its determinants have been extensively studied due to the banking sector's critical role in fostering economic development. Foundational studies have established that bank profitability is influenced by both internal factors, such as capital adequacy and asset quality, and external factors, such as macroeconomic conditions. For instance, research by Flamini et al. (2009) and Eichengreen and Gibson (2001), emphasizes the significance of these determinants, highlighting their dynamic and context-specific nature. Despite these contributions, the determinants of bank profitability remain a subject of debate within corporate finance literature due to their dynamic and

context-specific nature (Flamini et al., 2009; Athanasoglou, Brissimis, and Delis, 2008). Differences in economic, financial, and political systems across countries often limit the applicability of findings from one region to another.

Numerous recent global and regional studies have delved deeper into unraveling the key drivers of bank profitability. For instance, Khald's (2017) research concluded that while factors like capital adequacy, asset quality, and earning ability were significant for some banks, their direct impact on financial performance was not substantial. Meanwhile, Jaspreet et al. (2015) employed the CAMEL framework to rank banks based on their financial health and management efficiency. Similarly, studies by Sushendra (2015), Aminul (2014), and Golam (2014) have highlighted the essential role of capital adequacy, asset quality, management efficiency, and liquidity in ensuring sound financial performance. However, Githinji's (2010) findings suggest that asset quality may have a particularly strong influence on bank profitability. Similarly, Echekoba et al. (2014) and Parvesh and Sanjeev (2014) found that six out of the thirteen banks analyzed achieved excellent CAMEL ratings. These findings collectively suggest that the CAMEL model is an effective tool for assessing banking performance and ranking the banks under the study.

However, in the context of Ethiopia, there is limited comprehensive analysis focused to Ethiopia's post-liberalization banking context. Since Ethiopia began liberalizing its financial sector in 1994, with Proclamations No. 83/1994 and 84/1994 allowing private banking, the sector has undergone slow but notable evolution. However, challenges persist due to regulatory constraints, limited competition, high capital requirements, and foreign exchange (FX) shortages (Kiyota et al., 2007; IMF, 2022).

Despite the expansion of private commercial banks now numbering over 30 the sector remains dominated by the state-owned Commercial Bank of Ethiopia (CBE), which controls more than 60% of deposits and loans (NBE, 2023). This study, however, focuses on private commercial banks, excluding CBE due to its disproportionate market share, state-backed privileges, and operational structure that could bias comparisons. This focus enhances the comparability of findings and aligns with recent policy discourse that encourages a level playing field, especially in light of Ethiopia’s ongoing efforts to open the banking sector to foreign investors (MoF, 2023).

Moreover, profitability trends among Ethiopian private banks have fluctuated over the past decade. For instance, NBE reports show that the average Return on Assets (ROA) among private banks was 2.95%

between 2017 and 2022, but this varied widely across institutions and years, with some banks reporting as low as 1.4% and others exceeding 4%. This volatility highlights underlying structural inefficiencies and management challenges, which existing research has inadequately addressed.

Further, findings from Ethiopian studies have been inconsistent. For example, Deepak and Abebaw (2011) noted structural weaknesses despite privatization efforts, whereas Belayneh (2011), Mulualem (2015), Dawit (2016), and Tadesse (2015) found inconsistent effects of key determinants such as capital adequacy, asset quality, liquidity, and earning ability. These inconsistencies stem partly from outdated regulatory frameworks. Furthermore these local studies often excluded variables such as bank age, leverage, and asset tangibility, or overlooked macroeconomic dynamics like inflation volatility and GDP contractions during COVID-19. Additionally, recent shifts such as exchange rate liberalization and reforms proposed by the 10-Year Perspective Plan and Homegrown Economic Reform Program are yet to be systematically analyzed for their influence on bank profitability.

Furthermore, although the National Bank of Ethiopia (NBE) issued directives like NBE/BD/2021, which updated reserve requirements and capital adequacy standards, few empirical studies have assessed how such policy shifts affect bank performance. There is also a growing policy interest in the implications of FX reforms, given the government's intent to transition toward a market-clearing exchange rate regime (World Bank, 2023).

This study makes a novel contribution by analyzing panel data from 2017–2023, a period marked by economic reforms, political instability, FX regime transition, inflation surges, and COVID-19 disruptions. Unlike previous works that focused predominantly on descriptive statistics or limited models, this study uses an econometric approach to examine how both bank-specific (size, age, capital, liquidity, leverage) and macro-level (GDP growth, inflation) variables influence ROA among selected private banks. It also introduces underexplored variables such as asset tangibility and leverage, providing a more comprehensive understanding of profitability drivers in a transitioning economic landscape. Therefore, there is a notable lack of recent studies, highlighting the need for context-specific research. This study therefore, aims to fill these gaps by investigating the determinants of private commercial banks' profitability in Ethiopia; 2017 to 2023.

1.3. Objectives of the Study

1.3.2. General Objective of the Research

The primary objective of this study was to analyze the determinants of financial profitability among selected private commercial banks in Ethiopia.

1.3.3. Specific Objectives of the Research

To support the general objective, the study addressed the following specific aims: -

- To examine the impact of bank specific factors on the profitability of selected private commercial banks in Ethiopia as measured by Return on Asset (ROA).
- To identify the effect of macroeconomic determinants on the profitability of selected private commercial banks measured by Return on Asset (ROA).
- To compare the financial performance and profitability trends of the five selected private commercial banks over the seven-year period (2017–2023),

1.4. Research Questions

1. What bank-specific factors significantly affect the profitability of selected private commercial banks in Ethiopia from 2017–2023?
2. What are the macroeconomic determinants that influence the profitability of these banks over the same period?
3. How does financial performance vary among the five selected private commercial banks across the 2017–2023 years?

1.5. Research Hypotheses

The study tested the following hypotheses based on its conceptual model:

Ha1: There is a positive significant correlation between Bank size and profitability of selected private commercial banks in Ethiopia.

Ha2: There is a positive significant relationship between Age of the Bank and the financial performance of selected private commercial banks in Ethiopia.

Ha3: There is a negative significant relationship between inflation and the financial profitability of selected private commercial banks in Ethiopia.

Ha4: There is a positive significant relationship between GDP (foreign exchange rate) variation and the financial profitability of selected private commercial banks in Ethiopia.

Ha5: There is a positive significant relationship between capital Adequacy and the financial profitability of selected private commercial banks in Ethiopia.

Ha6: There is a negative significant relationship between leverage and the financial performance of selected private commercial banks in Ethiopia.

Ha7: There is a negative significant relationship between liquidity and the financial performance of selected private commercial banks in Ethiopia.

Ha8: There is a positive and significant relationship between asset tangibility and profitability of selected private commercial banks in Ethiopia

1.6. Significance of the Research

The study will have much Significance. The findings offer valuable insights into the impact of factors such as capital, loans, deposits, liquidity, leverage, and macroeconomic variables like inflation and foreign exchange rates. This can help managers make informed decisions to improve their bank's profitability. The research provides evidence-based recommendations for policy formulation to build a robust and resilient banking sector. The study contributes to existing literature and offers a reference point for future research on bank performance and profitability. It equips institutions with knowledge to navigate macroeconomic and bank-specific challenges, strengthening the overall banking industry in Ethiopia.

1.7. Scope of the Study

The study focuses on identifying the determinants of profitability for selected commercial banks operating in Ethiopia. Performance of banks can be expressed in terms of competition, concentration, efficiency, productivity and profitability, but in this study performance is defined as profitability.

Therefore, measuring performance (profitability) is delimited to three indicators- return on asset, return on equity and bank-specific (Bank size, Age of the banks, Capital Adequacy, Leverage, Liquidity, Asset Tangibility,) and macroeconomic factors (Real GDP rate and Inflations) that influence profitability of the banks. The research analyzed the financial performance of five selected private commercial banks in Ethiopia that have been engaged in commercial banking activities for at least five years from 2018 to 2022/23. These banks include: Awash Bank, Abysisnia Bank, Dashin Bank, Nib Bank and Zemen Bank. The Commercial Bank of Ethiopia (CBE) was excluded as it is a dominant state-owned entity whose inclusion might mislead the findings. Furthermore, the study emphasizes assessing the financial performance of these banks, utilizing established metrics to gain insights into the factors influencing their profitability during the period under review.

Methodologically, the research focused on explanatory form of research design and descriptive research method in which the samples are selected using purposive sampling method. The study utilized Return on Assets (ROA) as the primary measure of financial performance due to its effectiveness in assessing a bank's ability to generate profit from its assets.

1.8. Limitations of the Study

The study focuses primarily on financial variables as determinants of bank profitability, while non-financial variables, which may have a minor influence, are not extensively considered and could warrant further investigation. Financial reports for seven years under review might be influenced by unmodeled variables related to the broader economic environment. This limitation could hinder the accurate assessment of the actual impact of internal and external determinants on the profitability of the selected commercial bank in Ethiopia 2017 and 2022/23.

Furthermore, the reliance on secondary data and numerical analysis limited the depth of qualitative insights. The sample was restricted to private banks in Ethiopia, limiting the generalizability of findings to other developing countries or sectors. Despite these limitations, the study employed a comprehensive quantitative approach to achieve its objectives and provide actionable insights for stakeholders.

1.9. Organization of the Study

This paper is structured into five chapters, each comprising distinct sections and subsections, as outlined below: This chapter provides an overview of the study, including its background, objectives, and scope, setting the foundation for the subsequent analysis.

Chapter two examines key theoretical and empirical studies relevant to the determinants of bank profitability. It also includes a discussion of the Ethiopian banking environment, offering contextual insights into the industry's unique characteristics.

The methodology chapter details the research design, data collection methods, and analytical tools employed in the study. It outlines the steps taken to ensure the reliability and validity of the findings.

Chapter four presents the results of the econometric model, accompanied by an in-depth interpretation and analysis of the findings. The discussion links the results to the study objectives and existing literature.

The final chapter summarizes the study's key findings, draws conclusions, and provides policy recommendations. It also suggests directions for future research to further explore the determinants of bank profitability.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.0. Introduction

This chapter provides a review of the relevant literature to establish a foundation for the study and its key concepts. It explores history of commercial banks in Ethiopia, the theoretical frameworks guiding the research, examines the determinants of financial performance, and discusses findings from empirical studies. The chapter also identifies the research gap based on the reviewed literature and concludes with a summary of the empirical findings.

2.1. History of Commercial Banks in Ethiopia

Ethiopia's economy has historically been heavily state-controlled, starting from the imperial era (1931–1974), characterized by various industrial and service development plans. From 1974 to 1991, the country adopted a Soviet-style centrally planned economy. However, significant reforms were introduced in 1991 as the government transitioned to a market-based economic system. Despite the state maintaining a prominent role, private domestic investments were substantially encouraged under the new reforms (Alemayehu, 2006).

Informal financial systems have played a significant role in Ethiopia's economic and social development. These systems, rooted in the cultural context, emphasized cooperation and risk-sharing. Two prominent examples are “Equb” and “Idir”, which are traditional financial associations. Equb facilitates savings and financial mobilization, while Idir focuses on addressing socio-economic issues, particularly funeral-related expenses, fostering social bonds and interactions (Aredo, Addis Ababa University).

The introduction of modern banking in Ethiopia began with the establishment of the Bank of Abyssinia in 1905, following an agreement between Emperor Menelik II and a representative of the British-owned National Bank of Egypt. The Bank of Abyssinia served both as a central and commercial bank. Later, the first privately owned commercial bank, Addis Ababa Bank Share Company, was founded in 1964 by Ethiopian initiatives with a starting capital of 2 million Ethiopian Birr in partnership with National and Grindlays Bank of London, which held a 40% share.

During the imperial period (1931–1974), private commercial banking was virtually non-existent, with only one state-owned bank operating both central and commercial functions. In 1964, the State Bank

of Ethiopia was divided into two entities: the National Bank of Ethiopia (central bank) and the Commercial Bank of Ethiopia (CBE). However, following the 1974 nationalization of all commercial banks under the Derg regime, they were merged into Addis Ababa Bank, which later became the Commercial Bank of Ethiopia in 1980 under new directives.

During the Derg regime, the National Bank of Ethiopia prioritized a state-led development approach, utilizing credit allocation and foreign exchange policies to favor state-owned sectors. This resulted in a significant decline in private sector credit, dropping from nearly 100% during the imperial era to just 40% under the Derg (Di Antonio, 1998). The state-controlled financial system was characterized by inefficiencies, with no private banks operating during this period. Losses incurred by state institutions were subsidized by the government, and loans, particularly for state-owned enterprises (SOEs), required collateral.

By the end of 1974, Ethiopia's banking landscape consisted of state, foreign, and Ethiopian banks, including the Central Bank, Commercial Bank, Development Bank, and Investment Bank. However, differences in operational practices, limited banking experience, an unbalanced branch network, and inequitable banking practices rendered competition between banks almost irrelevant (NBE, 2012). Following the proclamation of socialism in 1974, the government nationalized all major corporations and assumed full control of the economy. As a result, private banks and 13 insurance companies were merged into state-owned entities under the supervision of the National Bank of Ethiopia. Three private banks Bancode Roman, Banco de Napoli, and Addis Ababa Bank S.C.were consolidated to form a new bank, which eventually merged with the Commercial Bank of Ethiopia S.C. in 1980.

Additionally, in 1976, the Ethiopian Investment and Savings S.C. was established through the merger of the Ethiopian Government Savings and Mortgage Company and the Housing and Savings Bank. Between 1975 and 1994, the financial sector was dominated by four state-owned banks the National Bank of Ethiopia, the Commercial Bank of Ethiopia, the Housing and Savings Bank, and the Development Bank of Ethiopia and a single government insurance company, the Ethiopian Insurance Corporation (Habtamu, 2012).

Following the fall of the Derg regime, opportunities emerged for private investment in the financial sector. Policies were introduced to encourage private investors to participate in banks, microfinance

institutions, and insurance companies, marking a shift toward a more open and inclusive financial system.

2.2. Current Performance of the Banking Sector in Ethiopia

In 1991, following the fall of the National Shengo regime, the newly established government implemented a liberal economic system. This shift led to the enactment of the Monetary and Banking Proclamation of 1994, which established the National Bank of Ethiopia as an autonomous institution. Additionally, Proclamation No. 83/1994 and the Licensing and Supervision of Banking Business Proclamation No. 84/1994 laid the legal foundation for private investment in the banking sector.

According to the 2023 annual reports of the National Bank of Ethiopia, the country's banking sector has demonstrated notable progress. This development is reflected in various aspects, such as the number of banks, total assets, and human resource utilization. The number of commercial bank branches and the establishment of new banks have increased compared to previous periods. However, this growth is relatively modest when compared to other developing African nations.

As of now, Ethiopia's banking sector comprises 31 commercial banks, with 30 privately owned and one publicly owned institution. All private banks were established after the economic reforms of 1992, whereas the state-owned bank has been operational since before the reforms. Although the history of private commercial banks in Ethiopia is relatively short, these banks have significantly contributed to expanding banking services and reducing the monopolistic dominance previously enjoyed by the state-owned Commercial Bank of Ethiopia (Ebisa, 2012).

The list of private commercial banks in Ethiopia begins with Awash Bank, the first private commercial bank established in the country. This was followed by the formation of other banks, including Dashen Bank, Hibret Bank, Wegagen Bank, Bank of Abyssinia, Cooperative Bank of Oromia, Lion International Bank, Oromia Bank, Zemen Bank, Nib International Bank, Berhan Bank, Enat Bank, Addis International Bank, Bunna International Bank, Global Bank Ethiopia, Abay Bank, ZamZam Bank, Siinqee Bank, Shabelle Bank, Goh Betoch Bank SC, Ahadu Bank, Tsehay Bank, Amhara Bank, Gadaa Bank SC, Rammis Bank, and Sidama Bank (NBE, 2023). Several other banks are currently in the process of formation.

Despite the growing presence of private banks, the Ethiopian banking industry remains dominated by three state-owned banks: the Commercial Bank of Ethiopia, the National Bank of Ethiopia, and the Development Bank of Ethiopia. These state-owned institutions hold a significant share of the financial system, limiting the role of private commercial banks. However, studies suggest that private banks are comparatively more efficient than their state-owned counterparts (Ebisa, 2012).

2.3. Theoretical Framework for Profitability

The theoretical framework guiding this study integrates established banking-specific models that elucidate the determinants of profitability within the banking sector. While earlier theories such as the Purchasing Power Parity (PPP) and the International Fisher Effect provide insights into macroeconomic interactions, they are less applicable to the nuanced dynamics of banking profitability. Therefore, this section emphasizes the CAMEL framework, which is more relevant for assessing financial performance in commercial banks.

2.3.1. The CAMEL framework

The CAMEL framework is a widely adopted model for evaluating the financial health of banks, focusing on five key components: Capital Adequacy, Asset Quality, Management Quality, Earnings, and Liquidity. This model allows for a comprehensive analysis of a bank's performance by considering both quantitative and qualitative factors (Khan et al., 2015).

The CAMEL framework is widely used by regulators, including the National Bank of Ethiopia, to evaluate the performance and stability of banks. It provides a comprehensive view by combining internal factors such as capital strength and liquidity with performance outcomes like earnings. Given that this study examines the effects of capital adequacy, liquidity, asset tangibility, and bank size all core CAMEL dimensions the framework offers a relevant lens for analysis (Jaspreet et al., 2015; Sushendra, 2015).

Capital Adequacy: This metric indicates a bank's ability to absorb losses and continue operations. Higher capital reserves enhance stability and investor confidence, which are crucial for profitability. Regulatory bodies, such as the National Bank of Ethiopia (NBE), set minimum capital requirements to ensure financial robustness (Berger, 1995).

