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School of Commerce

Thesis

For the Partial fulfillment of

MSc Corporate Finance Specialty in Investment Management

Factor Affecting Profitability of Commercial Banks in Ethiopia

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By

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Addis Ababa, Ethiopia

Statement of Declaration

This thesis is presented as part of the criteria for obtaining a Master of Science (MSc) degree in Corporate Finance, specialty in Investment Management.

I confirm that this thesis is my own original work, and with proper citation to all information used.

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Advisor's Approval

As the thesis advisor, I have given my approval for this research to be submitted for examination.

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Contents

CHAPTER ONE	5
1.1. Background of Research.	5
1.2. Problem Statement.	6
1.3. Research Questions	8
1.4. Objective of the study.....	8
1.4.1. General Objective of the study	8
1.4.2. Specific Objective	9
1.5. Hypothesis of the Study.	9
1.6. Delimitation/ Scope of the study	10
1.7. Organization of the Paper	10
CHAPTER TWO	11
2. LITERATURES REVIEW	11
2.1. Introduction	11
2.2. Theoretical Literature	11
2.2.1. Definition and Role of Commercial Banks.	11
2.3. Bank Performance Theories	11
2.4. Bank Performance	13
2.5. Bank Performance Indicators (Measurements).	14
2.6. Empirical Literatures	16
2.6.1. Research papers Conducted at Global Level.....	16
2.6.2. Research conducted in African Countries	19
2.6.3. Research conducted in East Africa.....	21
2.6.4. Ethiopia	21
2.7. Research Gap Analysis.....	24
2.8. Conceptual frameworks.....	25
2.9. Independent variables and source of reference	25
CHAPTER THREE	27
3. RESEARCH DESIGNS AND METHODOLOGY	27
3.1. Research Designs	27
3.2. Research Approach.....	27
3.3. Population, Sampling Techniques. and Sample Size.	28

3.3.1.	Population’s Size.....	28
3.3.2.	Sample Size & Sampling Techniques.....	28
3.4.	Data Type, source and Collection Procedure.....	29
3.5.	Definitions of Variables and their Measurement.....	30
3.6.	Data Presentation and Analysis Method.....	33
CHAPTER FOUR.....		34
4.	DATA ANALYSIS and DISCUSSIONS	34
4.1.	Descriptive Statistics Results:	34
4.2.	Assumptions and Diagnostic Test:	36
4.2.1.	Correlation Matrix:	37
4.2.2.	Normality Tests:.....	38
4.2.3.	Multicollinearity Test:.....	39
4.2.4.	Heteroscedasticity Test:.....	40
4.3.	Regression Analysis	41
4.4.	Hypothesis and Test Result	46
Chapter Five.....		48
5.	Summary, Conclusions and Recommendations	48
5.1.	Introduction	48
5.2.	Summary of Findings	48
5.3.	Conclusions	49
5.4.	Recommendation.....	49
References.....		52

List of Tables**Page No**

1) Table 2-1 Independent variables and source of reference	25
2) Table 3 -1. List of Banks in the sample	28
3) Table 4 -1. Descriptive Statistics	34
4) Table 4 - 2. Normality Test Coefficient	38
5) Table 4 - 3. Correlation coefficients between explanatory and independent variables	36
6) Table 4 - 4. White, Heteroskedasticity Test:	40
7) Table 4 - 5. Regression Coefficient	41
8) Table 4 – 6. Summary of Regression Results	48

List of Figures**Page No**

- | | |
|--|----|
| 1) Figure 2-1: Conceptual framework. | 24 |
| 2) Figure 4 - 1. Normality test for residuals | 38 |
| 3) Figure 4- 2. Durbin-Watson (DW) statistic results | 40 |

Acronyms

ROA	Return on Asset
BoA	Bank of Abyssinia
BSZ	Bank Size
CAR	Capital Adequacy Ratio
CBE	Commercial Bank of Ethiopia
CPI	consumer price index
DRS	Diversification of Income Streams
ETB	Ethiopian Birr
ESS	Ethiopian Statistical Service
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
HHI	Industry concentration
INF	Inflation Rate
IR	interest rate
MEF	Management Efficiency
MKS	Management Efficiency
NBE	National Bank of Ethiopia
NIM	Net Interest Margin
NPL	Non-Performing Laon
ROAA	returns on average assets
ROE	Returns on Equity
SCP	Structure-Conduct- Performance
TL	Total Loan

Abstract

The aim of this research was to determine the elements influencing Ethiopian commercial banks' profitability. Used a purposive judgmental sampling method, banks that produced at least 15-year financial reports were included in the sample. Hence, 14 banks were chosen from a total of 31 commercial banks to achieve this goal. The data was collected over a 15-year period (2010–2024), totaling 210 data points. The study examined eight explanatory variables: Banks Size (BSZ), Capitals Adequacy Ratios (CAR), Management Efficiency Ratios (MER), Diversification of Revenue Streams (DRS), Non-Performing Loans (NPL), Market Share (MKS), and Inflation Rate (INF). The dependent variable was profitability, as determined by Return on Assets (ROA). Both explanatory and descriptive research designs were used in this study; the former sought to explain the association between the independent and dependent variables that were selected, while the latter gave a thorough description of the phenomenon being examined without necessarily pointing to its causes. Regression study revealed that NPL and INF had a substantial negative association with ROA, but BSZ, CAR, MER, MKS, and GDP showed a considerably positive link. Nevertheless, there is no noticeable connection between DRS and ROA. According to the results, Ethiopian commercial banks can increase their profitability by growing in size, improving their capital adequacy ratio (by adding more capital and improving their assets quality), increasing management effectiveness, increasing their market share (particularly in loans), controlling their non-performing loan ratio (NPL) for better asset quality, and adjusting their operations and strategies to the GDP and adjusting lending rate in accordance with inflation rate of the country.

Key Words, *Return on assets, Capitals adequacy, Bank Size, management efficiency Non-Performing Loan, Market Share, Gross domestic product and inflation.*

CHAPTER ONE

1.1. Background of Research.

Commercial banks play a key character in the economy of many countries. They offer essential financial services like long-suffering deposits, yielding loans, and handling payment transactions. Essentially, they connect borrowers and savers with a minimized cost, generally, helping the smoothen flow of resources.

This study's main goal is to explore the factors that strongly affect Ethiopian commercial banks' profitability. Comprehending factors affecting profitability of commercial banks is essential for various stakeholders. It assists bank managers in identifying the factors that influence their financial performance, bank managers can increase earnings by making better decisions with this knowledge. Additionally, it helps regulators and policymakers evaluate the overall health of the financial system so they can develop policies that maintain its stability and boost the economy as a whole. This data can be used by stakeholders and investors to determine the value of funding a particular bank or the banking industry as a whole. Also, revealing the reasons that affect the profitability of commercial banks' assists potential investors on their financing and investment decisions.

The financial success of commercial banks has been the subject of numerous studies held worldwide, offering insightful information in this crucial field. The diverse results demonstrate the ways in which different elements influence bank performance in various economic situations.

To identify the critical elements influencing the financial performances of regional commercial banks, a committed team of researchers in Ethiopia has conducted in-depth investigations. The goal of their thorough investigation and meticulous analysis is to find information that will contribute to the long-term stability of Ethiopia's banking industry and academic purpose

In addition, a team of motivated academics from Ethiopia started a number of thorough research projects with the express purpose of determining and comprehending the essential components that significantly influence the financial performance of Ethiopian commercial banks. By means of their thorough studies and careful analyses, these experts aimed to find insights that would be useful for improving the long-term viability and financial stability of Ethiopia's domestic banking sector. Chapter two reviews and summarizes some of the earlier works that have been written about the topic of this thesis.

This chapter is divided into several smaller sections, including the following: research the background, problem statement, basic research questions, general and specific research objectives, research hypotheses, research scope, paper limitations, and research organization.

1.2. Problem Statement.

Commercial banks are essential for the distribution of economic resources in nations because they make it easier for capital to circulate continuously from depositors to investors.

Commercial banks engage in an important role in modern economies & make a substantial contribution to financial inclusion and economic growth. Their function is not limited to moving money from savers to borrowers, as they actively advance stability and growth in the economy through various financial services and programs (Adeola & Evans, 2017). Commercial banks can continue to perform a viable role in intermediation, if they can produce sufficient profits to cover their operating cost. In other words, commercial banks must make a profit in order to function as an intermediary in the financial system. The financial strength of commercial banks not only plays an intermediary role; it has a strong influence on a country's development. Delivering returns to shareholders on the capital provided by them provides an incentive for more investments, which propels growth in the economy. In contrast, deficiencies in the bank's performance can lead to financial crisis and failure, resulting in slowed or negative economic growth for the country.

Whole parties involved in the bank, directors, shareholders, potential investors, the central bank, and other interested parties, must have a thorough awareness of the elements that affect bank profitability. Many research are conducted in previous years and revealed various valuable outcomes. While, due to continuous global and local economic changes still some factors are not clearly uncovered by research studies, and it needs to do more research. The internal drivers of profitability for one bank may be different from those of another since bank-specific variables (Bank Size (BSZ), Capitals Adequacy Ratio (CAR), Managements Efficiency Ratio (MER), Diversification of Revenue Streams (DRS), and Non-Performing Loans (NPL) are specific to each institution. Industry-specific factor (Market Share MKS) influencing profitability are those that have an impact on Ethiopian banks that operate in the banking sector. Macroeconomic factors (Gross Domestic Product GDP and Inflation rate INF) plays a significant role on the financial result of commercial banks; these variables are

associated with the broader economic environment and influence all institutions within a given economy. (Delis, M. D. (2008).

Furthermore, Literature suggests that many studies have been done at both a local and a global level using the variables under the above broad (Bank, Industry and Macroeconomic specifically) (Okoth, V and Gemechu, B (2013). studied the factor determining bank's profitability in developing economies, focusing specifically on Nigeria found that bank specific variables imposing sound management of costs and improvement of interest rates help profitability of commercial banks. In addition to this, macro environmental variables in the way of favorable economic conditions further increase commercial bank profitability.

In another study Osoro, P. M. (2014) studied the causes of the concert of the banking industry in designing the research discovered that BOD and directors' decisions have a significant influence on the financial status of Kenyan commercial banks; however, macroeconomics variables had little influence on bank performance. However, that study did not assess industry-specific determinants that affect performance specifically in commercial banks.