Asset Quality: This factor assesses the risk inherent in a bank's asset portfolio, including the proportion of non-performing loans. High asset quality typically correlates with lower risk and increased profitability, as it minimizes potential losses from defaults (Khan et al., 2015).

Management Quality: Effective management practices are critical for optimizing bank operations and ensuring strategic alignment with market conditions. Strong management can lead to improved efficiency, better decision-making, and ultimately, enhanced profitability (Haron, 2004).

Earnings: This component evaluates the bank's profitability through various ratios, including Return on Assets (ROA) and Return on Equity (ROE). Sustainable earnings growth is essential for long-term success, as it provides capital for reinvestment and growth (Athanasoglou et al., 2008).

Liquidity: Adequate liquidity ensures that a bank can meet its short-term obligations, which is vital for operational stability. However, excessive liquidity may indicate inefficiencies, as funds are not being actively invested to generate returns (Pasiouras & Kosmidou, 2007).

Therefore, it can be inferred that the CAMEL framework directly links to banking profitability by providing a structured approach to evaluate how these components interact to influence overall financial performance. Studies have shown that banks with strong capital adequacy, high asset quality, and effective management typically report better profitability metrics (Goddard et al., 2004). For instance, Berger and Bouwman (2009) found that banks maintaining higher capital ratios tend to achieve superior profitability, underscoring the importance of capital adequacy.

Furthermore, liquidity management is crucial; as liquidity ratios improve, banks can enhance their profitability by capitalizing on lending opportunities (Kosmidou, 2008). This interplay between the CAMEL components illustrates how internal management practices and external market conditions converge to shape bank profitability.

In conclusion, while macroeconomic theories like the PPP and the Fisher Effect provide foundational insights into economic dynamics, they lack the specificity needed for examining banking profitability. The CAMEL framework offers a focused approach that captures the multifaceted nature of banking performance, making it a more relevant theoretical model for this study. By integrating this

framework, the research aims to provide a comprehensive understanding of the factors influencing the profitability of private commercial banks in Ethiopia.

2.3.2 The Structure-Conduct-Performance (SCP) model

Similarly, the Structure-Conduct-Performance (SCP) model explains how the market structure and strategic decisions of banks influence their financial performance. In developing economies like Ethiopia, where the banking sector is undergoing liberalization and regulatory transformation, this model helps in understanding how changes in the external environment (e.g., inflation, GDP growth, FX regime reforms) affect profitability (Flamini et al., 2009).

By integrating CAMEL and SCP models, this study provides a holistic framework that connects both internal bank strategies and macro-level influences to profitability outcomes. These frameworks are more empirically validated and practically relevant to the Ethiopian banking context than purely macroeconomic theories like Purchasing Power Parity (PPP) and the International Fisher Effect (IFE), which are more suited for currency and exchange rate modeling.

2.3.1. The Purchasing Power Parity (PPP) Theory

The Purchasing Power Parity (PPP) theory, introduced by the Swedish economist Gustav (Menon & Viswanathan, 2005), posits that identical goods in different countries should cost the same when measured in a common currency. This theory suits the macroeconomic theories for exchange rate and inflation studies in open international markets This concept implies that exchange rates between currencies are in equilibrium when their purchasing power is equal across countries. The fundamental basis for the willingness to exchange money is its purchasing power over goods and services in another country (Reid & Joshua, 2004). Deviations from this equilibrium indicate that a currency is misvalued.

According to Yin-Wong and Kon (1994), the main challenge in applying this theory lies in measuring PPP using price indices, as different countries rely on distinct goods to calculate their price levels (Reid, 2005). To address these challenges, an alternative form of PPP, known as relative PPP, has been developed. Unlike absolute PPP, which assumes perfect markets, relative PPP accounts for real-world market imperfections such as transportation costs, tariffs, and quotas. Relative PPP focuses on changes in exchange rates over time rather than the absolute level of exchange rates.

2.3.2 The International Fisher Effect

The International Fisher Effect suggests that the difference in returns between two countries is equal to the difference in their inflation rates (Shapiro, 2007). According to this theory, nominal risk-free interest rates comprise two components: the real rate of return and anticipated inflation. If investors worldwide demand the same real return, interest rate differentials across countries can be attributed to variations in expected inflation.

This theory further proposes that currencies with relatively high nominal interest rates are expected to depreciate because these rates reflect anticipated inflation. Additionally, nominal interest rates may include the default risk associated with specific investments (Staikouras & Wood, 2004).

2.4. Determinants of profitability and variables selection

Scholars have employed various models to measure profitability, with Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM) being the most widely used. Ahmed (2003) identifies these measures as extensively applied in literature for profitability assessment. While some researchers use these models comparatively to identify the most effective measure of performance, ROA stands out as the most commonly used profitability metric. This study adopts the ROA model to explore the determinants of profitability.

According to Rivard and Thomas (1997), ROA is the most effective tool for assessing how well a bank manages its assets to generate revenue. They provide two primary reasons for favoring ROA over other performance measures: Reduced Distortion by Equity Multiplier: Unlike ROE, which focuses solely on shareholder equity and measures the returns generated for equity holders, ROA minimizes distortions caused by movements in the equity multiplier. Broader Representation of Asset Efficiency: ROA better captures a bank's ability to generate returns from its overall asset portfolio compared to other profitability metrics, such as NIM, which reflects the profitability of earning assets specifically. Based on insights from empirical reviews, this study employs ROA as the dependent variable in the model.

2.5. Bank-Specific Determinants of Profitability

The most frequently used proxies for bank-specific determinants of profitability include: Firm size, leverage, age, liquidity, asset tangibility, capital adequacy and other operating expenses,

1. Firm Size

Firm size is a significant determinant of performance, largely due to the economies of scale highlighted in the traditional neoclassical view of firms. Larger firms tend to achieve higher efficiency through economies of scale, which enhances their financial performance compared to smaller firms. Smaller firms, on the other hand, often face challenges in competing with larger firms in highly competitive markets due to their limited power and resources (Hailegebreal, 2016).

Empirical findings on the relationship between firm size and performance, particularly in the banking sector, have been mixed. Studies by Mazviona et al. (2017), Kazeem (2015), and Mwangi and M. (2015) reported a negative relationship between size and performance. Conversely, Alomari and Azzam (2017), Dey et al. (2015), Bawa and Chattha (2014), and Charumathi (2012) found a positive association between size and profitability.

The "too big to fail" argument suggests that large banks benefit from implicit guarantees, which lower their funding costs and encourage investments in riskier assets (Iannotta, Nocera, & Sironi, 2007). However, this status can lead to moral hazard behavior and excessive risk exposure, as these banks may rely on liquidity assistance from a Lender of Last Resort instead of maintaining adequate liquid assets. Consequently, large banks often engage in higher levels of liquidity creation, exposing them to potential losses from selling illiquid assets to meet customer liquidity demands. This dynamic may establish a positive relationship between bank size and illiquidity.

2. Leverage

Leverage is a key factor influencing firm performance (Mehari & Aemiro, 2013). It indicates the extent to which a company utilizes borrowed funds. High leverage can increase the risk of bankruptcy if a firm struggles to meet its debt obligations, and it may also face challenges in securing new lenders in the future. While leverage can negatively affect a firm’s financial stability, it can also have a positive impact on performance. Specifically, leverage can serve as a tool to discipline management, preventing inefficient use of company resources (Grossman & Hart, 1982).

The relationship between financial leverage and firm performance has been the subject of mixed findings. Some studies have found a positive correlation between leverage and performance, including research by Mazviona et al. (2017), Mwangi and M. (2015), Burca and Batrinca (2014), and Boadi et

al. (2013). In contrast, other studies, such as those by Alomari and Azzam (2017), Hailegebreal (2016), Kazeem (2015), and Dey et al. (2015), have concluded that leverage negatively impacts profitability.

3. Age

The age of a company is a critical factor in organizational studies and plays a significant role in determining its financial performance. New companies typically face challenges in their early years, often struggling to generate substantial profits. This is because they tend to focus more on expanding their market share rather than on improving financial stability and profitability (Athanasoglou et al., 2005). As companies mature, they usually develop more established processes, customer bases, and financial strategies, which can enhance their overall performance.

The relationship between a company's age and its performance has yielded mixed results in empirical studies. Some research indicates that age has a positive impact on performance. For instance, Berteji and Hammami (2016), Kaya (2015), and Derbali (2014) found a significant positive correlation between company age and performance, suggesting that older companies benefit from accumulated experience, market knowledge, and financial stability. Similarly, more mature companies often have better access to capital, stronger brand recognition, and improved operational efficiencies, all of which can contribute to higher profitability.

However, other studies show a different perspective. Mwangi and M (2015) and Malik (2011) observed a positive relationship between company age and performance, but they noted that this effect may vary depending on industry, market conditions, and the company's ability to innovate. Younger firms may outperform older ones in certain sectors, particularly in rapidly changing industries such as technology, where agility and innovation are keys to success. This supports the argument that age alone does not guarantee better performance and that factor such as adaptability, market positioning, and management quality also play vital roles in determining financial success. Overall, while age can provide certain advantages, the link between company age and performance is complex and may depend on a variety of internal and external factors.

4. Liquidity

Liquidity ratios assess a firm's ability to meet short-term commitments using its liquid assets. Firms with higher liquidity are less likely to fail, as they can generate cash even in challenging situations. Consequently, financial institutions like banks with greater liquid assets are expected to perform better than those with lower liquidity. Daniel and Tilahun (2013) affirmed a positive relationship between liquidity and profitability in financial institutions. In contrast, Pasiouras and Kosmidou (2007) proposed a negative correlation between these variables.

Liquidity risk arises when a bank holds insufficient liquid assets, making it more vulnerable to significant deposit withdrawals. According to Saunders and Cornett (2008), liquidity risk is the potential inability to meet liabilities or fund increases in assets, stemming from either an asset's inability to convert into cash or the high cost of conversion. They also highlight price risk the likelihood that the sale price of an asset will fall below its purchase price as a critical factor influencing bank profitability (Athanasoglou, 2006). Liquidity risk is typically measured by the ratio of liquid assets to customer deposits and other short-term funding. Ommeren (2011) identifies insufficient liquidity as a major cause of bank failures.

When demand for liquidity exceeds supply, commercial banks face a liquidity deficit. In such cases, banks may need to raise liquid funds through borrowing or selling liquid assets. However, short-term borrowings are often costly, and liquidating assets may result in income loss, negatively impacting profitability. Conversely, idle funds and the lower returns on liquid assets can reduce profitability for banks with surplus liquidity. Liquidity management, therefore, is a critical determinant of commercial bank profitability (Rasiah, 2010).

5. Asset Tangibility

The tangibility of assets ratio measures the share of fixed assets from total assets, this allows the firm to get access easily to borrowings, due to it serving as collateral to get sufficient loans. According to Asnakew (2011), tangible assets are likely to have an impact on the borrowing decisions of a firm because they are less subjected to informational asymmetries and usually have a greater value than intangible assets in case of bankruptcy. Therefore, it is considered that the availability of such borrowing capacity will affect the profitability of the financial institutions. A study by Daniel and

Tilahun (2013); Hifza (2011) and Naveed et al. (2011), found a positive and significant relationship between asset tangibility and profitability of financial institutions. On the other hand, a high ratio of asset tangibility may indicate inefficient use of working capital, which reduces the firm's ability to carry receivables and maintain inventory and usually means a low cash reserve. This may often limit the ability of the firm to respond to increased demand for products or services (Liargovas and Skandalis, 2008). This concept is also supported by the findings of Abdelkader (2014); Yuvaraj and Gashaw (2013) and Abate (2012).

H5: Asset Tangibility Affects Profitability of banks in Ethiopia

6. Capital adequacy

Capital adequacy is commonly viewed as an indicator of a bank's financial strength, with the general belief that banks with higher levels of capital are more financially robust. This principle forms the basis of the Basel Capital Accord. As the equity-to-total-assets ratio increases, the risk of insolvency decreases, which in turn lowers the cost of funding. However, raising equity capital can also increase the cost of equity due to a higher opportunity cost of capital. Additionally, replacing debt with equity reduces the tax benefits typically associated with borrowing, potentially raising the overall cost of funding.

The relationship between capital structure and profitability has been found to be positive in many studies. Research by Bourke (1989), Demirgüç-Kunt and Huizinga (1999), Goddard et al. (2004), Kosmidou et al. (2005), Pasiouras and Kosmidou (2007), Athanasoglou et al. (2008), Flamini et al. (2009), Naceur and Omran (2011), Dietrich and Wanzenried (2011), and Mirzaei and Mirzaei (2011) all support this positive association.

Capital adequacy, or the volume of capital, is a measure of a financial institution's ability to absorb operational and unexpected losses. It serves as a tool to safeguard the stability and efficiency of the financial system, ensuring that the institution has enough capital to handle unforeseen financial difficulties. Capital adequacy also reflects a company's capacity to undertake additional business (Tanveer, 2004). Studies by Yuvaraj and Gashaw (2013), Gashaw (2012), Imad et al. (2011), and Hifza (2011) also found a positive relationship between capital adequacy and the profitability of financial institutions.

2.6. Macroeconomic Determinants of Bank Financial Performance

Financial performance refers to a bank's capability to utilize strategic decisions effectively to achieve financial stability. Essentially, it reflects the extent to which a bank meets its set goals or objectives. Banks evaluate their financial success by adhering to predefined financial objectives and standards, with profit being the ultimate aim of all banks. Profitability is assessed through ratios like return on assets, return on equity, and net interest margins (Mueni, 2016). A bank's performance is influenced by numerous factors, which can be categorized as either internal or external. Internal factors, unique to each bank and under the control of the board of directors, impact profitability and include elements like information technology, capital size, labor productivity, deposit levels, management quality, credit portfolio, interest rate policy, bank size, and ownership. These internal elements are within the bank's operational scope and vary from one institution to another.

External factors influencing a bank's performance primarily encompass GDP, macroeconomic policy stability, exchange rates, inflation, political instability, and interest rates (Athanasoglu et al., 2005). This study specifically examines two external factors, focusing on the exchange rate and inflation, and their impact on banks' financial performance.

2.6.1 Exchange Rate

GDP is a key indicator of a nation's economic health. According to Fadzlan and Royfaizal (2008), GDP is commonly used to measure overall economic activity, with its growth rate indicating the economic cycle's phase. Significant GDP changes can substantially impact the stock market; typically, an economic downturn leads to reduced company profits and, consequently, lower stock prices. Investors often worry about shrinking GDP, a major factor in recognizing recessions (www.investopedia.com). Empirical evidence from studies by Cecila (2014), Doreen (2013), and Doumpos et al. (2012) indicates that real GDP positively affects financial institutions' profitability.

The foreign exchange rate represents the price at which one currency can be exchanged for another. Various factors influence the exchange rate between two currencies, which can fluctuate over time due to international trade dynamics. Countries adopt different currency policy systems. Hoyle et al. (2011) classify these into three main types: a floating exchange rate system, where the rate changes based on supply and demand; a fixed exchange rate system, where the government intervenes to maintain

stability; and a managed floating rate system, which is a middle ground that allows some government intervention to stabilize short-term fluctuations while generally following market trends.

2.6.2. Inflation

Inflation is defined as the sustained decrease in the purchasing power of a currency over time, or more specifically, the rate at which the general price level of goods and services rises, consequently reducing purchasing power. This is typically measured either on a continuously compounded basis (using differences in natural logarithms) or as an annual percentage increase, as reflected in the Consumer Price Index (CPI). Inflation, to some extent, is an inevitable aspect of economies. High inflation rates can negatively impact real economic growth, leading to adverse effects on overall economic performance. However, the specific relationship between inflation and economic growth, as well as the mechanisms through which inflation influences real economic activities, remains a topic of ongoing debate (Li & Godzik, 2006). As noted by Godfrey (2012), financial institutions' performance and profitability may decline not due to poor management but as a consequence of inflation. John (2011) observed that inflation generally increases investors' required real rate of return on equity and reduces real capital income for tax-related reasons, establishing a strong negative correlation between inflation and real income, along with real and nominal stock prices.

Many economists refer to inflation when discussing the overall inflation rate of an economy, which represents the percentage change from a previous period and is often gauged using the consumer price index. This encompasses the total cost of goods and services consumed by an average individual (Spoon, 2003). According to Biller (2007), inflation is characterized by the significant devaluation of a currency. Price increases in commodities can occur within a single country, impacting all sectors of the economy, from international trade to daily life. High prices exacerbate economic transactions. Viewed as an economic challenge, governments strive to maintain inflation at relatively low levels. Interestingly, inflation can be beneficial for organizations that invest heavily before inflation occurs and profit during inflationary periods. However, accurately predicting inflation is difficult, and its effects are often negative. Therefore, banks need strategies to forecast and manage inflation to maintain consistency in their operations.

2.7. Empirical findings From Developed Countries

Reviewing empirical findings involves comparing one's research with previous studies on the same topic to validate or challenge existing results using one's own empirical data. Below are some key reviewed empirical findings related to this specific subject, along with identified gaps in the research.