Since the 1940's great depressions, the focus of academic study was on studying the financial achievement of commercial banks. last 20 years' research shows commercial banks in SSA countries have been more gainful than banks internationally with an average ROA of 2% ROA (Flamini ,2009). The tendency to invest in riskier businesses is one of the main reason's contributories to the region's enlarged profitability. Furthermore, there is a substantial discrepancy between the supply and demand for banking services, which contributes to the notable success of the commercial banking industry in SSA. Because there are very few banks in SSA associated with the mandate for their services, there is less competition and the banks charge higher interest rates. In Eastern African, where public-owned banks control a sizable share of the market, this situation is especially noteworthy. BOD and management's internal choices has the biggest impact on these variables. On the other hand, outside variables that affect profitability, such national or industry-wide circumstances, are out of bank control and have a big effect on the financial result.

Factors influencing Ethiopian commercial banks' profitability were evaluated by Million L. (2018). According to the study, GDP and ROA are favorably correlated, whereas liquidities, and inflation are adversely associated with ROA. Studies on the variables affecting bank profitability were also conducted by Tekeste (2012) and Tesfaye (2014), who found a strong positive correlation between

GDP and bank's profits. A research on the profitability factors of Ethiopian private commercial banks was carried out by Haylesus H. (2016). The study focused on industry and macroeconomic factors as well as internal factors like cost of capital, branch networks, and technology investment as critical causes of private commercial bank performances in Ethiopia.

Numerous prior studies in Ethiopia have primarily concentrated on analyzing bank profitability within a limited timeframe and specific banks, potentially neglecting the full extent of the topic. To address this deficiency, this study conducted a thorough examination using data spanning 15 years (2010-2024), specially covered three distinct economic periods: Growth & Transformations Plan I (GTP-I) from 2010 to 2014, GTP-II from 2015 to 2019, and the ongoing Home-Grown Economy Reform that began in 2020. Compared with previous researches, by utilizing a dataset encompassing a substantial period, this research tapped into the large financial data produced by Ethiopian commercial banks since the sector's liberalization in 1992. Additionally, this study involved 14 commercial banks all first-generation banks (such as Awash Bank S.C., Dashen Bank S.C., Bank of Abyssinia S.C., Wegagen Bank S.C., Hibret Bank S.C., and Nib Bank S.C.), all second-generation banks (including Cooperative Bank S.C., Oromia S.C., Lion International Bank S.C., Zemen Bank S.C., and Oromia International Bank S.C.), and among third-generation banks (such as Bunna Bank S.C., Berhan Bank S.C., and Abay Bank S.C.) were included in the sample. By examining this diverse array of banks and multi-year data, the study aimed to bridge the identified gaps and enhance the current knowledge of the subject matter.

1.3. Research Questions

Fundamental research questions of this research are described below:

- 1) What are the major internal factors that significantly affect profitability of commercial banks in Ethiopia?
- 2) Which important industry specific factors that significantly affect profit of commercial banks in Ethiopia?
- 3) What are the major macro-economic specific factors that significant affect profitability's of commercial banks in Ethiopia?

1.4.Objective of the study

1.4.1. General Objective of the study.

The General objective of this research is to evaluate the factors that affects profitability of Ethiopian commercial banks.

1.4.2. Specific Objective

The specific objectives of this research are

- 1) To examine the major bank specific factors that affect the profit of commercial banks in Ethiopia.
- 2) To examine the major industry specific reasons that affect commercial banks profitability in Ethiopia.
- 3) To analyze the major macroeconomic factors that affect profitability of commercial banks in Ethiopia.

1.5. Hypothesis of the Study.

The goals of this study is to examine the issues that impact the profitability of Ethiopian commercial banks, which is crucial in assessing their financial health and continuity in the country. As Ethiopia is an emerging nation with a growing banking sector, it is vital to comprehend the influences that impact bank's profit. This helps offer valuable insights to stakeholders and promotes commercial banks sustainable growth and stability.

A hypothesis in research is a testable statement that provides a clear and exact forecast about the association between variables in the study. A research hypothesis helps a researcher focus on data gathering and examination & provides direction to the study process. A research hypothesis is essentially a tentative explanation for a phenomenon that has been observed that can be tested through observation or experiment.

To examine the influencers that influence Ethiopian commercial banks profitability, specific research hypotheses have been developed based on selected independent variables.

H₁: Bank Size (BSZ): *There is a positive significant relationship between bank size and Profitability of Ethiopian commercial banks.*

H₂: Capital Adequacy Ratios (CAR): *There is a positive notable connection between capital adequacy and Profitability of Ethiopia commercial banks.*

H₃: Management Efficiency Ratios (MER): *There is a negative notable connection between Managements efficiency and Profitability of Ethiopia commercial banks*

H₄: Diversification of Revenue Streams (DRS): *There is a positive significant connection between diversification of revenue and Profit of Ethiopia commercial banks.*

H₅: Non-Performing Loan (NPL): *There is a negative notable relationship between non-*

performing loan and Profitability's of Ethiopia commercial banks.

H6: Market Share (MKS): *There is a positive notable connection between market share & performances of Ethiopia commercials banks.*

H7: Inflation Rate (INF): *There is a negative notable connection between inflations and Profitability of Ethiopian commercial banks*

H8: Economic Growth Rate (GDP): *There is a positive notable relationship between GDP and Profitability's of Ethiopia commercial banks.*

1.6. Delimitation/ Scope of the study

This research aims to analyze the factors affecting profitability of commercial banks in Ethiopia. In a bid to ensure investigate quality and completeness this research focused on 14 selected Ethiopian commercial banks that have been in existence and have financial statements published for at least 15 years by 2024. (2010 to 2024). Profitability is measured by ROA and 8 independent variables Bank Size (BSZ), (CAR), Management Efficiency Ratios (MER), Diversification of Revenue Streams (DRS), Non-Performing Loan (NPL), Market Share (MKS), Inflation Rate (INF), Economic Growth Rate (GDP),

1.7. Organization of the Paper.

This research paper have five chapters. Chapter one discusses the Background of the study problem statement, research questions, and objectives of the study and the scope of the research. In chapter two, relevant theoretical and empirical literatures are reviewed and stated. Third chapter describes the research methodology used, which encompasses program reports, study area description, types and sources of data, and diagnostic tools. Chapter four describes the results and discussions analyzing the results in descriptive statistics and econometric models. Finally, chapter five summarized the findings of and inferences and recommendations.

CHAPTER TWO

2. LITERATURES REVIEW.

2.1. Introduction

This section, the previous works explore and synthesize the relevant literature concerning the drivers of profitability in commercial banking in Ethiopia. The chapter is divided into two major parts. The theoretical portion was delved into historical theoretical frameworks associated to the research topic, while the empirical segment was analyzed previous practical studies.

Furthermore, the empirical literature review subsection is then divided into three separate subsections: research papers conducted globally were discussed in the global subsection, studies conducted in Africa were reviewed in their own subsection, studies which examined east African countries were viewed in their own subsection as well, and finally research papers which focused on Ethiopian cases were examined and reviewed in a unique segment.

2.2. Theoretical Literature

2.2.1. Definition and Role of Commercial Banks.

A commercial bank is a kind of financial institution that is legally allowed to accept deposits from people and businesses and lend money to other institutions and persons, according to Grimsley (2003). Commercial banks serve as economic mediators, which is their main character in a country's economic development. By encouraging the flow of investment capital across the market, commercial banks achieve this purpose. The main mechanism of this capital circulation in the economy is the lending process, which helps commercial banks earn a profit. Ashenafi N. and Dr. Tripiti M. (2022).

2.3. Bank Performance Theories

1. Market Power Theory (MPT)

The philosophy behind the market power theory maintains that the principal factor to a bank's successful performance is the bank's market structure. The (SCP) and the Relative Market Power (RMP) models account for MTP. The SCP model shows that markets with high levels of concentrations can lead to collusive conduct by firms which leads to higher profits for the industry (Goddard, Molyneux, & Wilson, 2004). Likewise, the RMP model states that any bank's profitability is dependent on their market share leading larger developed banks to influence prices, hence greater

profits; confirming the developed banks offer products and services that either competitors do not or have blended into the services presented by the competitors.

The SCP model recognizes that additional profit occurs as a result of increased market concentration because commercial banks are able to collude to increase profit in their market. When structure-conduct-performance first appeared in the literature, it was largely a tool used in the industrial organization literature to study profitability of firms. Bain (1951) argued that the profit of bank services is a purpose of the level of concentration in the market. His hypothesis is noted as follows: 'Firms in high-seller concentration oligopolies tend to earn higher profit margins than firms in low concentration markets. He found that firms in the same industry could expect to earn higher return on investment in highly concentrated industries when compared to firms in less concentrated industries. He based his findings on evidence from the American manufacturing industry over the years 1936 through 1940. After Bain's work, there were a significant number of empirical studies related to the Structure-Conduct-Performance theory of banking. Rhoades (1985)).

2. Theory of Efficiency

One important component of competitiveness is efficiency. Demsetz (1973) was the first to put forth the Efficiency hypothesis and establish a different understanding of the association among market structure and performance. The efficiencies' structure theory attempted to provide an optional explanation for the SCP model. The Ex-efficiency and the scale efficiency hypothesis are the two fundamental approaches that make up the theory. In the context of the banking industry, this makes it abundantly evident that a bank with lower operational expenses than its competitors generate larger profits. The Scale Efficiency approach ignores any differences in management and technology between the organizations and instead focuses on large-scale production. Larger businesses benefited from economies of scale, which lowers the cost of products per unit.

3. Portfolio Theory

The portfolio theory method considered the utmost valid and crucial aspect of successful bank studies, as stated by Atemnkeng & Nzongang (2006). According to this theory, the optimal allocation of each investment within a portfolio of wealth holders results from strategic decision-making based on various factors such as the return rate of investments, risk associated with different financial assets, and overall portfolio size. This concept underscores the importance of diversifying

assets to mitigate risk in portfolios, highlighting that the configuration of a commercial bank's optimal portfolio holdings is determined by their management strategies. Furthermore, maximizing gains is contingent upon aligning stockholder asset and liability holdings with management decisions and minimizing the marginal costs of asset provision for the bank (Atemnkeng & Nzongang, 2011).

This theory, known as the risk-return trade-off theory, posits that the structure of bank's capital is not contingent on its market value. Per the investment theory, higher risks (and consequently higher returns) stem from lower equity-to-asset ratios and debt ratios (Van Ommeren, 2011). Building upon the ideas put forth by Arrows (1972) and Spencee (1973), the signaling concept was introduced. Signaling theory advises that successful or gainful firms provide +ve and actionable information, or value, to the market (Dainelli & Giunta, 2011). Bergers (1995) initially proposed that a high equity ratio serves as a +ve signal to the market regarding a bank's value. This signal is not replicable for less profitable banks, as it would only exacerbate their losses. The theory highlights that when a bank excels, its management will communicate the success to interested parties, including the market, to attract more investments by showcasing strengths that underperforming banks lack. Through enhanced transparency, many managers aim to secure significant rewards and cultivate a favorable reputation that ultimately boosts the value and profitability of banks (Muzahem, 2011). Thus, signaling theory asserts that highly profitable firms demonstrate their competitive prowess to the market by disseminating new, valuable insights (Bini, Dainelli & Giunta, 2011).

With regards to the financial sector, theories of profitability have been useful to assess the existing relationship bank profitability has with bank-specific variables, either being positive or negative. In this context, the significance of the banks-specific variable can directly affect bank profit. Therefore, if the situation of the relationship with each banks-specifics variable is positive, that means high bank profitability.

2.4. Bank Performance

Commercial banks play an vital role in distributing countries' economic resources. They continue to serve as the transfer point from depositors to borrowers regularly. They can achieve this if they earn a reasonable income to cover their operating expenses associated with their operational losses. In other words, to perform their intermediary function on a sustainable basis, banks must be able to

operate profitably. Besides the intermediary function, the banks' financial performance (health) is critically important to countries' economic growth. A bank's ability to be financially successful allows the banks to reward their owners/shareholders for their investment. A bank rewarding their owners/shareholders financially motivates them to continue investing, thereby promoting economic growth. If bank performance is negative in contrast, society suffers through banking failure and banking crises, both of which negatively affect economic growth.

Measuring banks' performance is vital for a variety of reasons. First, it helps investors and stakeholders assess the financial health and stability of banks, allowing them to make informed decisions about where to invest their money. Secondly, measuring performance can help identify areas of strength and weakness within a bank, enabling management to make strategic decisions to improve operations and profitability and corporate continuity. Additionally, performance metrics can be used by regulators to ensure that banks operate within regulatory guidelines and are not taking excessive risks that could harm the overall financial system. Overall, measuring banks' performance is essential for promoting transparency, accountability, and stability in the banking industry.

Improving bank performance also provides value to its reputation and good standing in the eyes of the public and the market. Economic literature has deeply explored bank performance through various frameworks, some of the major characteristics that drive bank performance are revenue, effectiveness, risks taking, & leverage (ECB, 2010). Although not agreeing on one factor that determines performance for financial institutions such as banks found in existing literature, and numerous researchers have examined the empirical influences upon bank performance modeled from financial data.

Typically, banks engage in profit maximizing. Profit is a pointer of the bank's viable position in the banking, as well as of the quality of management, and it will enable the health of the banking sector. Profit is also seen to be the first line of protection against unanticipated losses, because it enhances a bank's capital position, as well as enhancing its imminent potential when retained incomes are invested (ECB, 2010).

2.5. Bank Performance Indicators (Measurements).

The authors of bank profitability research are typically in agreement with the accepted measures of performance to be applied, such as ROA ROE; and NIM, as determinants of bank performance. These statistics (performance measures), which tend to be obtained from annual accounting data, are

generally reported by researchers, including Rao & Tekkeste (2012), Ongore M. and Gemechu T. (2013), Each researcher provided different indicators of bank profitability, leading to a more complete empathetic of the reasons influencing the financial performance of banks, as indicated in the paper by Ameer and Mhiri (2013) and discussed in full by Athanasoglou (2006).

i) Return on Asset (ROA)

A financial ratio called ROA, measures how sound a business makes use of its funds to get a profit. ROA determines the company's net income based on its total assets. Generally, the more efficient an asset has been used to produce profit, the higher the ROA value. Furthermore, ROA shows the ratio of net profit / total assets, which reflects management's capacity to make money off of the company's assets. This ratio demonstrates how well a company is making use of its available assets to turn a profit. As a percentage of total assets, it shows the amount of profit that a business can make (Weston and Brigham, 1977). Furthermore, ROA shows how much profit a bank makes on average for every dollar of assets, which gives an understanding of how efficiently it is running

The ROA ratio, which is widely acknowledged in empirical research as a critical metric for assessing bank performance, is a major indicator of both corporate and bank profitability. Its significance is underlined by authors like Alexiou and Sofoklis (2009), Alkhatib (2012), Rao & Tekeste (2012), and Ana et al. (2011). Although off-balance-sheet activities may have an impact on ROA (Athanasoglou, 2006; Dietricha and Wanzenriedb, 2009),

Returns on Equity (ROE) is another crucial financial indicator that's utilized to assess a bank's performance. According to the balance sheet, ROE shows how much profits a bank has made in relation to the total amount of shareholder equity invested in the bank. It is a gauge of how well bank management spends the money of shareholders. Net earnings are divided by total equity to determine ROE. A high return on equity (ROE) indicates that the bank is skilled in producing internal cash flows. In essence, the assets-to-equity ratio, which evaluates the bank's financial leverage, and ROA are the two main factors that affect ROE. The equity multiplier shows the bank's financing choices, especially the debt-to-equity ratio that management has selected, while the The link between ROE and ROA shows how banks' balance risk and return. While ROE focuses exclusively on the return on equity investment, ROA offers a more comprehensive picture of how successfully a bank is leveraging its assets to produce profit. The decision between the two ultimately comes down to the situation and the area of the bank's profitability that you wish to assess.

Some scholars argue different perspectives on the use of ROE as a profitability indicator. Athanassoglou (2005) criticizes solely relying on ROE as it overlooks risks related to leverage, often influenced by regulations. In contrast, Staikouras and Wood (2011) advocate for ROE as a suitable metric for assessing profitability, especially in European banks where off-balance-sheet activities significantly contribute to overall profits. These earnings are excluded from the ROA denominator. Rivard and Thomases (1997) assert that ROA is a more reliable metric of bank profitability for two main reasons. Firstly, ROA is not affected by high capital multipliers and secondly, it provides a well indication of a bank's ability to make returns with its resources (assets). Additionally, ROA considers the impact of size on profits, offering a more comprehensive evaluation of a bank's financial performance. Hence, for this research ROA is selected as a measurement for dependent Variable Which is profitability of commercial bank.

$$ROA = \frac{NI}{TA} \times 100\%$$

Where,

ROA = Return on assets. *NI* = Net incomes *TA* = Total Assets

2.6. Empirical Literatures

In this subsection of the literature review, past research papers on the factors affecting profitability of commercial banks are examined and classified into three sections: Global, Africa, Eastern Africa, and Ethiopian cases.

2.6.1. Research papers Conducted at Global Level

Numerous research was led to analyzing the outcome of various factors on the profitability of commercial banks, given their critical role in the economy of certain countries. Research activities have been carried out worldwide, including in Europe, Asia, the USA, Latin America, and Africa.

The study published by Tanna and Fotios Pasiourason (2006) was titled "The Factors of profit for local UK commercial banks." The variables were separated into two groups based on panel data from 1995 to 2002: internal factors (asset quality, size, liquidity, capital strength, and expense management) and external drivers. The net interest margin (NIM) and return on average assets (ROAA) were used to assess profit in the UK commercial banking sector between 1995 and 2002. Additionally, the external determinants were isolated into macroeconomic indicators (inflation and GDP) and financial variables (the relative development of the banking industry and the stock market

using stock market capitalization divided by total assets of banks that hold deposits (MACPASS) and banking industry concentration). They found that liquidity has an adverse relationship with NIM but a positive relationship with ROAA, and that the cost to income (expense management) ratio is statistically significant to both profitability measures. Loan loss reserves have a positive effect on NIM and ROAA; capital strength, or the ratio of equity to assets, has a positive relationship with bank profit; bank size and profitability have a negative connection; and macroeconomic variables, such as GDP and inflation, have a positive and significant effect on performance. Lastly, regardless of the metric they employed as an independent variable, the variables utilized as stand-ins for the relative growth of the stock market and the banking sector are both positive and statistically significant to performance.

The study by San and Heng (2013) looks into how bank-specific elements like capital, operating costs, liquidity, credit, and size affect commercial banks' performance as indicated by return on average equity (ROAE) and return on average assets (ROAA). The findings suggest that, with the exception of credit and capital ratios, the measures used in this study have distinct impacts on the performance of banks in China and Malaysia. Operating ratios have an impact on Chinese banks' performance, however Malaysian banks are not affected by them, regardless of the performance metric.

Alper and Anbar's (2011) study focuses on the macroeconomic and bank-specific factors that affect profitability at Turkey's Commercial Bank between 2002 and 2010. They investigate the factors that influence banks' profit using ROA and ROE as dependent variables. The study's conclusions show that non-interest revenue and asset size significantly and favorably impact bank profitability.

By applying the GMM method to a panel of data from 1985 to 2011, the Greek banks working paper examines the macroeconomics, industry-specific, and bank-specific factors that affect profitability (Athanasoglou et al., 2005). The study uses the ratio of profits to e (ROE) and the ratio of profits to assets (ROA) as outcome variables to measure the profitability indicator. The findings indicate that every bank-specific factor, except for size, has a major impact on bank profitability due to the positive effects of labor and capital productivity and the negative effects of operational expenses. It is also evident that the macroeconomic factors of inflation and cyclical output have an impact on the banking industry's success. Furthermore, ownership and industry concentration factors unique to the industry are determined to be negligible. Only when output exceeds its trend does the business cycle's impact have a positive correlation with profitability. Since the effect of industry concentration on bank

profitability was determined to be negligible, there is no evidence to support the standard Structure-Conduct-Performance (SCP) hypothesis, even if it is included in this empirical framework.

Alexiou and Sofoklis (2009) carried out another study of a similar nature on Greek banks to investigate the effects of bank-specific and macroeconomic determinants of Greek bank profitability. Six Greek banks were subjected to a panel data method utilizing an empirical framework that integrates the conventional Structure-Conduct-Performance (SCP) hypothesis. According to the findings, bank profitability was considerably impacted by most of the bank-specific drivers. However, unclear images were regarded as macroeconomic issues, and the correlation between size and profitability is somewhat weak.