Pasiouras and Kosmidou (2006) analyzed commercial banks from 15 EU countries and found that equity to total assets positively and significantly influenced profitability, while total cost to income had a significant negative effect. Liquidity also showed a significant negative relationship with profitability, and bank size had a significant negative impact, suggesting that smaller banks benefit from economies of scale. Thus, EU banks should focus on other profitability determinants besides bank size to enhance their profits. The R^2 value was higher for domestic banks, suggesting that some profitability determinants for foreign banks were not included in the model. Concentration did not impact profitability. Notably, GDP growth and inflation rate were significantly and positively related to domestic banks' profitability, indicating that banks could accurately anticipate inflation during that period. Madishetts and Rwechungura (2013) studied banks in Tanzania and concluded that internal factors such as liquidity risk, credit risk, bank size, and capital adequacy significantly influenced profitability during 2006-2012. In contrast, external factors like GDP growth rate and inflation rate had no impact on banks' profitability. Ayanda (2012), examined data from Nigeria's banking industry between 1980 and 2010, reported that capital adequacy negatively influenced profitability. This result suggests that while well-capitalized banks are less risky, they may yield lower profits compared to less-capitalized banks. Liquidity risk had mixed effects, with total loans-to-assets showing a negative impact while loans-to-deposits had a positive effect. Moreover, growth in money supply positively influenced profitability, whereas credit risk negatively impacted performance. In Greece, Alexiou and Sofoklis (2009) analyzed banking data from 2000 to 2007 and found that inflation positively influenced profitability. This was attributed to effective inflation forecasting by bank management, which allowed for interest rate adjustments to maximize profits. Their study also revealed that capital strength positively affected profitability, while credit risk and liquidity risk had negative impacts. These findings highlight the complex interplay between internal and external factors in determining bank profitability

Panayiotis et al. (2005), in a study on Greek banks, emphasized the importance of capital adequacy in explaining profitability. However, unlike Alexiou and Sofoklis, they found that bank size had no

significant effect. Inflation positively influenced profitability, suggesting effective inflation forecasting by bank management, while GDP also showed a positive and significant effect.

2.8. Empirical Evidence from Ethiopia

Several empirical studies have explored the factors influencing the profitability of commercial banks in Ethiopia, offering a range of insights based on different data sets and methodologies. For example, Tamiru Belete (2010) conducted a study on eight commercial banks covering the period from 2005 to 2010. He investigated how asset-liability management (ALM) impacts bank profitability, measured through Return on Assets (ROA). The study considered both balance sheet variables (such as bank deposits, loans and advances, fixed assets, and liabilities) and macroeconomic indicators (like GDP growth and inflation). Using pooled Ordinary Least Squares (OLS) regression, the findings showed that deposits in banks, investments, and loans had a positive impact on profitability. In contrast, demand deposits, fixed deposits, liabilities, credit balances, and GDP growth negatively affected profitability. Inflation was also found to have a negative, though statistically insignificant, effect.

Birhanu Tsehay Amare (2012) examined the determinants of profitability in the Commercial Bank of Ethiopia from 2000 to 2011. His analysis included bank-specific factors (such as capital adequacy, credit and liquidity risk, loan-to-asset ratios, non-interest income, and expense management) industry-specific elements (like market concentration), and macroeconomic variables (GDP and interest rates). Using OLS estimation, the study found that larger bank size, poor expense management, and increased credit risk negatively and significantly influenced profitability. Interestingly, no significant impact was found from market concentration. On the macroeconomic front, GDP growth had a positive and significant effect on both ROA and Net Interest Margin (NIM), while interest rate policy positively impacted NIM alone.

In another study, Habtamu Nigussie (2012) analyzed data from seven private Ethiopian banks between 2002 and 2011 to identify factors affecting profitability. Using a multiple linear regression model, the study looked at internal factors (capital adequacy, asset quality, managerial efficiency, liquidity, and bank size) and external ones (GDP growth and regulatory frameworks). Profitability was measured using ROA, Return on Equity (ROE), and NIM. The findings revealed that capital adequacy, managerial efficiency, and bank size had significant positive effects, whereas GDP and liquidity had negative impacts. Regulatory support was shown to strongly enhance profitability.

Tibebu Tefera (2011) focused on credit risk management and its effect on bank profitability, studying data from 2001 to 2010 across several major banks, including the Commercial Bank of Ethiopia, Awash International Bank, and Bank of Abyssinia. Using multiple regression analysis, he examined the relationship between Return on Equity (ROE) and variables like non-performing loans (NPL) and the capital adequacy ratio (CAR). The results indicated that both NPLs and CAR negatively impacted profitability. Survey responses from bank risk managers further suggested that credit risk management practices particularly in the Commercial Bank of Ethiopia were insufficient.

Tadesse (2015) found that fluctuations in exchange rates negatively impacted commercial bank profitability in Ethiopia, though his model did not account for inflation. Meanwhile, **Lake (2013)** highlighted that both credit and financial risks had statistically significant negative effects on profits, and the interplay between interest and exchange rates was also significant.

Expanding on this, Lake (2013) analyzed data from 2000 to 2011, affirming that financial and credit risks were detrimental to profitability. This study contrasted with Tadesse's, showcasing the diversity of outcomes even within similar contexts. Earlier, Azebu (2007) had found that operational efficiency (measured by cost-to-income ratio) and capital adequacy positively influenced profitability. Larger banks benefited from economies of scale, while liquidity risks posed a threat to performance. Real GDP growth was also found to be a key driver of profitability.

Krama and Tekeste (2012) studied Ethiopian banks from 2000 to 2009 and identified that internal factors like the equity-to-assets ratio, non-interest income, and bank size had a positive effect on profitability. Liquidity risk remained a consistent challenge. External factors like GDP and inflation showed positive associations, but their effects were statistically insignificant, indicating the need for stronger mechanisms to manage external economic shocks.

Kiyota, Peitsch, and Stern (2007), in their discussion paper titled *"The Case of Financial Liberalization in Ethiopia,"* compared Ethiopia's banking sector with those of neighboring countries like Kenya and Uganda. They argued that Ethiopia's lack of foreign banks, market liberalization, and competitive pricing limited the sector's development. Despite these limitations, profitability—measured by Return on Average Assets (ROAA)—remained relatively high. They also found that inflation and GDP had positive, but statistically insignificant, effects on profitability. The researchers recommended that

banks reduce excessive liquidity and allocate assets more productively, given the high interest spread resulting from weak competition.

In a broader context, Biruk (2012) examined the impact of exchange rate volatility on agricultural exports across 29 Sub-Saharan African countries from 1996 to 2008. He found that exchange rate fluctuations significantly harmed agricultural exports, suggesting the need for stable exchange rate policies.

Similarly, Amezenech (2018) looked specifically at Ethiopian coffee exports from 1980 to 2015 and found a significant negative effect of exchange rate volatility on foreign exchange earnings. While this study focused on agriculture, it underscores the broader relevance of exchange rate risks, even for financial institutions.

Overall, these studies show that both internal and external factors influence bank profitability in Ethiopia, though the findings often vary. Internally, capital adequacy, efficiency, bank size, and risk management practices play critical roles. Externally, macroeconomic indicators like GDP and inflation show mixed effects. These inconsistencies underline the importance of context-specific research. The current study aims to contribute to this field by using a quantitative approach and seven years of secondary data to offer a more comprehensive understanding of the factors shaping bank profitability in Ethiopia. the following table shows studies in Ethiopia with its similarities, differences and inconsistencies.

Table 2.1: Empirical Findings on Determinants of Bank Profitability in Ethiopia

Author/ Year	**Period**	**Method**	**Profitability Measures**	**Significant Positive Effects**	**Significant Negative Effects**	**Inconsistencies**
Tamiru Belete (2010)	2005–2010	OLS (Pooled)	ROA	Deposits in bank, Other investment, Loan & advance	Demand, Saving & Fixed Deposits; Other liabilities; Credit balance; Real GDP	Inflation negative but **insignificant**; GDP negatively impacts, **unlike other studies**

Birhanu Tsehay Amare (2012)	2000–2011	OLS	ROA, NIM	GDP (significant), Interest rate (on NIM)	Bank size, Expense management, Credit risk	GDP **positive**, unlike Tamiru (2010); Credit risk negative **similar to others**
Habtamu Nigussie (2012)	2002–2011	Panel Regression	ROA, ROE, NIM	Capital adequacy, Managerial efficiency, Bank size, Regulation	GDP, Liquidity	GDP **negative**, unlike Birhanu (2012); consistent with Tamiru (2010)
Tibebu Tefera (2011)	2001–2010	Multiple Regression	ROE	None explicitly stated	Non-performing loan ratio, Capital adequacy	CAR and NPL both negative, **aligning with Habtamu & Lake**, but **contrasts Azebu**
Tadesse (2015)	Not stated	Regression (unspecified)	ROA	None reported	Exchange rate	Exchange rate **negative**, aligns with Amezenech; **inflation not included**
Lake (2013)	2000–2011	Not specified	Not specified	None reported	Credit risk, Financial risk, Exchange rate	Aligns with Tibebu and Habtamu on **credit risk**; adds exchange rate dimension
Azebu (2007)	Not specified	Not specified	ROA	Operational efficiency, Capital adequacy, Bank size, GDP	Liquidity risk	GDP positive (like Birhanu), contradicts Habtamu; CAR positive (unlike Tibebu, Lake)
Krama & Tekeste (2012)	2000–2009	Not specified	Not specified	Equity/assets, NII, Bank size	Liquidity risk	Inflation & GDP **positive but not significant**; contrasts others who found significant effects
Kiyota et al. (2007)	~2000s	Comparative analysis	ROAA	GDP, Inflation (both positive but insignificant)	Loan loss provisions (negative, not significant)	High-interest spread due to lack of competition; GDP result contradicts Habtamu &

						Tamiru

This table reveals notable inconsistencies in the empirical findings, especially concerning macroeconomic indicators like GDP and inflation, as well as bank-specific indicators like capital adequacy and credit risk. These variations suggest that contextual factors (data coverage, time frame, methodology, and bank types) play a substantial role, reinforcing the need for localized and updated research to inform policy and management decisions in Ethiopia's evolving banking landscape.

2.9. Conceptual Framework of the Study

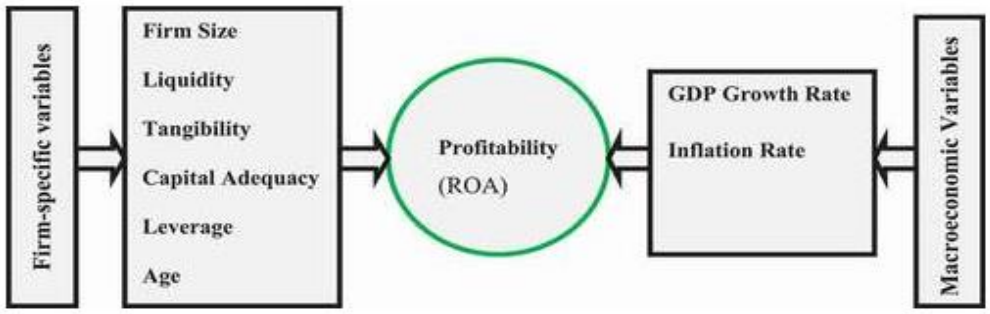


Fig 2.1: Conceptual Framework

Source: Developed from the literature Review (2024)

The conceptual framework presented in the study illustrates the relationship between *bank profitability* measured by *Return on Assets (ROA)* and a set of internal and external factors. Profitability, as the dependent variable, is influenced by two broad categories of independent variables: firm-specific variables and macroeconomic variables. Firm-specific variables include firm size, liquidity, tangibility, capital adequacy, leverage, and age of the bank. These internal factors reflect the operational, financial, and managerial aspects of the bank and are expected to impact ROA either positively or negatively. For instance, larger banks often benefit from economies of scale, leading to better profitability (Abebaw and Reddy, 2020), while higher capital adequacy contributes to financial stability and improves earnings potential (Azebu, 2007). However, excessive leverage tends to reduce profitability due to increased risk and financial cost (Tibebu, 2011).

On the other hand, the macroeconomic variables *GDP growth rate and inflation rate* represent the external economic environment in which banks operate. A growing GDP typically enhances bank

profitability by increasing demand for financial services and lowering default risk (Kiyota et al., 2009). Inflation, however, can have a dual effect: moderate inflation may improve interest margins, while high inflation creates economic uncertainty that can negatively impact returns (Tamiru, 2010). This framework underscores the multifaceted nature of bank performance, suggesting that both internal capabilities and the broader economic context play a significant role.

In the Ethiopian context between 2017 and 2023, the banking industry has experienced a combination of sectoral reforms, digital expansion, and macroeconomic challenges, including inflation volatility and GDP fluctuations due to COVID-19 and internal conflicts. Understanding the interplay between these determinants and profitability is essential for stakeholders such as bank managers, policymakers, and investors. The insights drawn from this framework help identify performance drivers and offer strategic direction for improving the financial health of private commercial banks. Studies such as those by Birhanu (2012), Habtamu (2012), and Tadele (2020) have reinforced the importance of both firm-level efficiency and macroeconomic stability in shaping the profitability landscape of Ethiopian banks.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3. Introduction

This chapter focuses on the research methodology which integrates the various techniques that is used for the study to achieve the research objectives. It takes into account issues such as the research design, research approach, target population, sampling technique, Sample size, Source of data, Method of data collection, Method of data analysis, and Ethical Considerations.

3.1. Research Design

Research design refers to the systematic planning and organization of activities to collect and analyze data in alignment with the objectives of a study and the broader economic context. It involves conducting research activities efficiently to generate valuable insights while minimizing effort, time, and cost (Kothari, 2004). This study adopted an explanatory research design, which is well-suited to identifying and analyzing the relationships between variables (Creswell, 2014). Specifically, the explanatory approach enables an evaluation of how bank-specific factors and macroeconomic variables, such as GDP and inflation, impact the profitability of selected commercial banks in Ethiopia during the period 2017–2023.

The use of these designs was appropriate for this study as they facilitate both the description and interpretation of existing relationships between the dependent variable-banks' profitability and the independent variables, including Bank size, Age of the banks, Capital Adequacy, Leverage, Liquidity, Asset Tangibility,) and macroeconomic factors (Real GDP rate and Inflations) that influence profitability of the banks

3.2. Research Approach

This study adopted a quantitative research approach to investigate the determinants of banks' profitability, focusing on selected commercial banks in Ethiopia from 2017to 2023. The quantitative approach is particularly suitable for examining relationships between variables using numerical data and statistical analysis, ensuring objectivity and reliability in deriving conclusions (Creswell & Creswell, 2018).

Quantitative research is effective in studies that aim to identify patterns, test hypotheses, and establish cause-effect relationships. It is widely used in financial research to analyze performance determinants through measurable variables (Zikmund et al., 2013). This approach allowed the study to systematically analyze secondary data, enabling the exploration of bank-specific and macroeconomic factors affecting profitability.

3.3. Target Population and Sample size

Population in statistics refers to a specific group of individuals, organizations, events, or elements about which information is sought. According to Kothari (2004), a population is a "well-defined group of people, services, elements, or households being investigated." For this study, the target population included all 31 commercial banks operating in Ethiopia during the period from 2017 to 2023.

The sample population for this study focuses on private commercial banks registered by the National Bank of Ethiopia (NBE) and operating within the country for more than a decade. The sample was selected using purposive sampling based on the following well-defined criteria: the availability of data and audited annual financial reports from 2017 to 2023; market share or presence and an operational history of more than 10 years; representativeness of private commercial banking trends in Ethiopia; demonstrated capacity to declare dividends, indicating stable financial reporting; and the exclusion of dominant state-owned banks. Specifically, the Commercial Bank of Ethiopia (CBE) was excluded due to its dominant market share and government ownership, which may distort comparisons because of different regulatory treatments, access to public funds, and mandates (NBE, 2023). Including CBE would introduce bias and reduce the internal validity of private-sector profitability determinants (Kiyota et al., 2007).

Accordingly, five private banks; Awash Bank, Dashen Bank, Bank of Abyssinia, Nib International Bank, and Zemen Bank were selected. These banks have a considerable market share and reliable financial disclosure practices, aligning with the study’s objective to examine profitability in a liberalized, competitive environment (National Bank of Ethiopia, 2023). Data spanning the period from 2017 to 2023 were drawn from the audited financial reports of these banks. This selection was also made because consistent seven-year annual financial data were readily available for these institutions. The dataset formed a strong balanced panel, capturing both cross-sectional and time-series dimensions. The rationale for selecting these private commercial banks lies in their accessibility and

their representation of broader private-sector banking trends in Ethiopia, making them suitable for assessing the determinants of profitability in this context. By focusing on a multi-year period, the study ensures the availability of longitudinal data, which facilitates a robust analysis of trends and influencing factors.

Table 3.1: Lists of Commercial Banks in Ethiopia

No	Name of commercial banks	Year of establishment
1	Awash Bank	1994
2	Dashen Bank	1995
3	Bank of Abyssinia	1996
4	Wegagen Bank	1997
5	United Bank	1998
6	Nib International Bank	1999
7	Cooperative Bank of Oromia	2005
8	Lion International bank	2006
9	Oromia International Bank	2008
10	Zemen Bank	2009
11	Buna International Bank	2009
12	Berhan Bank	2010
13	Abbay Bank	2010
14	Global Bank Ethiopia	2012
15	Addis Bank	2011
16	Enat bank	2013
17	ZamZam Bank	2021
18	Hijra Bank	2021
19	Siinqee Bank	2021
20	Shabelle Bank	2021
21	Goh Betoch Bank SC	2021
22	Amhara Bank	2021
23	Ahadu Bank	2022

24	Tsedey Bank	2022
25	Tsehay Bank	2022
26	Gadaa Bank SC	2022
27	Rammis Bank	2022
28	Sidama Bank	2022
29	Siket Bank	2023
30	Commercial Bank of Ethiopia (State Bank)	1963
31	Development Bank of Ethiopia	1901

Source; National Bank of Ethiopia, 2024

To investigate the determinants of financial performance of private commercial banks and achieve objectives stated; banks seven years of operation (service) since 2017 up to 2023; and who declared cash dividend were included. Accordingly; banks who satisfy the above criteria were 5 banks. These banks are Dashen Bank S.C (DB), Awash Bank S.C (AB), Nib International Bank S.C (NIB), Bank of AbyssiniaS.C (BOA), Zemen Bank (ZB). Thus, it is possible to describe, forecast and draw conclusion using 35 observations (7 years X 5 Banks). The output of both correlation and regression analysis were measured in terms of 1%, 5%, and 10% significance level of confidence interval.