Sufian and Chong (2008) use ROA as a dependent variable to examine the factors that affect the banking industry's profitability in the Philippines from 1990 to 2005. All of the bank-specific determinant variables appear to have a statistically significant effect on bank profitability, according to the empirical data. Among these, capitalization and non-interest revenue have a favorable effect on bank profitability, whereas size, credit risk, and overhead expenses have a negative effect. Regarding the macroeconomic determinants, the results indicate that GDP, the expansion of the money source, and the flat of stock market capitalization have not meaningfully influenced the profitability of Philippine banks, except for inflation, which has a negative effect on bank profitability.

The two goals of Ana et al. (2011)'s study on the subject of "Determinants of Bank Profitability in Croatia" are to synthesize pertinent empirical research on these factors and to empirically verify the factors that impact the cost-effectiveness of Croatian banks using dynamic panel analysis on 28 commercial banking over the study year 2003 to 2008. In the analysis, returns on assets (ROAs) serve as a stand-in indicator for profitability. Higher loan growth and equity financing, a steady base of deponents, careful credit risk and market risk management, and the expansion of fee-based activities are all comparative advantages of Croatian banks in attaining exceptional returns on assets, according to the study's findings. Conversely, the average interest expense and revenue were found to be statistically negligible.

Using ROA as a measure of profitability and internal causes (bank size, bank loan (TL/TA), credit risks bank deposits, and net interest for 12 Albanian commercial banks organized by 95 observations, Elionae Gremie (2013), PhD contender on internal issues affecting Albanian banking profitability's, conducted the study. By employing regression analysis, he discovered that bank size, bank liability,

bank deposit, net interest, and credit risk all had an impact on profitability, both positively and negatively.

Purna M Man (2023) evaluated the causes of the profits of commercial banking in Nepal. The paper estimates the result of the macroeconomic and internal factors on profitability. ROA is an indicator of a bank's profitability. LIQ, ME, AQ and OE are also used as bank internal factors; CPI, IR, and GDP (growth rate of broad money supply M2) referred macro-economic factors. From the panel data model results the paper indicated that both bank-specific & macroeconomic factors are considerably useful in identifying profitability. LIQ, ME, AQ, CPI, and IR were stated to affect with sizeable influence the profitability of banks in Nepal. The paper concluded that in improving profitability, bank management should place more aspect of decision-making involving LIQ, ME, AQ and restrict capacity. The bank management should have the least possibility of improving CPI and IR in economic conditions until evaluation is consummated.

2.6.2. Research conducted in African Countries

The effects of many factors on the profitability of commercial banks in many African nations have been the subject of numerous studies. The research's empirical literature portion reviews earlier investigations into the variables affecting commercial banks' profitability in non-East African African countries.

The goal of Ameer and Mhiri's (2013) study was to identify the reasons influencing the performance of Tunisian commercial banks. The study considered macroeconomic, industry, and bank-specific factors while analyzing data from ten Tunisian commercial banks between 1998 and 2011. The outcomes of the GMM estimator approach shown a noteworthy level of persistence in bank performance. The results demonstrated that bank adding capital and managerial efficacy positively and significantly impacted the performance of Tunisian banks. However, factors like bank size and concentration have a major detrimental effect on performance. Inflation was the only macroeconomic variable shown to negatively impact the bank's net interest margin. Additionally, it was demonstrated that public owned banks were less successful than privately held ones.

Ayanda (2013) used econometric analysis techniques including combination and mistake modification on yearly time sequence data from 1980-year 2010 to examine the profitability of Nigerian banks, specifically First Bank of Nigeria Plc. The empirical results showed that factors such as cost effectiveness and had no discernible impact on Nigerian banks' profitability. However, both in the short and long term, elements like capital sufficiency and credit risk had a significant

detrimental impact on profitability. Profitability and liquidity risk, as shown by ratios like total credits to total assets and total credits to total bank savings, were significantly correlated; in the near term, the former had a negative effect and the latter a positive one. The only macroeconomic factor that was found to have a favorable short- and long-term relationship with Nigerian bank profitability was money supply growth. Conversely variables such as real GDP growth rate and inflation rate have no discernible impact on bank profitability.

A study by Tomola Marshal Obamuyi (2013) looked at the factors influencing banks' profitability in developing countries, especially Nigeria. The study separated these characteristics into two main categories: bank-specific factors like bank capital size, and expense management, and macroeconomic factors like interest rates and GDP as a business cycle indicator. Obamuyi found that enhanced bank capital and interest income, as well as effective cost control and advantageous economic conditions, were significant factors in the improved performance and expansion of Nigerian banks between 2006 and 2012 using panel data that included cross-sectional and time-series data from 20 Nigerian banks.

Francis (2013), a specialist in Sub-Saharan Africa, examined the variables impacting bank profitability in the region from 1999 to 2006. The study looked at 216 commercial banks in 42 African nations, using metrics like NIM, ROE, and ROA. Numerous factors were examined in the study, containing changes in GDP, inflation rates, deposit size, equity capital ratio, increase in total assets, and efficiency ratio. It was shown that the profit of banks is significantly influenced by both internal and external factors.

The significance of components like total asset volume, minimum risk capital, and loan loss provision on bank profits was emphasized in a different study by Ozili (2017) that examined the factors influencing bank profitability in Africa. This was especially true for listed banks where risk capital was a crucial component. Sarpong-Kumankoma et al. (2018) studied banks in four Sub-Saharan African countries from 2006 to 2012 and found that cost effectiveness is crucial for sustaining bank profitability even while bank concentration had no appreciable influence..

Furthermore, Tarus and Manyala (2018) examined 20 African countries to find out what factors influenced banks' interest rate spreads in Sub-Saharan Africa from 2003 to 2012. Their research demonstrated that bank interest rate spreads are generally reduced by robust governance structures and high inflation rates. Additionally, they pointed out that bank concentration in Sub-Saharan Africa leads to a widening of the interest rate gap between banks.

2.6.3. Research conducted in East Africa

Ongore and Gemechu (2013) examined the factors affecting the financial performance of Kenyan commercial banks using a linear multiple regression model and Generalized Least Squares on panel data. Their findings demonstrated that crucial factors like capital sufficiency, asset quality, and managerial effectiveness had a major impact on the banks' performance, with the exception of the liquidity variable. The study discovered that while asset quality had a negative correlation with bank performance, capital adequacy and managerial effectiveness had a favorable correlation. However, the contribution of ownership identity to bank performance was considered insignificant, and the total impact of macroeconomic factors was found to be inconclusive. Despite discovering a negative association between GDP and performance metrics, the study concluded that this relationship was not statistically significant.

Dr. Srinivas M. et al. (2013) conducted a study that focused on Tanzania and sought to identify the elements that affect banks' profitability in developing nations. These characteristics were divided into two categories in this study: internal factors (such capital sufficiency, bank assets, business mix, credit risk, liquidity risk, and operational efficiency) and external factors (like the yearly inflation rate and the GDP growth rate). The researchers used SPSS software to analyze data from annual reports spanning seven years from 2006 to 2012 and found that internal variables, including capital sufficiency, operational efficiency, and liquidity risk, positively impacted bank profitability. However, it was found that bank size and credit risk had a detrimental impact on profitability. Interestingly, there was no substantial correlation between Tanzania's commercial banks' performance and external factors like the GDP's yearly growth rate and inflation rate.

A study conducted by Angelo B. Muganda M. Malenya (2021) A. examined the impact of macroeconomic factors on the financial performance of South Sudan's commercial banks. The study's main objective was to assess how these institutions' financial performance was affected by inflation, interest rates, and currency exchange rates. The findings demonstrated that interest rates considerably increase business profitability, but inflation and the exchange rate had little impact on the profitability of South Sudan's commercial banks.

2.6.4. Ethiopia

In a study on "Determinants of Profitability of Commercial Banks in a Developing Country: Evidence from Ethiopia," Rao & Tekkeste (2012) used imbalanced panel data of commercial banks in Ethiopia from 1999 to 2008. In the study, seven internal and three external features were regressed alongside

the banks' return on average assets (ROAA), which is for bank profit indicators. The study's conclusions demonstrate that the internal issues employed in the research are the most significant determinants of Ethiopian banks' profitability: the ratio of equity / assets, other income / total income, and bank size all have positive and large effects on profitability; the loan provision to total loans has -ve effect on profitability, although one that is statistically irrelevant; liquidity and operational efficiency also have an adverse impact on Bank profit. However, it's discovered the external factors GDP, inflation, & concentration are statistically unimportant. Since my study used the years 2003–2012,

Anteneh (2018) used the CAMEL approach to examine the financial performance of Ethiopian commercial banks from 2010 to 2016. And discovered that the size of the bank, net interest margin, asset value, management effectiveness, and liquidity were important factors in determining return on equity ROE and ROA.

Kappur and Abebaw (2012) examined the impact of ownership structure on the performance of commercial banks in Ethiopia using a sample of two public and six private banks from 2001 to 2008. The study utilized both parametric and nonparametric analyses to explore the relationship between ownership forms and financial outcomes. The results indicated that private sector banks outperformed their public counterparts in terms of Return on Assets (ROA) and Net Interest Margin (NIM). The researchers concluded that private banks were more effective in deploying their assets and generating profitable interest-bearing savings. Additionally, private sector banks exhibited greater efficiency in credit management, thereby effectively utilizing funds for profitable ventures compared to public banks. Private banks also demonstrated better capital adequacy ratios, indicating their ability to withstand unforeseen operational losses. In contrast, public sector banks excelled in cost management, maintaining lower cost-to-asset ratios than private banks. They were more effective in managing non-interest expenses and general staff expenses. This study differs from previous research by covering the period between 2003 and 2012 and analyzing 100% of the population.