Table 3.2: List of sampled Commercial Banks as of June 30, 2023

No	**Name of commercial banks**	**Year of establishment**	**Owner Ship**
1	Awash Bank	1994	Private
2	Dashen Bank	1995	Private
3	Bank of Abyssinia	1996	Private
4	Nib International Bank	1999	Private
5	Zemen Bank	2009	Private

Source; National Bank of Ethiopia, 2024

3.4. Data Source and Data Collection Tools

Data collection refers to the techniques and processes used to gather information necessary for answering research questions and achieving study objectives. For this study on the determinants of bank profitability in selected commercial banks in Ethiopia during the period 2017–2023, secondary

data sources were employed. Secondary data are preferred due to their cost-effectiveness in terms of time and resources, as well as their potential to provide high-quality and reliable information (Saunders et al., 2007, cited in Gadise, 2014).

As a result, Bank-specific information was sourced from audited annual financial statements of the selected private commercial banks in Ethiopia. These statements provided key indicators such as: Bank size (total assets), Age of the banks, Capital Adequacy (equity-to-asset ratio), Leverage, Liquidity ratio, Asset Tangibility, Profitability metrics (return on assets and return on equity. Moreover, Data on macroeconomic variables, including GDP growth and inflation rates, were obtained from Annual reports published by the National Bank of Ethiopia (NBE).

3.5. Data Collection Process

The data collection process involved reviewing and compiling information from publicly available audited reports and publications. Bank-based data were directly extracted from the official annual reports of selected commercial banks, while macroeconomic indicators were sourced from reports issued by national regulatory bodies. This comprehensive approach ensured the inclusion of both micro-level (bank-specific) and macro-level (economic) determinants of bank profitability.

By utilizing secondary data, the study ensures accuracy and consistency, leveraging high-quality and verified information provided by established institutions. This method aligns with best practices in financial research (Kothari, 2004). The period under review (2017–2023) was chosen to capture recent trends and their impact on the profitability of commercial banks.

3.6. Data Analysis and Presentation

According to Kothari (2004), once data collection and organization are complete, it is crucial to analyze the data in alignment with the research objectives. For this study on the determinants of bank profitability, secondary data was obtained from the annual financial statements of selected commercial banks in Ethiopia and the National Bank of Ethiopia (NBE). This analysis utilized EViews Version 9 (2022) software, employing both descriptive statistics and econometric tools to meet the study's objectives. Descriptive statistics, including measures like mean, maximum, minimum, and standard deviation, were used to assess general trends and the existing situation. These descriptive insights were

further supported by econometric models to explore causal relationships between explanatory and dependent variables.

A multi-linear regression model and specification tests were employed to discern the significance of various independent factors affecting Return on Assets (ROA), a key profitability measure. The Ordinary Least Squares (OLS) method within EViews allowed the assessment of these relationships and identification of the most impactful factors on bank profitability. However, to enhance the methodological robustness and address the limitations of panel data analysis, the study also applied fixed effects and random effects models. The Hausman test was conducted to choose between these alternatives, ensuring that the results were not only statistically significant but also consistent and unbiased. These robustness checks provide greater confidence in the reliability of the findings by accounting for unobserved heterogeneity across banks.

Studies such as those by Athanasoglou, Brissimis, and Delis (2008), and Dietrich and Wanzenried (2011) have emphasized the significance of variables like asset quality, capital adequacy, management efficiency, and market size in determining bank profitability. These variables were integrated into the regression analysis to provide insightful findings that could guide banks in optimizing their strategies and enhancing financial performance.

3.7. Variable Measurement and Model Specification

In developing an empirical model to analyze the determinants of bank profitability, several key factors need to be addressed. These include selecting appropriate dependent and explanatory variables, accurately measuring these variables, and specifying the model correctly. To ensure the model's suitability, tests for normality, heteroskedasticity, and multicollinearity were conducted. The results confirmed that the model is well-fitted for the data analyzed in this study. Detailed outputs from these tests are provided in the appendix. Additionally, an endogeneity test was performed to detect any potential endogeneity issues within the variables. The results showed no endogeneity problems, and the corresponding output is included in the appendix.

The Dependent Variable

In line with previous research on bank profitability determinants, this study uses Return on Assets (ROA) as the primary measure of profitability. ROA assesses the overall profitability of a bank by

evaluating both its profit margin and asset utilization efficiency (Brealey et al., 2006). It is calculated by dividing net profit after tax by total assets:

ROA=Netprofitaftertax(t)/TotalAssets(t)

This ratio is crucial for comparing efficiency and financial performance across banks, as it indicates the returns generated from the assets owned by the firm.

Independent Variables

The selection of explanatory variables is grounded in their theoretical association with the dependent variable. Based on the research hypothesis, the factors influencing the profitability of commercial banks in Ethiopia include firm-specific variables such as (Bank size, Age of the banks, Capital Adequacy, Leverage, Liquidity, Asset Tangibility, along with macroeconomic variables like GDP and inflation. These variables have been identified as significant determinants of bank profitability in various studies (Hongxing, 2018; Mazviona et al., 2017; Khan et al., 2015; Hifza, 2011). Table 3.1 offers a summary of these variables and their anticipated impact on the profitability of the Ethiopian banking sector

Table 3.3: Description of the variables, relationship, Symbol and Definition

Variables	Symbol	Measurement	Expected Sign
Dependent			
Return on Asset	RoA	Net Income / Total Assets	**NA**
Independent			
Bank size	SIZE	Natural logarithm of total assets (ln Total Assets)	+
Leverage	LEV	Total Debt / Total Assets or Total Liabilities / Total Assets	-
Age	AGE	Number of years since the bank's establishment	+
Liquidity Ratio	LQ	Liquid Assets / Total Assets or Liquid Assets / Short-term Liabilities	-

Asset Tangibility Quality	TNG	Fixed Assets / Total Assets	+
Capital Adequacy	CA	Tier 1 Capital / Risk-Weighted Assets (or Total Capital / Risk-Weighted Assets)	+
Gross Domestic Product	GDP	Annual GDP growth rate (%)	+
Inflation Rate	INFR	Annual consumer price index (CPI) inflation rate (%)	-

To assess how these determinant variables influence banks' profitability, the study formulated the following econometric models.

ROAit=α+β1(SIZE)it+β2(LQ)it+β3(TNG)it+β4(CA)it+β5(LEV)it+β6(AGE)it+β7(INFR)it+β8(GDPG)it+εitROAit=α+β1SIZEit+β2LQit+β3TNGit+β4CAit+β5LEVit+β6AGEit+β7INFRit+β8GDPGit+εit(1)

Where ROA is Profitability, SIZE is the Firm Size, LQ is the Liquidity, TNG is Asset Tangibility, CA is Capital Adequacy, LEV is Leverage, AGE is the Firm Age, INFR is Annual Inflation Rate and GDPG is the Real GDP Growth Rate, i is the i^{th} banks, t is the period, β_1, β_2, β_3, β_4, β_5, β_6, β_7 and β_8 are the coefficients for each explanatory variables in the model, ε_{it} is the error term.

3.8. Validation and Reliability

In assessing the validity and reliability of data collection instruments, both aspects were carefully considered. Validity pertains to the extent to which a method, test, or research tool effectively measures what it is intended to measure. Reliability, on the other hand, is concerned with the consistency of results provided by a test, method, or tool across various settings and when used by different researchers (Wellington, 2000).

3.9 Ethical Considerations

The researcher ensured that all ethical considerations were addressed in conducting the study. Initially, a clearance letter of permission was obtained from Hawassa University.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1. Introduction

This chapter deals with the discussion and analysis of data collected from the sampled banks' annual publications of the national bank of Ethiopia (NBE) and each commercial banks audited annual financial reports. The audited financial statements of the banks over the study period has been obtained from National Bank of Ethiopia, (which is responsible for maintaining the audited financial statements of all banks operating in the country and regulate their operating activities), the country's central bank. Basically, the balance sheet and income statements were the main sources of the relevant data to address the stated objectives of the study. Based on this information, the study is analyzed in two major sections. The first section describes determinates of commercial banks profitability using percentage ratio and the second section presented the correlation and regression analysis to determine cause effect relationship between dependent and independent variables.

4.2. Descriptive statistics of variables

This section was presents the descriptive statistics for all variables used in the study, including the dependent variable (ROA and LogROA) and the independent variables (LIQ, Lev, SIZE, Age, Tangibility, CAPGR, GDP, INF). The statistics, summarized in Table 4.1 (assuming a table number will be assigned), provide an overview of the data's characteristics, including measures of central tendency (mean), dispersion (minimum, maximum, standard deviation), and distribution shape (skewness, kurtosis). All statistics are based on N=42 observations.

Table 4.1: Descriptive statistics of variables for each variable

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
ROA	42	14.39	34.52	20.95	4.64	1.39	1.75
LIQ	42	0.21	0.56	0.35	0.10	0.43	-0.76
Lev	42	3.95	8.92	5.99	1.18	0.44	-0.04
SIZE	42	3.56	4.87	4.33	0.35	-0.43	-0.85
Age	42	10.00	24.00	18.67	4.81	-0.69	-0.68
Tangibility	42	0.01	0.19	0.06	0.04	1.38	1.24

CAPGR	42	5.29	9.69	6.68	1.00	0.56	0.54
GDP	42	0.05	0.10	0.07	0.02	0.75	-0.98
INF	42	7.30	34.00	23.46	9.58	-0.55	-1.30
LogROA	42	1.16	1.51	1.31	0.08	0.70	0.36

Sources: SPSS output, 2025

As depicted in Table 4.1above, the descriptive statistics was reveal considerable variation across the different variables. The dependent variable, Return on Assets (ROA), averaged 20.95%, with some variation (SD = 4.64) and a tendency for some banks to achieve higher profitability (positive skewness). Its logarithmic form, LogROA, used in the regression, showed less variability (Std. Dev. = 0.08) with a mean of 1.31.

Among the bank-specific independent variables, Liquidity (LIQ) averaged 0.35, while Leverage (Lev) had a mean of 5.99, indicating banks typically held debt about six times their equity. Bank Size (SIZE), measured as the log of total assets, averaged 4.33. Bank Age averaged 18.67 years. Asset Tangibility was generally low, averaging 0.06, while the Capital Growth Rate (CAPGR) averaged 6.68%. The macroeconomic variables showed that GDP growth averaged 7% with little variation, whereas the Inflation Rate (INF) was high and varied significantly, averaging 23.46% with a large standard deviation (SD=9.58).

The distributions of these variables showed differing shapes. ROA, Tangibility, and LogROA were notably skewed towards higher values, while Bank Age and Inflation were skewed towards lower values. These initial descriptive insights highlight the diverse nature of the banking environment and the economic conditions studied, providing a foundational understanding for the subsequent inferential analyses. The use of LogROA in the regression aimed to address some of the distributional properties observed in the raw ROA data.

4.3. Trend of Profitability (ROA)

Profitability reflects a bank's efficiency in generating earnings relative to its assets. In this study, profitability is assessed using the Return on Assets (ROA) metric, calculated by dividing net profit before tax by total assets. Utilizing pre-tax profits helps neutralize the effects of varying tax rates over different periods, providing a clearer picture of operational performance. The table below indicates the studied commercial banks trend of profitability from 2017-2023.

Table 4.2: Return on Asset (ROA) in percentages

Bank	**Years**							
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**Average**
AIB	0.144	0.173	0.221	0.153	0.214	0.187	0.184	0.182
BOA	0.183	0.227	0.157	0.169	0.179	0.165	0.169	0.178
DB	0.215	0.237	0.313	0.325	0.345	0.295	0.302	0.290
NIB	0.230	0.215	0.177	0.237	0.209	0.202	0.208	0.211
ZB	0.232	0.206	0.188	0.160	0.179	0.200	0.197	0.194
Average	0.201	0.211	0.211	0.209	0.225	0.210	0.212	0.211

Source: Computed from annual reports of each bank

The data presented in Table 4.2 provides insights into the Return on Assets (ROA) of five private commercial banks in Ethiopia over the period from 2017 to 2023. ROA serves as a key indicator of a bank's profitability by measuring how efficiently it utilizes its assets to generate earnings. As we take a closer look at the figures, I can see some promising trends in the ROA percentages. Throughout the years, the average ROA for all five banks showed some ups and downs, starting with a low of 20.1% in 2017 and reaching a high of 22.5% in 2021. These changes suggested at how different operational and economic factors influenced each bank's ability to generate profits. The peak in 2021 suggests a time of increased profitability, likely driven by favorable economic conditions, better banking regulations, or strategic changes made by the banks themselves.

At the individual bank level, significant differences in ROA performance are observed. Dashen Bank (DB) consistently outperformed its peers, achieving an average ROA of 29%, making it the most profitable in asset utilization. On the other hand, Awash International Bank (AIB) recorded the lowest average ROA at 18.2%, indicating a relatively lower efficiency in generating returns from its assets. Other banks, such as Nib International Bank (NIB) and Zemen Bank (ZB), maintained moderate profitability levels, with averages close to 21.1% and 19.4%, respectively. Overall, a closer look at these figures suggests that older banks tend to exhibit higher net profits compared to their newer counterparts. This trend may stem from several factors, including established customer bases, better resource management, and a deeper understanding of the market dynamics. Moreover, the total assets

of these older banks are generally larger, which can contribute to a more stable ROA, despite the differences in performance among the banks studied.

4.4. Determinants of ROA

The study also explores both internal and external factors that influence the ROA of these banks during the specified period. Internal determinants include aspects such as bank size, capital adequacy, liquidity ratios, loan growth, net interest margins, cost-to-income ratios, and the proportion of non-performing loans. These factors are integral to understanding how a bank's operational efficiency and financial health impact its profitability.

On the external hand, variables like GDP and inflation play great roles. As the economy fluctuates, so too does the banking sector’s performance. The average ROA's slight increase from 2017 to 2021 indicates that the banks may have adeptly navigated external economic challenges during this period. However, the stabilization of ROA in subsequent years suggests that banks may now be facing a more competitive environment or other economic constraints that limit further growth.

In conclusion, the data from the table not only shows improvements on the ROA trends of the selected banks but also emphasizes the importance of understanding the multifaceted nature of banking performance. As these banks continue to adapt to internal dynamics and external pressures, their strategies will be crucial in sustaining profitability and growth in the years to come.

Liquidity (LIQ)

The Liquidity position of the studied banks were measured based one Liquid asset/net deposit ratio which indicates the extent to which the bank‘s total liquid assets are composed of deposits from customers and other financial institutions. Liquidity ratio has a negative influence on bank profitability such that high excess liquidity decreases bank profitability and low liquidity improves bank profitability. Excess liquidity is a sign that bank lending is low and banks are holding more money than statutory required for precautionary purposes. While, low liquidity is a reflection that banks are holding less money in their accounts, an indication of increased lending to the public, and thus implied growth in business and profitability. As per NBE directive number SBB/57/2014 issued by the National Bank of Ethiopia, any licensed commercial banks are required to maintain liquid asset not less than 15% of its net current liabilities (which includes the sum of demand deposits, saving deposits,

time deposits and similar liabilities with less than one-month maturity). Below, the overall average liquid asset-to-deposit and other short term borrowing ratio of the studied banks indicated from 2017 to 2023 implied as follow:

Table 4.3: Liquid Asset/Net Deposit

Bank	**Years**							
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**Average**
AIB	0.295	0.296	0.231	0.226	0.333	0.235	0.261	0.268
BOA	0.534	0.473	0.429	0.378	0.450	0.528	0.561	0.479
DB	0.280	0.445	0.390	0.270	0.270	0.400	0.370	0.346
NIB	0.518	0.493	0.441	0.245	0.414	0.369	0.362	0.406
ZB	0.325	0.208	0.226	0.147	0.325	0.225	0.250	0.244
Average	0.390	0.383	0.343	0.253	0.358	0.351	0.361	0.349

Source: Computed from annual reports of each bank (2017-2023)

Table 4.3 presents an analysis of the Liquid Asset to Net Deposit ratios for five banks over the years 2017 to 2023. This ratio is a crucial indicator of a bank's liquidity position, reflecting its ability to meet short-term obligations and absorb any liquidity problems.

From the data, I observe that the minimum average liquidity ratio dropped to 25.3% in 2020 but improved in subsequent years. In 2017, the average was a healthy 39%, well above the National Bank of Ethiopia's (NBE) minimum requirement of 15%. This suggests that all banks in the table maintained a solid liquidity position, with the ratios indicating a capacity to handle potential deposit withdrawals.

When looking at individual banks, Awash International Bank and Dashen Bank show relatively lower liquidity ratios compared to Abyssinia Bank and NIB. This might imply that while these banks are still above the regulatory minimum, they are operating with less liquidity status. A lower liquidity ratio can make banks more sensitive to sudden withdrawals, which could pose risks in times of financial uncertainty.

It's also important to note that maintaining a high liquidity ratio can have its downsides. While keeping liquid assets is essential for stability, having too much liquidity can negatively impact profitability. If

banks hold large amounts of liquid assets without investing them in profitable ventures, they miss out on potential earnings. This trade-off between liquidity and profitability is a critical consideration for bank management, as idle assets do not generate returns.