A study by Alem G. (2024) examined the variables affecting Ethiopian commercial banks' profit. In addition to sector-specific reasons like market attention and financial structure, he also looked at macroeconomic factors like inflation, economic growth, and political stability, as well as business-specific factors like bank size, CAP, credit risk, liquidity, operational effectiveness, deposits, leverage, bank age, revenue divergence, and asset structure. The outcomes exhibited that bank size,

capital adequacy, liquidity, operational effectiveness, revenue broadening, and asset structure had a statistically substantial positive impact on (ROA). Conversely, ROA was negatively impacted by credit risk, leverage, and operational effectiveness. Due to loan diversification and economies of scale, these outcomes are same with earlier research by Alfadli & Rjoubi (2019), Al-Homaidi et al. (2018), Atharii (2021), Athari & Bahreinii (2023), and Isayas (2022), which emphasized the significance of bank size in profitability. Regarding industry-specific factors, Ethiopian banks' profitability was positively obstructed by market concentration (HHI) and negatively by financial structure (DC). Additionally, it was discovered that while inflation had a good result on bank profitability, economic evolution had a large positive influence on profitability. However, Ethiopian banks' profitability was significantly and negatively impacted by political stability.

Research in East Africa has shown that factors such as capital sufficiency, asset quality, and managerial effectiveness significantly impact the financial performance of Kenyan commercial banks. However, the contribution of ownership identity to bank performance was insignificant. The total impact of macroeconomic factors was inconclusive, and a negative association between GDP and performance metrics was not statistically significant. In Tanzania, internal factors such as capital sufficiency, operational efficiency, and liquidity risk positively impacted bank profitability, while bank size and credit risk had a detrimental impact. There was no substantial correlation between Tanzania's commercial banks' performance and external factors like GDP growth rate and inflation rate. In South Sudan, interest rates significantly increased business profitability, but inflation and exchange rates had little impact on the profitability of South Sudan's commercial banks. Overall, these studies highlight the importance of understanding macroeconomic factors in determining the profitability of commercial banks in developing nations.

The study "Determinants of Profitability of Commercial Banks in a Developing Country: Evidence from Ethiopia" by Rao & Tekeste (2012) found that internal factors such as equity ratio, income, and bank size have the most significant impact on Ethiopian banks' profitability. However, external factors like GDP, inflation, and concentration were found to be statistically unimportant. Anteneh (2018) found that the size of the bank, net interest margin, asset value, management effectiveness, and liquidity were important factors in determining return on equity (ROE) and return on assets (ROA). Kapur and Abebaw (2012) found that private sector banks outperformed public counterparts in terms of ROA and Net Interest Margin. Alem G. (2024) examined the variables affecting Ethiopian commercial banks' profit, finding that bank size, capital adequacy, liquidity,

operational effectiveness, revenue broadening, and asset structure had a statistically substantial positive impact on ROA. However, credit risk, leverage, and operational effectiveness negatively impacted ROA.

2.7. Research Gap Analysis

By offering a broad range of financial services to people, companies, and governmental organizations, commercial banks play a vibrant role in the economy. Their significance lies in their ability to facilitate economic activities, promote financial stability, and contribute to overall economic growth and development. Consequently, there is a growing interest among various stakeholders in understanding the reasons that affect the profitability of commercial banks. Numerous studies, conducted globally and particularly in regions like Africa and Ethiopia, have explored this subject. In the Ethiopian context, these studies have delved into a range of independent variables.

This research specifically focuses on five bank-specific variables (Bank Size, CAR, Management Effectiveness Ratios, Diversification of Revenue Streams, Non-Performing Loans), one industry-specific variable (Market share measure in net loan), and two macroeconomic variables

A lot of previous research in Ethiopia has mainly focused on bank profitability, but often within a narrow timeframe and just a few banks, which might overlook the bigger picture. To fill this gap, this study took a deep dive into data covering 15 years (2010-2024) and specifically looked at three different economic phases: the Growth & Transformation Plan I (GTP-I) from 2010 to 2014, GTP-II from 2015 to 2019, and the ongoing Home-Grown Economy Reform that kicked off in 2020. Unlike earlier studies, this research utilized a comprehensive dataset that captures the extensive financial data generated by Ethiopian commercial banks since the sector implemented in 1992.

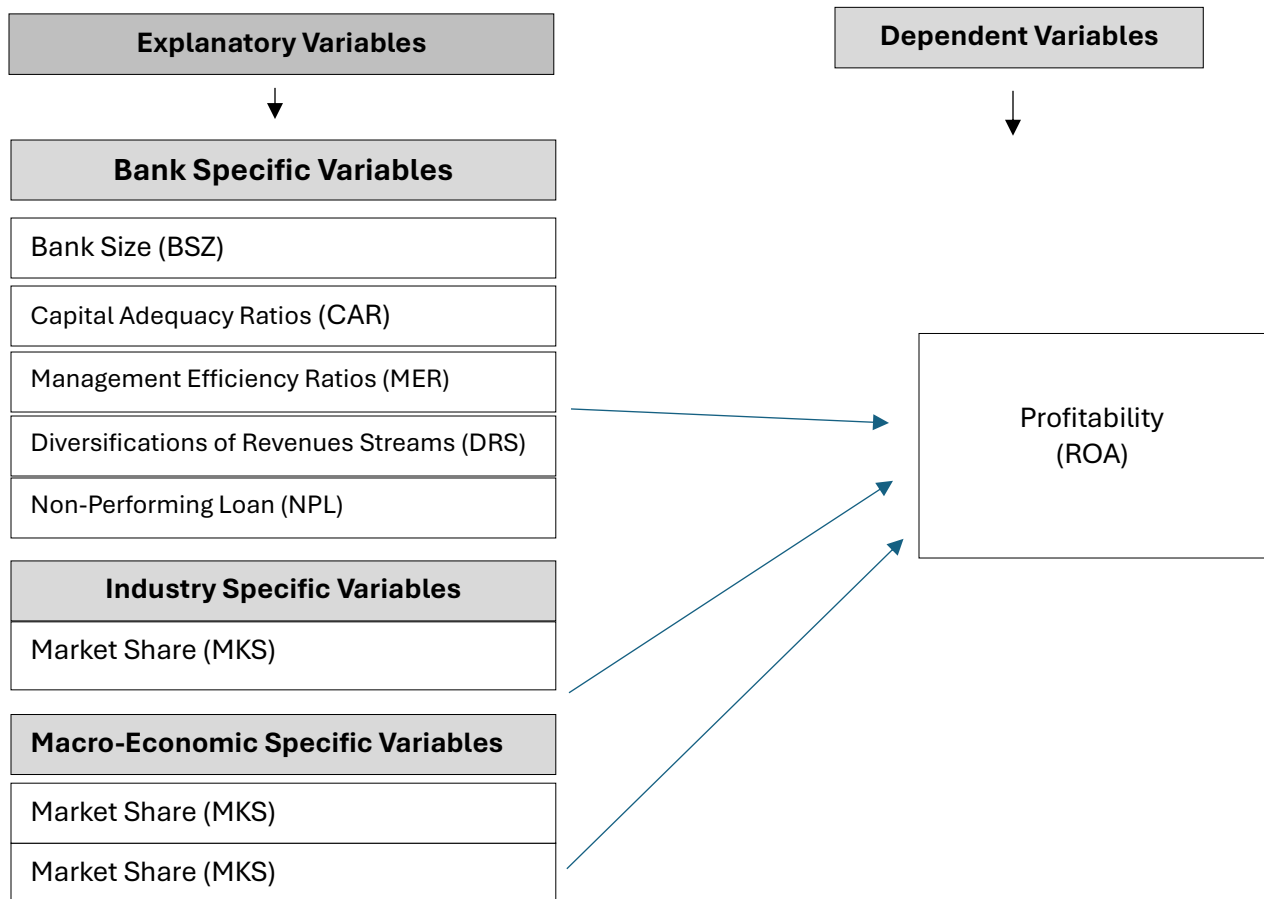
The study included 14 commercial banks, featuring all first-generation banks like Awash Bank S.C., Dashen Bank S.C., Bank of Abyssinia S.C., Wegagen Bank S.C., Hibret Bank S.C., and Nib Bank S.C., as well as second-generation banks such as Cooperative Bank S.C., Oromia S.C., Lion International Bank S.C., Zemen Bank S.C., and Oromia International Bank S.C. It also looked at third-generation banks like Bunna Bank S.C., Berhan Bank S.C., and Abay Bank S.C. By analyzing this wide range of banks and multi-year data, the study aimed to close the gaps in understanding and enrich the existing knowledge on the topic.

Since this analysis has used data spanning 15 years, it has used most of the commercial banks' data since liberalization. This increases the accuracy and reliability of the research. This study aims to provide valuable insights and bridge existing knowledge gaps.

2.8. Conceptual frameworks

The findings from the literature assessment, the diagram in Figure 2.1 shows the conceptual framework that graphically depicts the direct correlation between a number of independent variables .

Figure 2.1. Conceptual Farmwork



Source: Prepared by the researcher

2.9. Independent variables and source of reference

The following table shows the independent variables with their respective source of reference.

Table 2-1 Independent variables and source of reference

S/No	Independent Variables	References (Source)
1	Bank Size (BSZ)	(Isayas, 2022); (Rao & Tekeste, 2012); Athanasoglou et al (2008)
2	Capital Adequacy Ratio (CAR)	(kalifa & Bektaş, 2018), (Banke & Yitayaw, 2022) (Athanasoglou et al., 2005).
3	Management Efficiency Ratios (MER)	(Dietricha and Wanzenriedb, 2009); Bougatef (2017) Parmankulova et al. (2022)
4	Diversification of Revenue Streams (DRS)	(Sufian, 2011); (Rasiah, 2010). Chiorazzo et al., 2008;
5	Non-Performing Loan (NPL)	(Abreu and Mendes (2000); (Moore, 2005); Rasiah (2010)
6	Market Share (MKS)	(Athanasoglou et al., 2005); by (Belayneh, 2011) (Demerguç-Kunt and Huizingha 1999)
7	Economic Growth Rate (GDP)	(Syafri, 2012). (Huizinga, 1999); (Bikker, and Bos 2006); Staikouras and Wood (2003)
8	Inflation Rate (INF).	(Isayas, 2022; Singh & Sharma, 2016); (Abreu and Mendes 2000), (Isayas, 2022)

CHAPTER THREE

3. RESEARCH DESIGNS AND METHODOLOGY

Introduction

This chapter covers the chosen study strategy and methodology, the kind of data used, and a thorough description of the sample and data gathering methods used. This chapter also goes into detail on the data analysis and display techniques that were applied.

3.1. Research Designs

Research designs encompass the strategies & methods used in a research study, guiding decisions from overarching principles to specific methods for collecting and analyzing data (Creswell, 2009, p.3). Hence, Formulating the best fitting research design for the research subject is crucial to achieve the study objective.

This research is conducted to assess the factors that affecting profit of Ethiopian commercial banks. To reach the purposes of this thesis, the study is a explanatory type of research design to explain the connection among selected explanatory variables with dependent variables. Furthermore, the study employed a descriptive methodology. According to Mugenda (2003), descriptive research involves the identification and description of things as they exist, in order to offer statistical information on various subjects. Descriptive research methodology focuses on describing and depicting a phenomenon in detail without necessarily explaining the reasons behind it.

3.2. Research Approach

This research used quantitative research method. Quantitative research offers a way of examining objective models by analyzing the connection between variables. (Creswell, 2009). This involves collecting statistics from the periodic(annual) financial report of the bank's and industry and macroeconomic data sources and analyzing it using statistical techniques. Hence, it examined the effect of explanatory variables (Bank Size (BSZ), (CAR), Management Efficiency Ratios (MER), Diversification of Revenue Streams (DRS), Non-Performing Loan (NPL), Market Share (MKS), Inflation Rate (INF), Economic Growth Rate (GDP), on the dependent variable ROA for the years 2010-2024 of 14 Selected commercial banks.

Additionally, this study utilized descriptive research methodology. Descriptive research aims to identify and depict things in their current state, offering statistical insights on areas of significance to policymakers and educators (Mugenda, 2003).

3.3. Population, Sampling Techniques, and Sample Size.

3.3.1. Population's Size

As noted by Mugenda (2003), a target population consists of a collection of entities, subjects, or individuals that have similar characteristics. In the case of this research, the target population are all commercial banks working in Ethiopia. As per NBE reports of June 2024, there are 32 licensed banks operational in Ethiopia, 31 are commercial banks while one is the Development Bank of Ethiopia.

Therefore, the research population for this research includes the 31 commercial banks excluding the DBE. This is due to the mission and functions of DBE compared to those of traditional commercial banks. The purpose of this research is to examine the reasons affecting the profit of commercial banks in Ethiopia; thus the Development Bank is not included in the research population.

3.3.2. Sample Size & Sampling Techniques.

Samples size for the research was identified using purposive sampling techniques, a non-probability technique where members are selected based on precise standards pertinent to the study Patton (1990) and Creswell (2014). In this case, only commercial banks with financial records dating back a minimum of 15 years as of June 2024 were considered in the sample. This ensures enough banks and obtains a significant amount of data from them. Out of the total, 31 commercial banks, 14 in number or 45% of the population, meet the criteria and are included in the sample. This method guarantees that the nominated commercial banks in the sample accurately reflect the characteristics and represent the broader population. A total of 210 data points are gathered.

Moreover, the study uses information collected from 14 chosen Ethiopian commercial banks over a 15-year period (2010–2024). Three distinct economic events occurred between 2010 and 2024: the Gross Transformation Plan GTP II (2016–2019); the First Home-Grown Economy (HGHER-1) (2019–2024); and GTP I (2010–2015). It might be more appropriate to assess the elements influencing Ethiopian commercial banks' profitability during those economic occurrences. By looking at the ways in which the following factors impact the profitability of Ethiopian commercial bank's (as determined through ROA bank size, capital adequacy ratio, efficiency ratios, income stream diversification, non-performing loans, market share, inflation rate, and growth rate. Ethiopia liberalized its banking industry in 1992, a policy that persisted for 30 years, until 2024.

Table 3 -1. List of selected banks in the sample

S/No	Bank Name	S/No	Bank Name
1	Commercial Bank of Ethiopia	8	Nib Bank s.c.
2	Dashen Bank s.c	9	Birehan Bank s.c
3	Awash Bank s.c.	10	Zemen Bank s.c.
4	Bank of Abyssinia s.c.	11	United Bank s.c
5	Cooperative Bank of Oromia s.c.	12	Oromia Bank s.c
6	Wegagen Bank s.c	13	Abay Bank s.c.
7	Bunna Bank s.c.	14	Lion International Bank s.c

Source: NBE

3.4. Data Type, source and Collection Procedure

For this study, panel data from 14 Ethiopian commercial banks spanning 15 years (2010–2024) was gathered. According to its definition, a panel dataset is a cross-sectional time-series dataset that, ideally, offers repeated measurements of a specific number of variables on observable units, such as people, households, trades, cities, situations, etc., throughout time. While a time-series data set comprises observations on one or more variables over a number of periods, a cross-sectional data set includes observations on a exact number of variables at a exact point in time. When combined, cross-sectional and time-series data sets can provide a panel data set over a number of periods.

The benefits of using panel data are covered in detail in Hsiao (1986) and Baltagi (2001). To highlight a few points that, when compared to cross-sectional data analysis, are helpful to readers who are not familiar with econometrics. Increasing the quantity of observations for the research is one benefit of using panel data. The pooled OLS model is particularly affected by this. In a technical sense, our standard errors are lower than those derived from cross-sectional data analysis since our observations reoccur throughout time. This suggests that a greater number of observations as a result of stacking up cross-sectional data improves estimating efficiency and, consequently, increases the likelihood of statistically significant estimations.

Data that already exists and is easily accessible from a range of sources, such as databases, books, journals, reports, and government publications, is referred to as secondary data. Secondaries data was also used for this study. The secondaries data came from a variety of bases, containing government agencies such as the Ethiopian Statistical Service (ESS), industry-specific and

macroeconomic data from NBE's consolidated banking industry report, and bank-specific information from banks' annual audited financial reports. One of the greatest current approaches for gathering data in social science learning is secondary data inspection, which is the term for the reanalysis of beforehand collected and existing data (Punch, 2005).

3.5. Definitions of Variables and their Measurement

3.5.1. Dependent Variable

i) Return on Asset (ROA)

The criterion used in the study to evaluate the profitability of commercial banks is return on assets (ROA). Returns on assets (ROA), statistics, measures how well a business makes revenue from its assets. It is computed by dividing a company's net revenue by the total value of its assets. Returns on assets (ROA) is a crucial metric for analysts and investors to assess a company's ability to make profits using its assets.

$$\text{Return on Asset (ROA)} = \frac{\text{Net Incomes}}{\text{Total Asset}}$$

3.5.2. Explanatory Variables.

3.5.2.1. Bank's specifics Variables

i) Size of Bank (BSZ)

The size of a bank is often determined using the natural logarithm of total assets. This method is favored over using raw asset values because it provides a more consistent and trustworthy indicator of bank size, per multiple studies. Thus, the size of the bank for this study is determined using the natural logarithm of the total asset value in Ethiopian birr (ETB).

$$BSZ = \text{Natural Logarithms of total assets of the bank} = \ln(\text{Bank Size})$$

ii) Capital Adequacy (CAR)

CAR, is a vital financial indicator that assesses a banks resilience to losses and whether it is experiencing financial troubles. A stronger financial situation and more resistance to economic downturns are indicated by a higher CAR. Since it enables banks to assume greater risk and perhaps produce bigger profits without jeopardizing their solvency, a

higher CAR is typically linked to higher profitability. CAR of commercial banks is a metric applied to assess capital adequacy that is based on the ratio of eligible capital to total risks-weighted assets.

$$\text{Capital Adequacy Ratio} = \frac{\text{Eligible Capital}}{\text{Risk Weighted Asset}}$$

iii) Management Efficiency Ratio (MER).

management efficiency ratio also known as the cost-to-income ratio or efficacy ratio measures how effectively a bank manages its expenses to generate money. Because it spends less on expenses for every dollar of income, a bank with a lesser ratio is more efficient. A higher rate, on the other hand, denotes less successful cost control, which may impact on profitability.

$$\text{Management Efficiency Ratio} = \frac{\text{Cost}}{\text{Income}}$$

iv) Diversification of Income (DRS)

Money from various sources refers to money that comes from a range of sources outside interest income. Income diversification is the process of earning money from non-interest sources and figuring out the proportion other income to overall revenue.

$$\text{Diversification of income} = \frac{\text{Non-Interests Income}}{\text{Total Income}}$$

v) Non-Performing Loans Ratio (NPL).

Non-performing loans are those that, over a prolonged period of time, have not been repaid in line with the contracts and conditions outlined in the loan contract, including the principal amount and accrued interest.

$$\text{Non-Performing Loan} = \frac{\text{long outstanding Loans} \times 100}{\text{Total Loan}}$$

3.5.2.2. Industry Specific Variables

i) Market share (MKS).

The percentage of a specific bank's involvement in the Ethiopian banking industry is referred to as its market share. The market share of each bank in the sector is calculated in this study using the outstanding net loan amount as a criterion. To get a percentage value, this calculation divides the bank's net loan by the total net loan of all banks for a given year. The result is then multiplied by 100.

$$\text{Market Share} = \frac{\text{Net Loan}}{\text{Total Loan}} \times 100$$

3.5.2.3. Macro – Economic Specific Variables

i) Gross Domestic Products (GDP)

The over-all worth of products and services produced on a country's territory over a specified , generally a quarter or a year (the annual rate is used for this study), is summed together to reveal the Gross Domestic Product (GDP). This includes government's expenditure, investments, net exports (exports less imports), and consumption expenditures.

$$GDP \text{ is } GDP = C + G + I + (X - M),$$

where.

C = consumption

G = is government spending

I = investments

X = represents exports, and

M = represents imports.

ii) Inflation (INF):

Inflation is typically computed using the Consumer Price Index (CPI), which measures changes in the prices of a basket of items and services bought by consumers. The current prices of the basket's components are compared to their prices in a base year

to find out the CPI. The rate of inflation is equal to the percentage change in prices from the base year to the present.

3.6. Data Presentation and Analysis Method.

The data collected for this study was examined using descriptive statistics, correlations, and multiple linear regression investigation. Secondary data was evaluated using E-View 12. The data for the variables of interest from the financial year 2010 to the financial year 2024 were evaluated using the mean, median, minimum, maximum, and standard deviation values. A correlation matrix was used to evaluate the association between the explanatory variable and the independent/explanatory factors and to address any multicollinearities concerns (explained in the following chapter). From the Financial Year 2010 to 2024, the report provides a thorough analysis of patterns and developments in Ethiopia's banking sector.