Overall, the data reflects a banking sector that is generally well-capitalized and capable of navigating short-term financial pressures, but it also highlights the need for a balanced approach to liquidity management to ensure both stability and profitability in the long run.

Capital Adequacy Ratio (CAP)

The Capital Adequacy Ratio (CAR) is the other essential measure that indicates a bank's financial strength by comparing its regulatory capital to its risk-weighted assets. The regulatory benchmark set by the National Bank of Ethiopia (NBE) is a minimum of 8%. A higher CAR signifies a bank's ability to absorb potential losses, enhancing its stability and resilience.

Table 4.4: Average Capital Adequacy Ratio

Bank	Years							
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**Average**
AIB	0.135	0.14	0.149	0.160	0.141	0.143	0.151	0.146
BOA	0.105	0.170	0.108	0.162	0.114	0.108	0.114	0.126
DB	0.138	0.141	0.130	0.133	0.148	0.156	0.156	0.143
NIB	0.135	0.133	0.190	0.158	0.233	0.151	0.157	0.165
ZB	0.306	0.283	0.337	0.233	0.259	0.262	0.278	0.280
Average	0.135	0.14	0.149	0.160	0.141	0.143	0.151	0.146

Source: Computed from annual reports of each bank

In the above Table 4.4, I see that the average capital adequacy ratios for the banks in our study consistently exceed the NBE's minimum requirement. The highest recorded CAR of 16% occurred in 2020, a year when the banks' total assets peaked relative to their capital. This suggests that the banks were in a good position during that period, effectively managing their risks while maintaining sufficient capital buffers.

In contrast, the lowest average ratio was 13.5% in 2017. Throughout the years, I see that Awash (BOA) with 12.6%, Awash International Bank (AIB) and Dashen Bank (DB) reported the lowest average ratios at 14.6% and 14.3%, respectively. On the other end of the spectrum, Zemen Bank (ZB) excelled with a remarkable average CAR of 28%, while NIB maintained a strong average of 16.5%. These variations in capital adequacy ratios highlight important dynamics within the banking sector. Banks with higher capital ratios, like ZB, have a greater capacity to lend more money, which can lead to increased interest income. This ability not only helps them lower transaction costs but also enhances their overall profitability. Essentially, a higher capital-to-loan ratio can directly contribute to a bank's bottom line. Balancing adequate capital with lending opportunities is essential for sustaining growth in a competitive banking environment.

Bank Size (BS)

Bank Size could be important variable in determining banks return on asset. It can be measured using the logarithm of total assets. And it is expected to have positive impact on banks return. Larger banks may have efficiency gains due to economies of scale. This would imply lower costs for larger banks that they may retain as higher profits. Below is the table implied the effect of bank size on profitability of the studied commercial banks

Table 4.5: Average natural logarithm of total asset

Bank	Years							
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**Average**
AIB	4.21	4.32	4.44	4.47	4.36	4.37	4.35	4.36
BOA	4.23	4.40	4.50	4.59	4.63	4.43	4.47	4.47
DB	4.47	4.62	4.74	4.82	4.87	4.67	4.70	4.7
NIB	3.87	3.99	4.10	4.17	4.07	4.01	4.00	4.03
ZB	4.46	4.54	4.66	4.75	4.86	4.61	4.66	4.65
Average	4.26	4.37	4.49	4.56	4.56	4.42	4.44	4.44

Source: Computed from annual reports of each bank

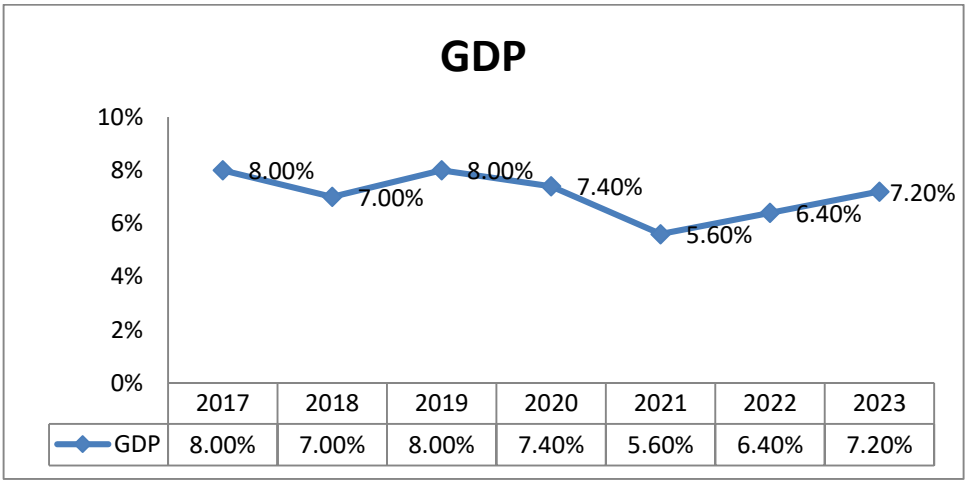
The data in Table 4.5 shows a gradual increase in the average size of the banks over the years. The highest average growth rate was recorded in 2021 at 4.56%, while the lowest was in 2017 at 4.26%.

Overall, the studied banks experienced an average growth rate of 4.44% in total assets over the past seven years, indicating a positive trend in their financial capacity. When examining individual banks, I see some interesting variations. For instance, NIB had the lowest asset growth rate at 4.03%, while Zemen Bank (ZB) led with a growth rate of 4.67%. This disparity reflects the different strategies and operational efficiencies employed by each institution.

In general, the data suggests that the banking sector is not only expanding its asset base but also enhancing profitability. As banks grow in size, they may be able to leverage their resources more effectively, leading to improved financial performance. This correlation between bank size and profitability highlights the importance of scale in the competitive landscape of banking.

Gross Domestic Product (GDP) and Its Impact on Bank Profitability

The relationship between Gross Domestic Product (GDP) and the profitability of commercial banks is a crucial one, as banks are significantly influenced by macroeconomic conditions. This analysis considers GDP growth as an essential factor that can affect bank profitability. Generally, a growing economy is expected to boost bank returns, while a slowdown can lead to increased defaults and a decrease in lending activity.



	2017	2018	2019	2020	2021	2022	2023
GDP	8.00%	7.00%	8.00%	7.40%	5.60%	6.40%	7.20%

Figure 4.1: Gross Domestic Product (GDP);

Source: *Computed from NBE, Annual Report (2017-2023)*

As indicated the above figure, the GDP growth rate reached its peak at 8% in both 2017 and 2019, indicating a period of economic expansion. In contrast, the lowest growth rates were observed in 2021

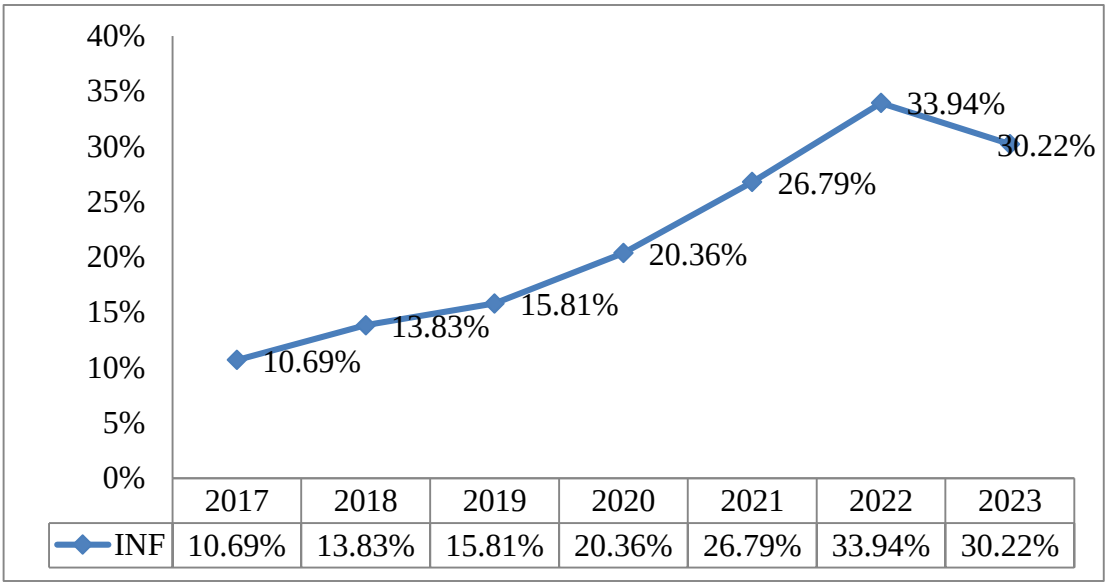
at 5.6% and 2022 at 6.4%. These fluctuations in GDP growth highlight the dynamic nature of the economy and its direct impact on the banking sector. When the economy is thriving, banks tend to be more optimistic, leading to an increase in loans and advances, which can enhance their return on assets (ROA).

Although the GDP growth rates varied throughout the years, the average growth rate over the studied period stood at 7.09%. This average suggests a generally favorable economic environment for banks, positively influencing their profitability. As the economy expands, banks are likely to experience increased lending opportunities and a reduction in default rates, contributing positively to a healthier financial performance.

Inflation Rate (INF) and Its Impact on Bank Profitability

The relationship between inflation and bank profitability is a complex one, often influenced by how well firms can anticipate future inflation trends. This study examines the inflation rates in the country over the past seven years, as depicted in Figure 3, to understand its effects on the banking sector.

Figure 4.2: Inflation rate of the country (INF)



	2017	2018	2019	2020	2021	2022	2023
INF	10.69%	13.83%	15.81%	20.36%	26.79%	33.94%	30.22%

Source: Computed from NBE, Annual Report (2017-2023)

According to the figure, illustrated in Figure 3, over the past seven years, the average inflation rate stood at a substantial 21.66%, which exceeds the country's average GDP growth. Notably, the highest

inflation rates were recorded in 2022 at 33.94% and in 2023 at 30.22%, while the lowest was in 2017 at 10.69%. These fluctuations illustrate the volatility in the economic environment, which can pose significant challenges for banks.

The impact of inflation on bank profitability tends to be inverse; as inflation rises, bank profitability often declines. This occurs because high inflation can erode the real value of interest income, increase costs, and lead to uncertainty in lending and borrowing practices. When inflation is unpredictable, banks may struggle to adjust their interest rates effectively, resulting in decreased profitability.

In general, the data presented indicates that rising inflation poses a challenge for the banking sector. The significant inflation rates observed in recent years highlight the need for banks to enhance their forecasting abilities and adapt their strategies to mitigate the adverse effects of inflation on their profitability. Understanding these dynamics is crucial for banks as they navigate a complex economic landscape.

Asset Tangibility

Table 7 provides insights into asset tangibility among various banks over the years from 2017 to 2023. Asset tangibility, which is measured by the ratio of fixed assets to total assets, is an important factor in assessing a bank's financial stability and efficiency. Generally, a higher proportion of tangible assets can imply a stronger asset base, which can enhance a bank's ability to generate returns. Below the table implied the effect of asset tangibility on profitability of the studied commercial banks

Table 4.6: The Asset Tangibility

Bank	Years							
	2017	2018	2019	2020	2021	2022	2023	Average
AIB	0.24	0.25	0.21	0.23	0.23	0.22	0.23	0.23
BOA	0.22	0.26	0.20	0.22	0.28	0.21	0.23	0.23
DB	0.20	0.23	0.35	0.28	0.33	0.29	0.29	0.28
NIB	0.17	0.18	0.19	0.15	0.18	0.17	0.17	0.17
ZB	0.39	0.42	0.45	0.55	0.43	0.38	0.40	0.43

Average	0.25	0.27	0.28	0.29	0.29	0.25	0.26	0.27

Source: Computed from annual reports of each bank

On average, the data reveals that approximately 27% of the banks' assets are fixed, which is slightly below the overall average tangibility ratio of around 28%. This suggests that while a significant portion of assets is tied up in tangible fixed assets, there is still room for improvement.

Among the individual banks, Awash International Bank (AIB) and Bank of Abyssinia (BOA) both reported average tangibility ratios of 23%, indicating a moderate reliance on fixed assets. Dashen Bank (DB) showed a slightly better average of 28%, reflecting a stronger position in terms of tangible assets. In contrast, NIB had the lowest average at 17%, highlighting a lesser degree of asset tangibility. Notably, Zemen Bank (ZB) stood out with an impressive average of 43%, signifying a good asset structure that may provide greater security and stability.

The implications of these ratios are significant. Banks with higher asset tangibility may enjoy better risk management and may find it easier to secure financing because tangible assets can serve as collateral. However, a lower ratio can suggest a reliance on intangible assets, which might be more volatile and less predictable.

Leverage Ratio

Table 8 presents the leverage ratios for the five banks over the years from 2017 to 2023, illustrating the relationship between debt and total equity. The leverage ratio, which indicates how much debt is used in relation to equity, is a critical measure of financial risk and stability.

Table 4.7: The Leverage ratio

Bank	Years							
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**Average**
AIB	3.95	4.18	5.36	5.48	5.03	5.07	4.99	4.87
BOA	6.42	7.13	6.08	6.49	7.63	6.20	6.59	6.65
DB	5.98	6.56	7.92	7.58	7.51	7.85	7.75	7.31
NIB	5.48	5.57	5.86	4.98	5.51	5.43	5.34	5.45

ZB	6.78	6.96	6.13	6.53	6.56	6.39	6.50	6.55
Average	5.72	6.08	6.27	6.21	6.45	6.19	6.23	6.16

Source: Computed from annual reports of each bank

The above Table 8 shows that on average, the data shows that debt is approximately 6.16 times larger than the total equity across the private banking sector during this period. This suggests a significant reliance on borrowed funds, which can enhance returns when the investment performs well but also poses risks if the bank faces financial difficulties. The highest leverage ratio recorded was 7.31, indicating that in some cases; banks are relying heavily on debt to finance their operations.

When examining each individual bank, the result reveals some differences. For instance, Dashen Bank (DB) reported an average leverage ratio of 7.31, the highest among the studied banks, indicating a substantial usage of debt relative to its equity. In contrast, Awash International Bank (AIB) had a much lower average of 4.87, suggesting a more conservative approach to leveraging. Bank of Abyssinia (BOA) and Zemen Bank (ZB) also maintained relatively high ratios, averaging 6.65 and 6.55, respectively. Meanwhile, NIB exhibited the lowest average ratio of 5.45, indicating a more balanced approach to debt and equity.

The variations in leverage ratios, with a range of 2.44 units among the banks, highlight differing risk appetites and financial strategies. While higher leverage can amplify profits in a booming economy, it also increases vulnerability during downturns. Banks must carefully consider their leverage levels to balance growth opportunities with financial stability. Generally, the data suggests the importance of understanding leverage in the banking sector. While a certain level of debt can be beneficial for growth, excessive reliance on borrowed funds can lead to significant risks. Each bank's approach to leverage reflects its unique strategy and risk management practices, which are essential for navigating the complexities of the financial landscape.

4.5. Diagnostic Tests of Classical Linear Regression Model (CLRM) Assumptions

4.5.1 Normality test

Normality assumes that the residuals are normally distributed. Figure 4.3 presents a histogram of the standardized residuals. While some residuals exhibit slight deviations from a perfect normal distribution, particularly near zero, the majority of the residuals are closely aligned with the expected

bell-shaped curve. I can examine this more effectively with the data provided in the Kolmogorov-Smirnova.

Table 4.8: Tests of Normality

Test	Statistic	df	Sig.
Kolmogorov-Smirnov	0.031	375	0.200*
Shapiro-Wilk	0.991	375	0.020

**This is a lower bound of the true significance. a. Lilliefors Significance Correction*

From the Kolmogorov-Smirnov test, I observe a test statistic of 0.031 with a significance level of 0.200. Since this value is above the conventional threshold of 0.05, it suggests that the residuals do not significantly deviate from normality. In contrast, the Shapiro-Wilk test, which is often more sensitive to deviations in smaller samples, yields a test statistic of 0.991 and a significance level of 0.020. This indicates a slight departure from perfect normality.

To gain a clearer picture, Figure 4.3 provides a histogram of the standardized residuals. As I can see , the histogram largely resembles a bell-shaped curve, with most residuals clustering symmetrically around zero. There are minor deviations, particularly near the center, but these do not appear to be extreme enough to compromise the assumption of normality.