Financial statement data from fourteen selected commercial banks over a fifteen-year period were used to evaluate the influence of the independent factors chosen over dependent variables (ROA). Additionally, macroeconomic and industry-specific data were evaluated. A multivariate linear regression model was used to analyze each variable's effect on bank profitability (ROA). The p-values of the explanatory variables were examined at significant levels of 1%, 5%, and 10% in order to test the hypotheses. The formula for predicting ROA using a multiple linear regression model was created.

$$ROA_{i,t} = 0.003 + 0.2190BSZ_{i,t} + 1.87CAR_{i,t} + 0.0201MER_{i,t} + -0.0047DRS_{i,t} + -1.723NPL_{i,t} + 3.08MKS_t + 0.153GDP_t + -0.0175INF_t$$

$ROA_{i,t}$ = Return on Asset for banks i at times t

$BSZ_{i,t}$ = The natural logarithms of total assets for bank i at time t

$CAR_{i,t}$ = Capital adequacy Ratio i at time t

$MER_{i,t}$ = Managements Efficiencies i at time t

$DRS_{i,t}$ = Diversification of Income Streams i at times t

$NPL_{i,t}$ = Non-Performing Laon i at time t

$MKS_{i,t}$ = Market Share (in Net loan) t

GDP_t = Real GDP growths at times t

INF_t = Inflations rates at time t

CHAPTER FOUR

4. DATA ANALYSIS and DISCUSSIONS

Introduction

The research objective is to examine the factors that impact the profitability of commercial banks in Ethiopia, with a specific emphasis on assessing return on assets. This section showcases the results of regression analysis and subsequent discussion, which includes descriptives statistics of key variables, correlation findings between dependent and independent variables, diagnostic tests for regressions models, and the actual regression analysis.

4.1. Descriptive Statistics Results:

Analyzing data descriptively is crucial for understanding the relationships between different variables. The table below (Table 4.1) provides key statistical measures containing the mean, minimum, maximum, and standard deviation. The mean represents the average value of the variables employed in this research Minimum and maximum values specify the range within which the variable fluctuates. The standard deviation reflects the extent to which data points deviate from the mean, with a lower standard deviation indicating data points closer to the mean and a higher standard deviation suggesting a greater spread across a wider range of values.

Table 4 -1. Descriptive Statistics

	ROA	BSZ	CAR	MER	DRS	NPL	MKS	INF	GDP
Mean	0.0284	0.0991	0.0170	0.8113	0.3148	0.0050	0.0700	0.1793	0.0827
Median	0.0282	0.0992	0.0160	0.6840	0.3179	0.0030	0.4000	0.1581	0.0865
Maximum	0.0672	0.1418	0.0520	0.8308	0.7669	0.0850	0.6400	0.3390	0.1255
Minimum	-0.0221	0.0512	0.0800	0.0139	0.0027	0.0010	0.0001	0.0663	0.0110
Std. Dev.	0.0108	0.0159	0.0007	0.5129	0.1753	0.0070	0.0120	0.0958	0.0248

Source: E-view 12 Regression

Descriptive statistics, also known as descriptive analysis, are used to summarize and characterize a dataset's main features. Understanding the characteristics of a sample or population is facilitated using metrics like mean, median, mode, standard deviation, and frequency distributions. Table 4 - 1 displays the regression findings of descriptive statistics for important metrics in this study, including the mean, median, maximum, minimum, and standard deviations of the variables. Below is an analysis and discussion of those measures.

- **ROA (Returns on Assets):** which displays the ratio net revenue to total assets and reveals a business return from its assets, is the primary financial indicator of its profitability. The mean ROA in this

instance is 2.8%, which is the average for the commercial banking sector from 2010 to 2024, as shown in table 4-1 above. The maximum ROA of 6.7% is the greatest return on assets ever achieved by the commercial banking sector. A minimal return on assets (ROA) of -2.2% indicates a loss, which is the lowest returns on assets. The standard deviations of 0.0108 illustrates the unpredictability of the ROA values; a smaller standard deviations denotes less variability in the data points or ROA of each chosen bank.

- i) **Bank Size (BSZ):** Often referred to as the logarithm of assets or total assets, the natural logarithm of a bank's assets is a crucial measure of bank size, as shown in Table 4 - 1. Because it provides a logarithmic view of asset size, this metric is useful for understanding the scope of a bank's operations. Analysts can efficiently evaluate the relative sizes of several banks and monitor market developments by using the natural logarithm of a bank's assets. A bank's competitive position is largely determined by its size. This indicates the statistical distribution of bank sizes. The mean (average) size is 0.0991, the median (middle value) size is 0.0992, the largest bank size is 0.1418, the smallest bank size is 0.0512, and there is variability in bank sizes with a standard deviation of 0.0159. whereas CBE had the maximum.
- ii) **Capitals Adequacy Ratios (CAR):** CAR, which comparisons a bank's capital to its risks-weighted assets, indicates the health of the bank's finances are and how well it can absorb any losses. With a mean value of 17%, the CAR for Ethiopian private banks varied from a minimum of 8.0% to a maximum of 52.6%. According to this mean value, private banks in Ethiopia typically outperformed the state bank's minimum 8% CAR regulatory requirement. Furthermore, it was discovered that the standard variation of CAR among banks was 0.0007, suggesting that the banks were following the rules.
- iii) **Management Efficiency Ratio (MER).** The Management Efficiency Ratio, or MER, analyzes how good a company's management utilizes its resources to make profits. A reduced cost/income ratio shows a business is successfully handling its expenditure and can make enough money to cover them. A higher cost/income ratio, conversely, may indicate that a company is overpaying in comparison to its sales, which could lead to unstable finances or worse profitability. This ratio shows the expense incurred per unit of income produced. Over the specified period, the selected banks' average MER was 81%, with a maximum of 83% and a minimum of 13%. This suggests that the majority of bank managers and certain commercial banks struggle to deploy their resources effectively.
- iv) **Diversifying Income (DRS):** The process of earning income from a variety of financial services in addition to depending exclusively on interest income, which is commercial banks' core source of income, is known as diversifying revenue streams. The ratio of incomes / total income ranged from

a high of 76.69% to a low of 0.27% in Table 4.1. With a standard deviations of 0.1753, the average ratio was 0.3148. The dispersion of data points around the average ratio of 0.3148 is indicated by a standard deviation of 0.1753. This shows that the data points generally diverge from the mean of 0.3148 by 0.1753 units.

- v) **Non-Performing Laon (NPL):** The percentage of a bank's credits that are past due or in default is assessed using the NPLs ratio. On an annual basis, it is computed by dividing the total amount of outstanding loans by the total loan balance for each bank. The selected commercial banks' NPL rates ranged from a minimum of 5% to a maximum of 8.5% over the study period. The highest rate exceeded the maximum standard barrier of 5% set by the NBE. With a standard deviation of 0.7%, the median non-performing loan rate was 0.35 percent.

- vi) **Market Share (MKS):** By comparing each bank's net loan balance for a given year to the industry's total net loan balance, the Market Share (MKS) of each bank is determined in this study. According to the data, market share figures range from 0.01% to 64%, with an average of 0.7%. The data appears to be somewhat consistent, as indicated by the 1.2% standard deviation, which is near the mean. Additionally, the findings show that state-owned banks are more well-known in the commercial banking industry than private commercial banks.

- vii) **Gross Domestic Products (GDP):** GDP, is a measure of the total economic worth of all goods and services produced in a country during a given time. It is a crucial indicator of a country's economic health. The greatest and lowest recorded GDP growth rates for the 2010–2024 study period were 12.5% and 1.1%, respectively, with a standard deviations of 0.0248.

- viii) **Inflation (INF):**As tabulated on the above table to the regression result displayed in table 4-1, the inflation rates mean is 0.1793, with the highest and lowest values being 0.33 and 0.06, respectively.

4.2. Assumptions and Diagnostic Test:

The association among variables are reflected in the correlation, showing the extent of their connection. A correlation nearing +1 or -1 indicates a strong or perfect relationship. When approaching zero, it suggests little, or no correlation exists. Strong correlations between variables may lead to issues like multicollinearity. When the absolute value of the Pearson correlation coefficient nears 0.8, the presence of multicollinearity becomes more likely.

4.2.1. Correlation Matrix:

Table 4 - 3. Correlations coefficients between Dependent and Explanatory variables

	ROA	CAR	GDP	NPL	INF	MER	MKS	BSZ	DRS
ROA	1.0000								
CAR	0.6994	1.0000							
GDP	0.0871	0.1575	1.0000						
NPL	(0.1714)	0.0273	(0.3272)	1.0000					
INF	(0.0154)	(0.0225)	(0.4881)	0.0796	1.0000				
MER	0.5193	0.3280	0.5500	(0.1251)	(0.1358)	1.0000			
MKS	0.2734	(0.1453)	0.0224	(0.0895)	0.0000	(0.2836)	1.0000		
BSZ	0.6770	(0.3283)	(0.5996)	(0.0322)	0.3040	(0.5463)	0.5941	1.0000	
DRS	0.1324	0.2147	0.4727	(0.0426)	(0.1713)	0.5480	(0.1425)	(0.4803)	1.0000

Source: E-view 12 Regression

Correlation in statistics quantifies the direction and degree of a association amid two variables. In other words, it shows whether there is no relationship at all (zero correlation), whether the variables tend to move in the similar track (positive correlation), in opposing directions (negative correlation).

Tables 4–3. There were no issues with multicollinearity, as the correlation between the variables above fell between -0.5996 and +0.5941. Three methods can be used to identify the multicollinearity issue: (1) the eigenvalue approach; (2) the variances inflations factors (VIF), which would be less than ten to indicate that there is no multicollinearity issue among independents variables; and (3) the Pearsons correlation coefficients (Shrestha, 2020). When VIF was examined in this study, it was less than ten.