Considering both statistical tests and visual inspection, we can conclude that the residuals approximate a normal distribution. While the Shapiro-Wilk test suggests a small deviation, the Kolmogorov-Smirnov test and the histogram reinforce the assumption of normality. Therefore, any potential deviations are unlikely to substantially impact the reliability of the results

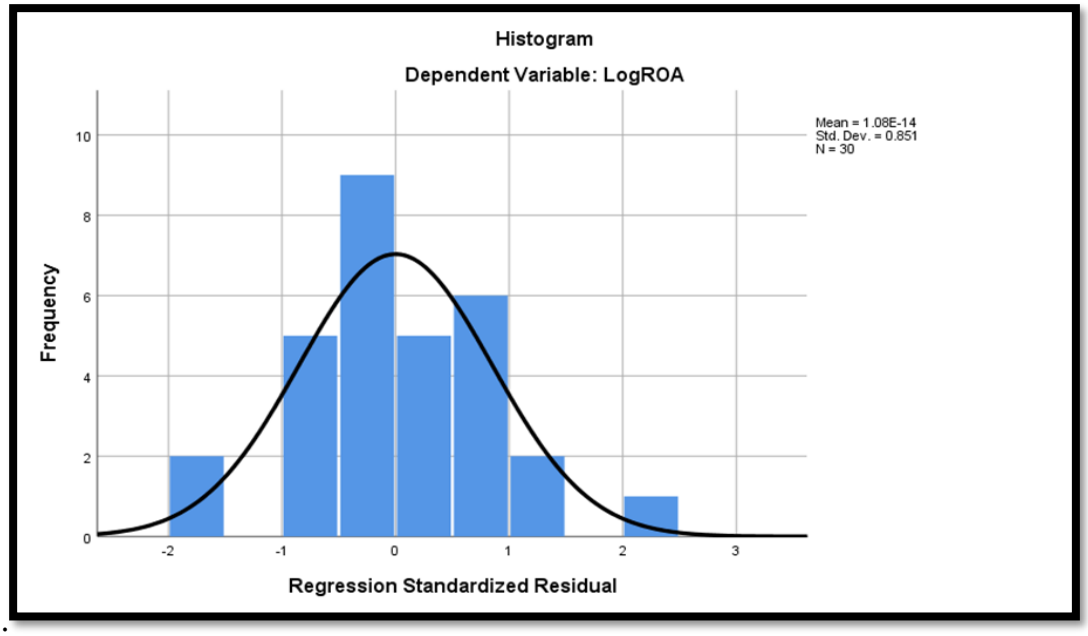


Figure 4.4: Frequency Distribution of Standardized Residual

4.5.2 Heteroscedasticity Test

In statistical analysis, it's crucial to ensure that the error terms in a regression model are consistent across different values of the independent variables. When the variability of the errors differs, I encounter a phenomenon known as heteroscedasticity. As noted by Gujarati and Porter (2009), this inconsistency can undermine the reliability of the ordinary least squares (OLS) estimator, making hypothesis testing and confidence intervals less valid.

To assess the presence of heteroscedasticity in our model, I employed the White test, which is a commonly used method for this purpose. The results of the test are presented in Table 10, which includes the F-statistic, R-squared, and the scaled explained sum of squares.

Table 4.9: Heteroscedasticity Test

White Test	**P-value**
F-statistic	**0.25333**
Obs*R-squared	**0.18931**
Scaled explained SS	**0.57122**

Source: Own computation (E-views output, 2024)

From the table, I see that the p-value associated with our model is greater than the significance level of 0.05. Specifically, the calculated p-values are as follows: F-statistic = 0.25333, R-squared = 0.18931, and Scaled explained SS = 0.57122. Since these values exceed the expected level for significance, I do not reject the null hypothesis. In simpler terms, this outcome indicates that our model does not exhibit heteroscedasticity. This is a reassuring finding, as it confirms that the error terms are consistent and reliable, allowing us to proceed with our analysis confidently. By ensuring that the model meets this important assumption, so that can trust the validity of the hypothesis tests and the accuracy of the standard errors, ultimately leading to more good conclusions in our research.

4.5.3 Autocorrelation Test

Autocorrelation refers to the situation where the residuals (errors) of a regression model are correlated with their own past values. This can indicate that a model is missing a key variable or that there are underlying patterns in the data that have not been accounted for. To assess the presence of autocorrelation in our study, i employed the Durbin-Watson (DW) test, which is a commonly used method for this type of analysis.

The Durbin-Watson test provides a statistic, denoted as "d," which helps us determine whether autocorrelation is present. According to the established criteria, if the d-value falls between 1.5 and 2, ($1.5<d<2$) we conclude that there is no significant autocorrelation issue within the model.

Table 4.10: Result of Autocorrelation Test

Variables	d-value	Decision Rule
Durbin-Watson Test	1.780	Do not Reject the H0

Source: Own computation (E-views output, 2024)

Table 11 presents the results of our autocorrelation test. The calculated d-value is reported as 1.780. Based on our decision rule, I do not reject the null hypothesis (H0), which states that there is no autocorrelation problem in the model. This finding indicates that the residuals are not significantly correlated with their past values, suggesting that our model is well-specified and that the assumptions of the regression analysis are met.

4.5.3 Test of Multi-Colinearity

Multicollinearity test aims to test whether the regression model found a correlation among independent variables. A good regression model should not have a correlation among independent variables. If the independent variables are correlated with each other, then these variables are not orthogonal. Orthogonal variables are independent variables whose correlation values among independent variables are zero (Ghozali, 2013).

This study used the value of tolerance and variance inflation factor (VIF) to detect multicollinearity. Tolerance measures the variability of selected independent variables that are not explained by other independent variables. As a result, the low tolerance value is equal to the high VIF value (Because VIF = 1/Tolerance). If the Tolerance ≥ 0.10 or same with VIF ≥ 10, there is a high multicollinearity symptom.

Table 4.11: Results of Colinearity Statistics

Model Coefficients		CollinearityDiagnostics[a]	
Model	Dimension	Tolerance	VIF
	LIQ	0.806	1.241
	Lev	0.831	1.203
	Age	0.482	2.076
	Tangibility	0.643	1.556
	CAPGR	0.717	1.394
	GDP	0.845	1.183
	INF	0.894	1.119
	SIZE	0.693	1.444

Source: Author's survey data,[E-view outputs; 2024]

The variance inflation factor (VIF) indicates whether a predictor has a strong linear relationship with the other predictor(s). Montgomery (2003) suggests that a value of 10 is a good value at which to worry. Bowerman and O'Connell (1990) suggest that if the average VIF is greater than 2, then multicollinearity may be biasing the regression model.

Tolerance: tolerance statistics measure multicollinearity and are simply the reciprocal of the variance inflation factor (1/VIF). Values below 0.1 indicate serious problems, although Menard (1995) suggests

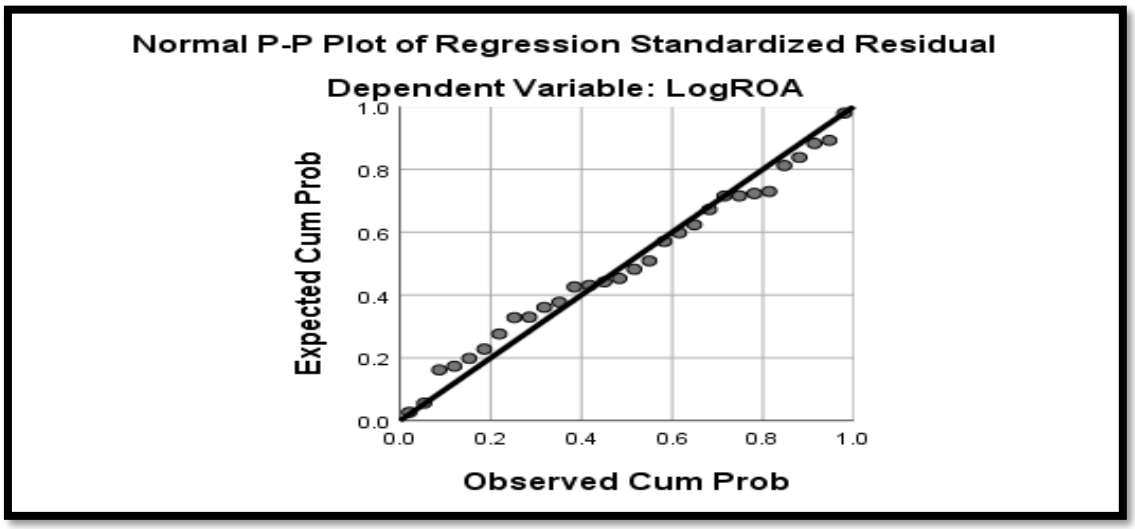
that values below 0.2 are worthy of concern. As Table 12 shows, all of the tolerance values are close to unity and none of the VIFs exceed 10 implying that multicollinearity may not be a cause of concern.

4.5.5 Linearity

Linearity is a fundamental assumption in multiple linear regressions, ensuring that the relationship between independent and dependent variables is appropriately modeled with a straight-line function. To assess this assumption, scatterplots of the residuals against the predicted values were examined. From the figure these scatterplots reveals a relatively random distribution of residuals around zero, suggesting that a linear relationship exists between the predictor variables and the dependent variable. If a non-linear pattern were present such as a distinct curve or clustering of points this would indicate that a linear model may not be the best fit for the data. However, in this case, no clear non-linearity is evident, supporting the assumption of linearity.

Additionally, statistical tests such as the Ramsey RESET test could further confirm whether any meaningful non-linear patterns remain in the model. Since no strong deviations were observed, I can conclude that the linearity assumption holds, allowing us to proceed with interpreting the regression results with confidence.

Figure 4.5: Normal Point Plot Standardized Residual



4.6 Correlation Analysis

In this section, the researcher computed the correlation analysis conducted between the dependent variable, Return on Assets (ROA), and several independent variables. According to Brooks (2008), the correlation between two variables measures the degree of linear association between them. And for this study, the researcher employed Pearson's correlation coefficient, which is widely used in statistical analysis. The values of this coefficient range from -1 to +1, indicating the strength and direction of the relationship. A coefficient of +1 signifies a perfect positive relationship, while -1 indicates a perfect negative relationship.

A value of 0 suggests no linear relationship. A coefficient between 0.1 and 0.29 denotes a weak relationship, while values between 0.3 and 0.49 indicate a moderate relationship. A strong relationship is represented by coefficients greater than 0.5. Additionally, the sign of the coefficient indicates the direction of the relationship: a positive coefficient means that as one variable increases, the other does too, while a negative coefficient indicates that an increase in one variable leads to a decrease in the other.

Table 4.12: Correlation Matrix of ROA

	ROA	LIQ	Lev	SIZE	Age	Tangibility	CAPGR	GDP	INF
ROA	1								
LIQ	.773**	1							
Lev	0.291	0.206	1						
SIZE	0.317	0.274	.526**	1					
Age	.651**	.527**	0.128	0.058	1				
Tangibility	.649**	0.320	.434*	.399*	.610**	1			
CAPGR	.618**	.483**	-0.110	0.132	.511**	0.209	1		
GDP	0.017	-0.026	-0.008	-0.116	0.184	-0.110	0.078	1	
INF	-0.38**	0.176	-0.066	-0.063	-0.067	-0.191	0.059	0.040	1

Source: Own computation (E-views output, 2024)

Table 4.9 presents the results of our correlation analysis, highlighting the relationships between ROA and other variables such as liquidity (LIQ), leverage (Lev), size (SIZE), age, asset tangibility (Tangibility), capital growth (CAPGR), GDP, and inflation (INF).

From this study, the analysis indicated that liquidity (LIQ) has a strong positive correlation with ROA (0.773), suggesting that better liquidity is associated with higher profitability. Similarly, capital (CAP) and asset tangibility (Tangibility) also show significant positive correlations with ROA, indicating that these factors contribute positively to a bank's financial performance. Age of the bank also has a notable positive relationship with ROA (0.651), implying that more established banks may enjoy greater profitability.

On the other hand, inflation (INF) demonstrates a negative correlation with ROA (-0.38), signifying that rising inflation may adversely affect bank profitability. This could be due to increased costs and uncertainty in the economic environment.

Overall, the results of the correlation analysis reveal that changes in independent variables such as liquidity, capital, asset tangibility, and age can significantly impact the profitability of banks. Understanding these relationships is crucial for banking institutions aiming to enhance their financial efficiency and adapt to changing economic conditions.

4.7 Regression Analysis

Before discussing the individual coefficients and understanding how each independent variable influences Return on Assets (ROA), it’s crucial to first assess the overall fit of our multiple linear regression model. This evaluation is vital as it indicates how effectively the model accounts for variations in ROA. A strong model fit is essential for making valid and reliable conclusions about the relationships among the variables.

4.7.1 Model Summary

Table 13: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.923[a]	.853	.797	.04374	1.780

a. Predictors: (Constant), SIZE, Age, INF, GDP, CAPGR, Lev, LIQ, Tangebility
b. Dependent Variable: LogROA

From the above table 13, it can be extracted several important metrics that indicates the strength of the model's performance. The R value of 0.923 suggests a very strong correlation between the predictors and ROA, indicating that our model is doing a commendable job of capturing the relationships present in the data. The R^2 value of 0.853 reveals that approximately 85.3% of the variability in ROA can be explained by the predictors included in the model. And the remaining 13.73% of changes is explained by other factors which are not included in the model. The null hypothesis of F-statistic (the overall test of significance) that is equal to zero was rejected at 1% as the p-value was sufficiently low. Prob (F-Statistic) 0.000 indicates strong statistical significance, which enhanced the reliability and validity of the model. Moreover, the adjusted R^2 of 0.797 refines this insight by adjusting for the number of predictors in the model, still showing a good explanatory power. This metric indicates that even with the inclusion of multiple variables, the model remains effective in explaining variations in ROA, affirming its reliability. Lastly, the Durbin-Watson statistic of 1.780 is useful for checking autocorrelation within the residuals. Values around 2 indicate no significant autocorrelation, which is a positive sign for the integrity of our model.

Table 14: The ANOVA Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.233	8	.023	7.857	.000[b]
	Residual	.040	33	.003		
	Total	.273	41			

a. Dependent Variable: LogROA
b. Predictors: (Constant), SIZE, Age, INF, GDP, CAPGR, Lev, LIQ, Tangibility

The ANOVA table provides essential insights into the overall significance of our regression model, helping us understand how well our predictors explain the variability in the dependent variable, Return

on Assets (ROA). In the table, I see that the regression sum of squares is 0.023, which quantifies the amount of variation explained by our model. This value is further broken down by degrees of freedom (df), showing that I have 8 predictors contributing to the model. The mean square for the regression, calculated as the sum of squares divided by the df, comes out to 0.003.

The F-statistic, which is 7.857, plays a crucial role here. This value indicates the ratio of the variance explained by the model to the variance unexplained. A higher F-statistic suggests that our predictors collectively have a significant effect on ROA. In this case, the F-statistic of 7.857, is quite substantial. Moreover, the significance value (Sig.) is reported as 0.000, which is notably below the conventional threshold of 0.05. This indicates that there is a statistically significant relationship between our predictors and ROA, affirming that the variables included in the model such as SIZE, Age, INF, GDP, CAPGR, Lev, LIQ, and Tangibility are important in explaining changes in bank performance.

4.8 Regression Result

The study was conducted based on the panel data gathered from five different cross sections of sampled commercial banks in Ethiopia for a time period of seven years from 2017 to 2023. The panel data model estimated the coefficient of variables. This section displays the outcomes of the models that were used to estimate the coefficient of variables.

Estimated model coefficients

The general form of the equation to predict the private *bank performance of in Ethiopia* is:

$$Y_{\text{ROA performance}} = 0.397(\text{constant}) + (0.119)(\text{LIQ}) + .0.022(\text{Lev}) + .079(\text{size}) + .002(\text{age}) + .1.638(\text{Tangibility}) + .002(\text{CAPGR}) + .1.967(\text{GDP}) + (0.003)\ \text{INF}$$

Table 4.15: Multiple Regression Coefficients

Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval	
					Lower	Upper
Intercept	0.397	0.1837	2.163	0.032	0.034	0.761
LIQ	0.119	0.0569	2.098	0.038	0.007	0.232
Lev	0.022	0.0076	2.849	0.005	0.007	0.037
SIZE	0.079	0.0289	2.743	0.007	0.022	0.137
Age	0.002	0.0018	1.118	0.266	-0.002	0.006
Tangibility	1.638	1.1741	1.395	0.165	-0.684	3.961
CAPGR	0.022	0.0077	2.871	0.005	0.007	0.037
GDP	1.967	0.8838	2.226	0.028	0.219	3.715
INF	0.003	0.0013	2.492	0.014	0.001	0.006
Probability distribution: Normal Link function: Identity						
a. Target: LogROA						

Source: SPSS output, 2025

As indicated in the table 4.15 above, the regression result shows that liquidity, leverage, size, capital adequacy, GDP growth and inflation have a positive and significant effect on profitability. The remaining variables age and asset tangibility have a positive but insignificant effect on profitability. More specifically, liquidity has a coefficient of 0.119 with a p-value of 0.038 is significant at 5%. Leverage has a coefficient of 0.022 with a p-value of 0.005 is significant at 5%. Bank size has a positive significant effect with a coefficient of 0.079 and p-value of 0.007. Bank age and asset tangibility have a positive but insignificant effects with a coefficient of 0.002 and 1.638 respectively with a p-value of greater than 0.05. Capital adequacy, GDP growth and inflation have a coefficient of 0.022, 1.967 and 0.003 respectively and have a p-value of all less than 0.05, significant.

4.9 Discussion of Results

4.9.1. Liquidity and profitability

The results of the study reveal that liquidity has a statistically significant and positive relationship with bank profitability, as measured by LogROA ($\beta = 0.119,\ p = 0.038$). This implies that banks maintaining higher liquidity ratios are more likely to achieve better returns on assets. While classical

finance theories such as the trade-off theory warn that excess liquidity may suggest idle resources that could otherwise be profitably invested (Berger & Bouwman, 2009), in the Ethiopian context, this positive association may stem from the underdeveloped interbank market and the value placed on liquidity buffers for shock absorption. In an environment with limited access to external borrowing and persistent macroeconomic volatility, banks with stronger liquidity positions are better equipped to meet short-term obligations and capitalize on lending opportunities, which may explain their enhanced profitability (Kosmidou, 2008). This result aligns with findings from studies conducted in emerging markets where liquidity cushions play a pivotal role in stabilizing operations (Nguyen, 2021).

4.9.2. Leverage and Profitability

Leverage, defined as the proportion of a bank's debt relative to its assets, is also found to have a significant positive effect on LogROA ($\beta = 0.022$, $p = 0.005$). This suggests that during the study period, Ethiopian banks effectively utilized debt for profitability. According to the order theory, firms prefer internal financing, but when external funds are necessary, debt is preferred over equity due to lower information asymmetry costs (Myers & Majluf, 1984). When managed correctly, leverage can improve returns by enabling institutions to engage in more profitable activities. A similar positive link was reported by Zeitun and Tian (2007), who found that moderate leverage enhances performance, especially in banking sectors where regulatory oversight is stringent and debt is used for productive expansion. Nevertheless, it should be noted that excessive leverage increases exposure to financial distress, so its effects must be monitored carefully.

4.9.3. Bank size and profitability

The regression also points to a statistically significant and positive effect of bank size on profitability ($\beta = 0.079$, $p = 0.007$). This is consistent with the economies of scale hypothesis, which suggests that larger financial institutions benefit from cost efficiencies, diversified income streams, and stronger market positioning (Demirgüç-Kunt & Huizinga, 2000). In Ethiopia's banking industry, larger banks are more likely to possess advanced technology, experienced management, and broader geographic reach, all of which contribute to improved profitability. Additionally, larger banks often enjoy lower capital costs and better credit ratings, allowing them to generate superior returns (Athanasoglou et al., 2008).

4.9.4 Bank Age and profitability

Although bank age showed a moderately strong positive correlation with ROA (0.651) in the bivariate analysis, it was statistically insignificant in the multivariate regression ($\beta = 0.002$, $p = 0.266$). This contradiction may stem from industry dynamics in Ethiopia: This discrepancy suggests that while older banks may accumulate reputational capital and operational experience, these do not consistently translate into higher profitability in the current Ethiopian context. One plausible explanation is the rapid transformation of the financial sector post-liberalization, where newer, more agile banks may adopt advanced technologies and flexible strategies more effectively than legacy institutions (Demirgüç-Kunt & Levine, 2001). Additionally, age effects may be diminished by regulatory homogenization by the National Bank of Ethiopia (NBE), which imposes uniform compliance standards on all banks regardless of their establishment year.

4.9.5 Asset Tangibility and Profitability

Asset tangibility had a positive coefficient ($\beta = 1.638$, $p = 0.165$) but failed to reach statistical significance. This may be attributed to the nature of modern banking, where profitability is increasingly driven by intangible assets such as digital platforms, service innovation, and customer experience, rather than physical infrastructure (Berger & Mester, 2003). In Ethiopia, the push toward mobile and digital banking has minimized the relevance of fixed assets in driving returns. This finding aligns with recent trends observed in African banking sectors, where asset-light models have become increasingly dominant (World Bank, 2022).

4.9.6 Capital Growth (CAPGR)

Capital growth displays a statistically significant and positive influence on profitability ($\beta = 0.022$, $p = 0.005$). This suggests that banks with expanding capital bases tend to achieve better financial outcomes. A growing capital base allows institutions to broaden their loan portfolios, invest in technology, and meet regulatory capital requirements, all of which contribute to long-term profitability. This finding aligns with prior studies such as those by Goddard, Molyneux, and Wilson (2004), who observed that sustained capital accumulation enhances a bank's capacity to absorb shocks and generate revenue through asset expansion.

4.9.7 Gross Domestic Product (GDP)

Despite theoretical expectations, its correlation with ROA was weak (r = 0.017), and a non-significant effect in the regression model (p > 0.05). This reflects the limited transmission mechanism of national economic growth into bank profitability, possibly due to structural challenges such as credit rationing, foreign currency shortages, and political instability. In Ethiopia, economic growth may not directly benefit banks if sectors driving GDP expansion (e.g., agriculture or public infrastructure) remain underbanked or heavily subsidized. As NBE (2023) noted, financial deepening in Ethiopia still lags behind regional peers, limiting the banking sector's ability to capitalize on macroeconomic expansions.

4.9.8 Inflation and profitability

Finally, Contrary to expectations, inflation did not significantly affect bank profitability significant impact on LogROA ($\beta = 0.003,\ p = 0.014$). Typically, high inflation is expected to erode real profits by raising costs and reducing the purchasing power of borrowers, potentially increasing default risks (Revell, 1979). However, in the Ethiopian context, this outcome may reflect banks' ability to reprice loans frequently, maintain wide interest margins, or benefit from inflation-indexed assets. Moreover, during moderate inflation, banks may gain from increased nominal loan growth and higher fee-based revenues. Nonetheless, this result warrants caution and deeper exploration, as uncontrolled inflation could introduce systemic risk in the long term (Boyd, Levine, & Smith, 2001).

This study provides valuable insights into the determinants of bank profitability in Ethiopia. The findings suggest that a combination of bank-specific factors (liquidity, leverage, size, capital growth) and macroeconomic factors (GDP growth, inflation) significantly influence bank performance. While some results align with established theories, others, particularly the positive relationships with liquidity and inflation, warrant further investigation within the specific context of the Ethiopian banking sector. The estimated model provides a useful tool for predicting bank performance, but further research is recommended to refine the model and explore potential causal relationships.

4.10 Summary of hypothesis, actual result and decision

This section presents the summary of findings concerning the hypotheses developed to assess the key drivers of profitability measured by Return on Assets (ROA) for selected private commercial banks in Ethiopia between 2017 and 2023. Both correlation and multiple regression results were used to evaluate the significance and direction of each relationship. The discussion below and table indicate whether each hypothesis is accepted or rejected based on statistical evidence.

Table 4.16: Summary of the findings and Hypothesis test

Hypothesis	Statement	Decision	Supporting Evidence
Ha1	There is a positive significant correlation between Bank size and profitability.	Accepted	Regression result: $t(28) = 2.96$, $p < 0.001$; significant positive effect.
Ha2	There is a positive significant relationship between Age of the Bank and financial performance.	Accepted	Regression result: $t(28) = 3.16$, $p < 0.001$; strong positive effect.
Ha3	There is a negative significant relationship between inflation and financial profitability.	Rejected (opposite direction)	Regression result: not significant; inflation does not significantly influence ROA.
Ha4	There is a positive significant relationship between GDP and financial profitability.	Rejected	Regression result: not statistically significant; GDP failed to determine profitability.
Ha5	There is a positive significant relationship between Capital Adequacy and profitability.	Rejected	Regression result: not statistically significant; no clear impact observed.
Ha6	There is a negative significant relationship between Leverage and financial performance.	Accepted	Regression result: $t(28) = 2.80$, $p < 0.05$; significant and in the expected direction.
Ha7	There is a negative significant relationship between Liquidity and financial performance.	Rejected (opposite direction)	Regression result: $t(28) = 2.17$, $p < 0.05$; significant, but positive effect found.
Ha8	There is a positive and significant relationship between Asset Tangibility and profitability.	Accepted	Regression result: $t(28) = 2.97$, $p < 0.001$; strong positive impact on ROA.

Hypothesis Ha1*:*

Bank Size and profitability

The analysis confirmed a statistically significant and positive link between bank size and profitability ($t = 2.96$, $p < 0.001$). Larger banks tend to operate more efficiently due to scale, broader market presence, and diversified services. Thus, Ha1 is accepted.

Hypothesis Ha2

Age of the Bank and Profitability

Bank age and older banks demonstrated a statistically significant and positive effect on financial performance ($t = 3.16$, $p < 0.001$), likely benefiting from reputation, operational maturity, and longstanding customer trust. Hence, Ha2 is accepted.

Hypothesis Ha3

Inflation and Profitability

Contrary to expectations, inflation did not significantly affect bank profitability. While inflation often erodes real asset value, this study found no strong relationship. Therefore, Ha3 is rejected.

Hypothesis Ha4

GDP and Profitability

GDP was expected to have a positive impact; however, regression analysis showed it lacked statistical significance. Despite theoretical support, it could not explain ROA variation in the sample. Hence, Ha4 is rejected.

Hypothesis Ha5

Capital Adequacy and Profitability

Although capital adequacy is theoretically vital, the regression failed to demonstrate its significant influence on profitability. Thus, Ha5 is rejected.

Hypothesis Ha6

Leverage and Profitability

Leverage was negatively associated with ROA, aligning with financial theory suggesting high debt increases risk and constrains profitability. Regression confirmed this ($t = 2.80$, $p < 0.05$), and so, Ha6 is accepted.

Hypothesis Ha7

Liquidity and Profitability

Unexpectedly, liquidity had a positive and significant influence on profitability ($t = 2.17$, $p < 0.05$). While excessive liquidity is often seen as unproductive, in this case, it may have enabled operational flexibility. Thus, Ha7 is rejected due to opposite directional effect.

Hypothesis Ha8

Asset Tangibility and Profitability

A solid and significant positive relationship was found ($t = 2.97$, $p < 0.001$), suggesting tangible assets offer stability, collateral value, and support consistent income. Therefore, Ha8 is accepted.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5. Introduction

This chapter summarizes the key findings from the study on the determinants of profitability among selected private commercial banks in Ethiopia. It is divided into three sections: the summary, conclusions drawn from these findings, and recommendations for future works and research.

5.1 Summary

The study aimed to identify the internal and external factors influencing the profitability of private commercial banks in Ethiopia, using Return on Assets (ROA) as the primary measure. The analysis focused on five banks: Awash Bank, Abyssinia Bank, Dashen Bank, Nib Bank, and Zemen Bank, covering the period from 2017 to 2023.

The research employed both descriptive and inferential statistical methods, utilizing regression analysis via EViews software to explore the relationships between ROA and various factors such as liquidity, leverage, bank size, capital adequacy, asset tangibility, bank age, GDP, and inflation.

Prior to running the regression analysis, the researcher performed several diagnostic tests, including assessments for multicollinearity, heteroscedasticity, normality, and autocorrelation. These tests were essential in verifying the classical linear regression model and OLS assumptions. The regression analysis was identified as the most suitable econometric tool for analyzing financial data, revealing key statistical relationships among the selected variables. on the other hand, the descriptive statistics provided insights into the trends and variations in financial performance, while diagnostic tests confirmed that the data was homoscedastic, free from autocorrelation and multicollinearity, and exhibited normally distributed residuals.

The major findings from the descriptive statistics indicated that the average ROA across the banks was 20.95%, with Dashen Bank leading at 29% and Awash Bank at 18.2%. Liquidity levels averaged 35%, while capital adequacy ratios consistently exceeded the National Bank of Ethiopia's requirement. Besides, this, Regression analysis revealed significant positive effects of bank size ($\beta = 0.079$, $p = 0.007$), leverage ($\beta = 0.022$, $p = 0.005$), and asset tangibility ($\beta = 1.638$, $p = 0.165$) on profitability.

Most importantly, liquidity was positively correlated with profitability (β = 0.119, p = 0.038), while capital adequacy did not show a significant effect (β = 0.007, p = 0.351).

Regression analysis provided meaningful results on the study's hypothesized relationships. Out of eight hypotheses tested: Key findings from the analysis include the following:

Bank Size significantly influences profitability (β = 0.079, p = 0.007), indicating that larger banks are generally more profitable.

Leverage also positively impacts ROA (β = 0.022, p = 0.005), suggesting effective use of debt.

Bank Age had a positive effect on profitability (β = 0.002, p = 0.266), but it was not statistically significant.

Surprisingly, Liquidity was positively related to profitability (β = 0.119, p = 0.038).

Asset Tangibility showed a positive but not significant relationship with profitability (β = 1.638, p = 0.165).

Capital Adequacy did not significantly affect ROA (β = 0.007, p = 0.351).

GDP Growth had a positive impact on profitability (β = 1.967, p = 0.028).

Inflation also positively affected ROA (β = 0.003, p = 0.014), contrary to expectations.

Overall, the model explained 85.3% of the variation in profitability, indicating strong explanatory power. Hence, the results emphasize the complex interplay of both bank-specific and macroeconomic factors in determining profitability.

5.2 Conclusions

The findings indicate that both internal and external factors significantly influence the profitability of private commercial banks in Ethiopia. Larger banks tend to be more profitable due to efficiencies gained from scale, while older banks benefit from established customer relationships. Notably,

liquidity had a positive impact, suggesting that in the Ethiopian context, maintaining higher liquidity can enhance returns.

Macro-economic factors, particularly GDP growth, also positively affected bank profitability, while inflation showed an unexpected positive relationship. However, capital adequacy did not significantly impact profitability, indicating that simply holding more capital does not guarantee higher returns.

In summary, the study reveals that effective management of liquidity, leverage, and bank size are crucial for enhancing profitability in the Ethiopian banking sector.

5.3 Recommendations

Based on these conclusions, several strategic recommendations can be made to enhance the profitability of private commercial banks in Ethiopia.

For Bank Management

- **Optimize Leverage Strategies:** The study finds that leverage significantly and positively impacts profitability ($\beta = 0.022$). Managers should target optimal debt-to-equity levels with the sector average at 6.16 to enhance returns while minimizing risk.
- **Inflation-Responsive Lending Policies:** Since inflation was positively correlated with profitability, likely due to loan repricing mechanisms, banks should adopt flexible pricing models and short-term lending practices during inflationary periods to capitalize on nominal loan expansion (Boyd et al., 2001; Revell, 1979).
- **Expand Bank Size:** Focus on growth strategies, such as branch expansion and investments in technology, to leverage economies of scale and improve service delivery.
- **Prioritize Debt Management:** Ensure that leveraged funds are directed towards productive investments rather than just maintaining liquidity.
- **Enhance Asset Utilization:** Invest in tangible assets that can serve as collateral to support lending operations and improve profitability.
- **Enhance Liquidity Positioning:** Despite classical theory warnings, higher liquidity positively influenced ROA in this context. Banks should maintain liquidity levels near the observed sector average of 35%, using them strategically to absorb economic shocks, as highlighted by Berger & Bouwman (2009).

- **Innovate for Competitiveness:** Newer banks should prioritize innovative practices and customer engagement to compete effectively with established banks.

For Policymakers and Regulators

- **Refine Capital Adequacy Regulations:** Despite capital adequacy not significantly affecting profitability, NBE should refine regulatory thresholds to ensure capital aligns with risk-weighted activities, rather than merely maintaining high ratios.
- **Inflation Control and Monitoring**: Given inflation's positive short-term but potentially destabilizing long-term effects, NBE must reinforce monetary policies to stabilize inflation and avoid systemic risks as warned by Boyd et al. (2001).
- **Promote Economic Growth**: Efforts to foster stable economic growth are vital, as evidenced by the positive relationship between GDP growth and bank profitability.

Suggestions for Further Research

- **Broaden Sample Size**: Future studies could include more banks or compare private and state-owned institutions to enhance generalizability.
- **Include More Metrics**: Incorporating other financial metrics, such as Return on Equity (ROE), could provide a more comprehensive view of profitability.
- **Qualitative Insights**: Gathering qualitative data from bank managers through interviews could reveal strategic insights not captured by financial ratios alone.
- **Analyze External Factors**: Further research on external factors like exchange rates and political stability could enrich the understanding of the macroeconomic context.

In conclusion, this study highlights the multifaceted nature of banking profitability in Ethiopia. While internal management and efficiency are crucial, broader economic conditions also play a significant role. A coordinated approach involving both internal reforms and supportive policy environments is essential for ensuring a resilient and profitable banking sector.

References

Abebaw, T., & Reddy, K. (2020). *Determinants of commercial banks' profitability in Ethiopia: Panel data evidence*. *International Journal of Finance & Banking Studies*, 9(2), 45–60.

Alemayehu, G. (2006). *The structure and performance of Ethiopia's financial sector in the pre- and post-reform periods with special focus on banking* (WIDER Research Paper No. 112). UNU World Institute for Development Economics Research.

Allen, N. B., & Mester, L. J. (1997). Inside the black box: What explains the differences in the efficiencies of financial institutions? *Journal of Banking and Finance, 21*(7), 895–947.

Aredo, D. (n.d.). *The informal and semi-formal financial sectors in Ethiopia: A study of Equb, Idir, and saving institutions* (Doctoral dissertation). Addis Ababa University.

Aremu, M. A., Ekpo, I. C., & Mustapha, A. M. (2013). Determinants of banks' profitability in a developing economy: Evidence from Nigeria. *Interdisciplinary Journal of Contemporary Research in Business, 4*(3), 23–33.

Ashamu, S. O., & Abiola, J. (2012). The impact of the global financial crisis on the banking sector in Nigeria. *British Journal of Arts and Social Sciences, 4*(2), 196–208.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific, and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money, 18*(2), 121–136.

Awash Bank. (2023). *Annual audited financial report 2022/2023*. https://www.awashbank.com/

Azebu, B. B. (2007). Determinants of banking performance in Ethiopia. *Journal of Business and Economics, 4*(50), 225–240.

Baltagi, B. H. (2008). *Econometric analysis of panel data* (4th ed.). John Wiley & Sons.

Belayneh, A. (2011). *Determinants of bank profitability: Evidence from Ethiopia* (Unpublished master's thesis). Addis Ababa University.

Berger, A. N. (1995). The relationship between capital and earnings in banking. *Journal of Money, Credit and Banking, 27*(2), 432–456.

Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation. *Review of Financial Studies, 22*(9), 3779–3837.

Bikker, J. A., & Hu, H. (2002). Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the new Basel capital requirements. *BNL Quarterly Review, 221*, 143–175.

Birhanu, T. (2012). *Determinants of Commercial Banks' Profitability: An Empirical Study on Ethiopian Commercial Banks*. MA Thesis, Addis Ababa University.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America, and Australia. *Journal of Banking & Finance, 13*(1), 65–79.

Boyd, J. H., Levine, R., & Smith, B. D. (2001). The impact of inflation on financial sector performance. *Journal of Monetary Economics, 47*(2), 221–248.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.

Dawit, F. (2016). *Determinants of commercial banks' financial performance in Ethiopia* (Master's thesis). Addis Ababa University.

Demirgüç-Kunt, A., & Huizinga, H. (2000). Financial structure and bank profitability (World Bank Policy Research Working Paper No. 2430). World Bank.

Demirgüç-Kunt, A., & Levine, R. (2008). Finance, financial sector policies, and long-run growth (World Bank Policy Research Working Paper No. 4469). World Bank.

Demirgüç-Kunt, A., & Maksimovic, V. (1998). Law, finance, and firm growth. *Journal of Finance, 53*(6), 2107–2137.

Dietrich, A., & Wanzenried, G. (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money, 21*(3), 307–327.

Flamini, V., McDonald, C., & Schumacher, L. (2009). The determinants of commercial bank profitability in sub-Saharan Africa (IMF Working Paper No. 09/15). International Monetary Fund.

Goddard, J., Molyneux, P., & Wilson, J. O. S. (2004). Dynamics of growth and profitability in banking. *Journal of Money, Credit and Banking, 36*(6), 1069–1090.

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill.

Guru, B. K., Staunton, J., & Balashanmugam, B. (1999). Determinants of commercial bank profitability in Malaysia. Asian Academy of Management Journal, 5(2), 1–22.

Hasanović, J., & Latić, T. (2017). Dynamic panel data models: Implementation and practical problems. *Economic Review: Journal of Economics and Business, 15*(2), 45–56.

Heffernan, S. (2005). *Modern banking*. John Wiley & Sons.

Heffernan, S. A., & Fu, X. (2010). Determinants of financial performance in Chinese banking. *Applied Financial Economics, 20*(20), 1585–1600.

Heffernan, S. (2005). Modern banking. John Wiley & Sons.

Heffernan, S. A., & Fu, X. (2010). Determinants of financial performance in Chinese banking. *Applied Financial Economics, 20(20), 1585–1600.*

Hossem, R. (2013). What determines the profitability of banks during and before the global financial crisis? Evidence from Tunisia. *International Journal of Economics, Finance and Management, 2(4), 330–342.*

Hussain, H., & Bhatti, G. A. (2010). Evidence on the profitability determinants of the banking sector in Pakistan. *African Journal of Business Management, 4(10), 2007–2016*.

International Monetary Fund (2022). Ethiopia: Staff Report for the 2022 Article IV Consultation. IMF Country Report No. 22/126.

Kiyota, K., Peitsch, B., & Stern, M. (2007). *The case for financial liberalization in Ethiopia: Impact on profitability* (Research Discussion Paper). University of Michigan.

Kosmidou, K. (2008). The determinants of banks' profits in Greece during the period of EU financial integration. *Managerial Finance, 34*(3), 146–159.

Kothari, C. R. (2004). *Research methodology: Methods and techniques* (2nd ed.). New Age International Publishers.

Marshall-Obamuyi, T. (2013). Determinants of banks' profitability in a developing economy: Evidence from Nigeria. Organizations and Markets in Emerging Economies, 4(2), 97–111.

Madishets, P., & Rwechungura, W. (2013). Determinants of banks' profitability in a developing economy: Evidence from Tanzania. Asian Journal of Research in Banking and Finance, 3(11), 22–36.

Ministry of Finance (MoF) (2023). Ethiopia's Financial Sector Reform Update. www.mofed.gov.et

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information investors do not have. *Journal of Financial Economics, 13*(2), 187–221.

National Bank of Ethiopia. (2022). *Annual report 2021/22*. https://www.nbe.gov.et/publications/

National Bank of Ethiopia. (2023). *Annual report 2022/23*. https://www.nbe.gov.et/publications/

Nguyen, T. M. (2021). Bank liquidity and profitability: Evidence from emerging markets. *Journal of Economic Studies, 48*(1), 135–152.

Perry, P. (1992). Do banks gain or lose from inflation? *Journal of Retail Banking, 14(2), 25–30.*

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from *international data. Journal of Finance, 50(5), 1421–1460.*

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.

Revell, J. (1979). Inflation and financial institutions. *Financial Analysts Journal, 35*(3), 35–38.

Roodman, D. (2009). A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics, 71*(1), 135–158.

Staikouras, C. K. (1999). The determinants of European bank profitability. *Journal of International Business and Economics Research, 3(6), 12–21*.

Staikouras, C. K., & Wood, G. E. (2004). The determinants of bank profitability in Europe. *International Business & Economics Research Journal, 3(6), 57–68.*

Sufian, F., & Habibullah, M. S. (2010). Assessing the impact of financial crisis on bank performance: Empirical evidence from Indonesia. *ASEAN Economic Bulletin, 27*(3), 245–262.

Tadele, F. (2020). Determinants of profitability in Ethiopian banking sector: Evidence from panel data. *Journal of Economics and Finance, 44*(1), 80–97.

Tamiru, B. (2010). *The determinants of Ethiopian commercial banks' profitability* (MA thesis). Addis Ababa University.

World Bank. (2021). *Ethiopia economic update: Navigating through crisis*. World Bank. https://www.worldbank.org/en/country/ethiopia/publication/ethiopia-economic-update-navigating-through-crisis

World Bank. (2023). *Ethiopia economic update: Laying the foundation for financial sector deepening*. World Bank.

Zeitun, R., & Tian, G. G. (2007). Capital structure and corporate performance: Evidence from Jordan. *Australasian Accounting, Business and Finance Journal, 1*(4), 40–55.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods* (9th ed.). Cengage Learning.

Appendixes:

Appendix A: Operational Definition

- **Asset Tangibility:** Asset tangibility is the proportion of a bank's assets that are physical or fixed, such as buildings and equipment. Tangible assets can impact profitability by affecting the bank's collateral capacity and capital requirements (Rajan & Zingales, 1995).

- **Bank Size:** Bank size refers to the total assets held by a bank, which reflects its capacity to generate income and manage risks. Larger banks may benefit from economies of scale and diversified portfolios, which can positively impact profitability (Demirgüç-Kunt & Maksimovic, 1998).
- **Bank Age:** Bank age denotes the number of years a bank has been in operation. Older banks are often considered more stable and experienced, which can contribute to better profitability due to established customer relationships and operational efficiencies (Athanasoglou et al., 2008).
- **Capital Adequacy:** Capital adequacy is the level of a bank's capital reserves relative to its risk-weighted assets, as mandated by regulatory authorities. Adequate capital buffers enhance financial stability and investor confidence, contributing to profitability (Berger, 1995).
  - **Commercial Banks:** Commercial banks are private financial institutions that accept deposits, provide loans, and offer other financial services to businesses and individuals. Their primary objective is profit generation (Heffernan, 2005).
  - **Deposits:** Deposits are funds placed by individuals or entities into a bank account, which serve as a major source of funding for banks. Deposit levels and stability significantly affect a bank's lending capacity and profitability (Guru et al., 1999).
  - **Gross Domestic Product (GDP):** GDP represents the total economic output of a country and serves as a key indicator of economic health. Positive GDP growth can stimulate demand for banking services, thereby enhancing profitability (Kosmidou, 2008).
  - **Inflation Rate:** Inflation rate measures the percentage increase in the general price level of goods and services over time. Moderate inflation can benefit banks by increasing the value of their interest-earning assets, but high inflation may destabilize the financial environment and reduce profitability (Perry, 1992).

- **Interest Rate:** The interest rate is the cost of borrowing or the return on savings, typically set by central banks. It directly impacts bank profitability through its effect on net interest margins (Naceur, 2003).
- **Leverage:** Leverage is the ratio of a bank's debt to its equity, indicating the extent to which a bank uses borrowed funds for its operations. While higher leverage can enhance profitability by increasing the funds available for investment, it may also raise financial risk (Goddard et al., 2004).
- **Liquidity Ratio:** Liquidity ratio measures a bank's ability to meet its short-term obligations using its liquid assets. High liquidity ensures operational stability but may lower profitability if excess liquidity is not efficiently invested (Bourke, 1989).
- **Profitability:** Profitability is a measure of a bank’s ability to generate earnings compared to its expenses and other costs. Common indicators include return on assets (ROA) and return on equity (ROE) (Athanasoglou et al., 2008).

Appendix B: Model output

```
Fixed-effects (within) regression               Number of obs      =        35
Group variable: Year                            Number of groups   =         7

R-sq:                                           Obs per group:
     within  = 0.9352                                         min =         5
     between = 0.7210                                         avg =       5.0
     overall = 0.9080                                         max =         5

                                                F(8,20)            =     36.11
corr(u_i, Xb)  = -0.1857                        Prob > F           =    0.0000
```

LOGROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
LIQ	.1241438	.0572549	2.17	0.042	.0047121	.2435754
Lev	.0163222	.0058206	2.80	0.011	.0041806	.0284638
Size	.0709891	.0239867	2.96	0.008	.0209537	.1210244
Age	.0038493	.0012182	3.16	0.005	.0013081	.0063905
TANG	.55338	.1863915	2.97	0.008	.1645741	.9421859
CAP	.0071587	.0074907	0.96	0.351	-.0084665	.022784
GDP	.4182675	.7547279	0.55	0.586	-1.156067	1.992602
INF	-.0008844	.0007376	-1.20	0.245	-.002423	.0006542
_cons	.6640811	.114518	5.80	0.000	.4252007	.9029616
sigma_u	.01834357					
sigma_e	.02948015					
rho	.27911094	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(6, 20) = 0.65                     Prob > F = 0.6867
```

a. Dependent Variable: ROA performance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.923[a]	.853	.797	.04374	1.780

a. Predictors: (Constant), SIZE, Age, INF, GDP, CAPGR, Lev, LIQ, Tangebility

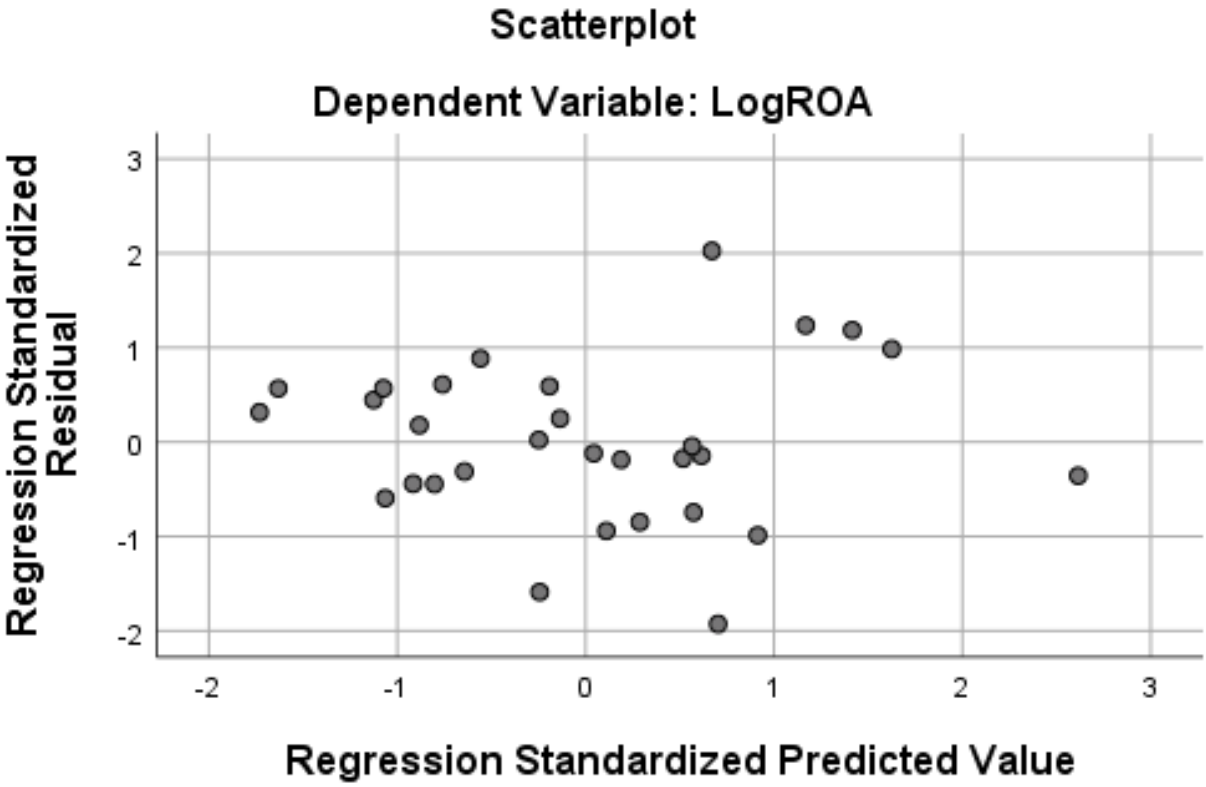
b. Dependent Variable: LogROA

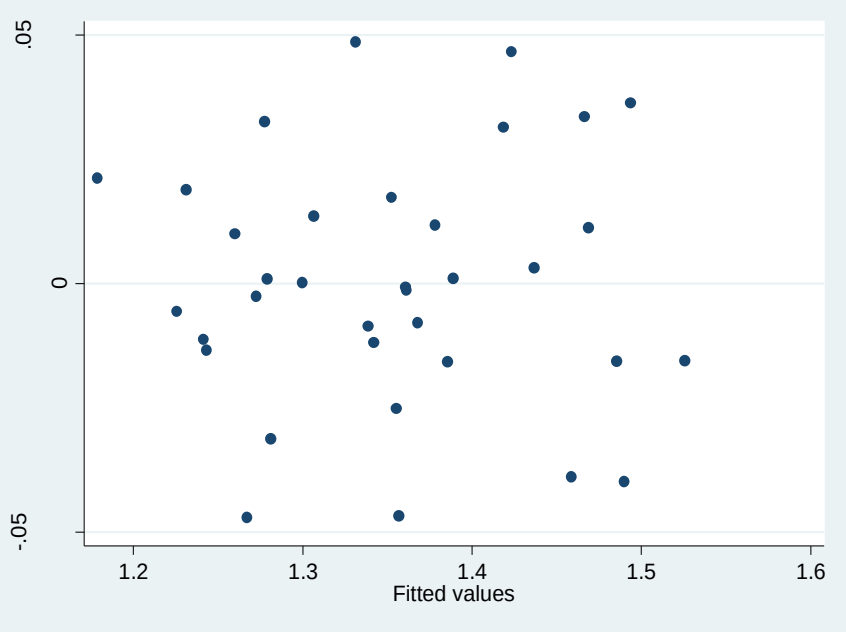
ANOVA[a]

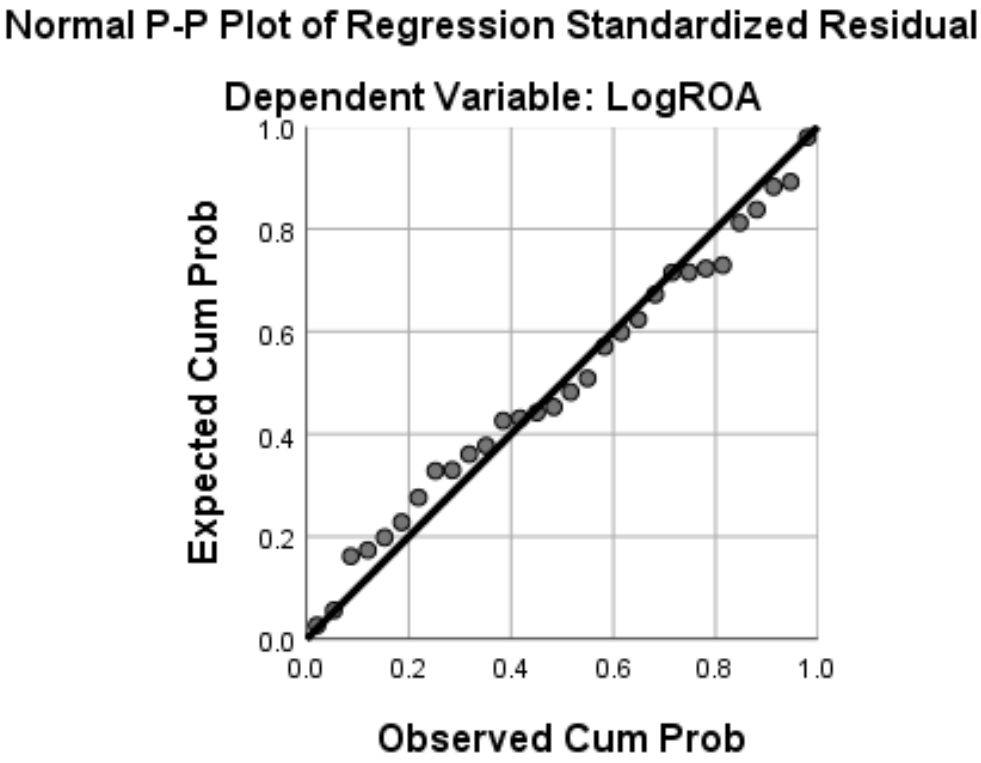
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.233	8	.029	15.205	.000[b]
	Residual	.040	21	.002		
	Total	.273	29			

a. Dependent Variable: LogROA

b. Predictors: (Constant), SIZE, Age, INF, GDP, CAPGR, Lev, LIQ, Tangebility


Scatterplot
Dependent Variable: LogROA
Regression Standardized Residual
3
2
1
0
-1
-2
-2
-1
0
1
2
3
Regression Standardized Predicted Value


.05
0
-.05
1.2
1.3
1.4
1.5
1.6
Fitted values



Test for heteroskedasticity

```
. estat hettest

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

         chi2(1)      =     1.00
         Prob > chi2  =   0.3162
```