Capital adequacy is a key factor influencing Return on Assets (ROA). In the research period examined, the adequacy of capital, as measured by the ratio of equity to total risk-weighted assets, was determined to be a crucial determinant of commercial bank profitability in Ethiopia. The study showed that the strength of a commercial bank's CAP has a positive and statistically significant impact on its performance, as indicated by ROA. This outcome is consistent with the initial hypothesis. According to capital theory, one potential explanation for this positive relationship is that Ethiopian commercial banks effectively manage and utilize their capital. These results contrast with the findings of Berger and Mester (1997) and Ayanda (2012) but align with the favorable impact reported by Pasiouras and Kosmidou (2006). Additionally, according to Berger and Mester, well-capitalized banks excel at absorbing risks; however, they may have a lower likelihood of achieving profit per share. The case of l banks in Ethiopian reflects a similar conclusion to that of Berger and Mester

Gross Domestic Product (GDP) has a positive relationship with return on asset (ROA) in the study period for this research. Also Tekeste, (2012); (Tesfaye, 2014) were conducted research with independent variable of GDP and they found GDP has a positive relationship with ROA. Therefore, it is possible to conclude that GDP increases the profitability (ROA) of commercial banks in Ethiopia increases

As indicated in the above correlation matrix table, Among the internal variables studied, MER, MKS, BSZ, and DRS demonstrated a positive correlation with ROA in the surveyed banks during the specified year. Conversely, NPL and INF exhibited a negative association with ROA.

4.2.2. Normality Tests:

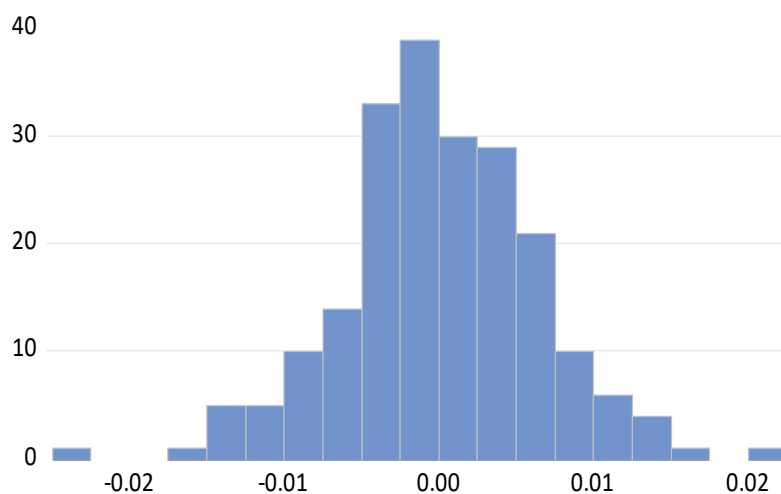
Normality test is statistical tools that support disclose if a dataset follows a normal distribution. The Bera-Jarque (BJ) test, as cited by (Brooks, 2008), is a commonly used method for assessing normality. The test relies on the key principle that the mean and variance of a normally distributed random variable fully describe its distribution. In a normally distributed dataset, the residuals should form a bell-shaped histogram, and the Bera-Jarque statistic should not show significance. To maintain the theory of normality at a 5% significance level, the p-value displayed on the normality test screen must exceed 0.05.

Table 4 - 2. Normality Test Coefficient

Variables	Observation	Skewness	Kurtosis	Prob
Constant	210	-0.065	3.8	0.053

Source: E-view 12 Regression

Figure 4 - 1. Normality test for residuals



Source: E-view 12 Regression

as seen in Figure 4-1 and Table 4-2. Kurtosis coefficient 3.8, Jarque Bera statistics, and skewness -0.065 are all significant (P-value = 0.051 larger than 0.05), according to the normality test. Consequently, the data is considered to be regularly distributed.

4.2.3. Multicollinearity Test:

Multicollinearity testing is a statistical concept utilized in regression analysis to evaluate the degree of correlation between predictor variables within a regression model. This assessment helps determine if the predictor variables are excessively correlated, potentially leading to issues with the model's interpretability and creating unstable estimates of regression coefficients. One mutual method for identifying multicollinearities involves calculating the Variances Inflation Factor (VIF) for all predictors variable, with VIF's values exceeding 10 often indicating problematic levels of multicollinearity.

Table 4-4 Multicollinearity Test

	CAR	GDP	NPL	INF	MER	MKS	BSZ	DRS
ROA								
CAR	1.0000							
GDP	0.1575	1.0000						
NPL	0.0273	(0.3272)	1.0000					
INF	(0.0225)	(0.4881)	0.0796	1.0000				
MER	0.3280	0.5500	(0.1251)	(0.1358)	1.0000			
MKS	(0.1453)	0.0224	(0.0895)	0.0000	(0.2836)	1.0000		
BSZ	(0.3283)	(0.5996)	(0.0322)	0.3040	(0.5463)	0.5941	1.0000	
DRS	0.2147	0.4727	(0.0426)	(0.1713)	0.5480	(0.1425)	(0.4803)	1.0000

Source: E-view 12 Regression

Other approaches include analyzing correlations between predictor variables and performing eigenvalue analyses. Strategies for managing multicollinearity may include eliminating highly correlated variables, transforming variables, or utilizing techniques such as Ridge regression. In a specific study referenced as table 4.3, it was found that the correlation between variables ranged from -0.5996 to +0.5941, suggesting the absence of multicollinearity concerns. Research conducted by Noora (2020) on detecting multicollinearity in regression analysis suggests that when the absolute value of the Pearson's correlations coefficients is less than 0.8, the presence of collinearity is highly unlikely. Therefore, the findings of this study can be concluded that multicollinearity is not a significant issue.

4.2.4. Heteroscedasticity Test:

In this study, the assumption was assessed using the Breusch-Pagan test. The null hypothesis was accepted only the p-value of the observed R-squared exceeded the 5% significances level, otherwise, it was excluded in favor of the alternative hypothesis. Heteroscedasticity, which refers to varying disturbances terms, is indicated when the variance is not uniform (Seid, 2015).

To detect any issues related to heteroscedasticity, the test recommends that if the p-value is statistically significances at a 95% confidences level, there is heteroscedasticity present in the data. Conversely, if the p-value is not significant (> 0.05), no evidence of heteroscedasticities in the dataset.

Table 4 - 5. Heteroskedasticity Test: White

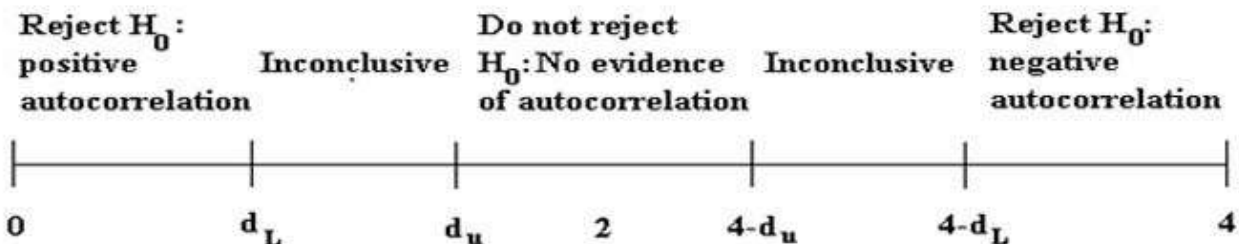
Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.2362	Prob. F(8,183)	0.2737
Obs *R-squared	9.5935	Prob. Chi-Square(8)	0.2763
Scaled explained SS	12.6751	Prob. Chi-Square(8)	0.1266

Source: e-view 12 own regression

According to the 4 - 4. There is no occurrence of heteroscedasticity in this study, as indicated by the p-value of 27.37% (0.2737), which suggests insignificance. The typical threshold for chi-square probability in heteroskedasticity testing is below 0.05. Therefore, this regression model is considered good and exhibits homoscedasticity, given that the probability of chi-square is 0.2763, exceeding the threshold of 0.05

Figure 4- 2. Durbin-Watson (DW) statistic result



Source: e-view 12 own regression

With a Durbin-Watson (DW) statistic result of 1.07 in the regression subsection, there is no indication of autocorrelation because it is near 2 and so not a cause for concern. According to Brooks (2008), there is an intermediate zone where the null hypothesis of no autocorrelation cannot be categorically accepted or denied.

The DW statistic has two critical values: an upper critical value (dU) and a lower critical value (dL). The number line in figure 4 - 2 above depicts these rejection, non-rejection, and inconclusive zones.

4.3. Regression Analysis

Table 4 - 6. Regression Coefficient

Dependent Variable: ROA				
Method: Panel Least Squares				
Sample: 2010 2024				
Periods included: 15				
Cross-sections included: 14				
Total panel (balanced) observations: 210				
Variables	Coefficient	Std. Error	t-Statistic	P> t
C	0.003043	0.008822	0.344985	0.7305
CAR	1.872915	0.746156	2.510085	0.0129
GDP	0.153008	0.036895	4.14714	0.0000
NPL	-1.723596	0.69241	-2.489269	0.0136
INF	-0.017551	0.005473	-3.206928	0.0016
MER	0.020174	0.001245	16.20934	0.0000
MKS	3.083956	0.585585	5.266455	0.0000
BSZ	0.219038	0.061247	3.576302	0.0004
DRS	-0.004793	0.003216	-1.490409	0.1377
R-squared	0.70704		F-statistic	48.13444
Adjusted R-squared	0.69339		Prob(F-statistic)	0.0000

Source: e-view I2 own regression

According to the regression analysis results presented in Table 4 - 4, the R-Square value is 0.7, which translates to 70%. This 70% R-Square value shows that the difference in the dependent variable (return on assets) can be attributed to the explanatory variables in the model. The residual 30% of the variation in the dependent variable is not accounted for by the predictor variables in this study, suggesting that other factors not included in this analysis may influence it.

Eight independent variables were employed in this study. Seven of these factors significantly affect the dependent variable (ROA). One predictor variable in the model was not individually significant, but the total significance of all independent variables over the dependent variable was evaluated using the F-statistics. According to the study's F-statistic probability value (P-value = 0.00), the dependent variable (ROA) was significantly impacted by all independent factors taken together. Moreover, the t-test is a statistical instrument

used for testing the significance of independent variables. To determine the significance, the computed t-value is compared to the t-critical value. If the computed t-value is greater than the t-critical value at a 5% significance level, the null hypothesis is rejected; if it is not, the null hypothesis is accepted. In this study of factors affecting profitability commercial banks in Ethiopia from 2010 to 2024, among the variables employed CAR, GDP, NPL, INF, MER, BSZ and MKS were found to have a huge impact on ROA at the 5% significance level, leading to the rejection of their null hypotheses. However, the variable DRS did not have a substantial impact on ROA at the 10% significance level, resulting in the acceptance of its null hypothesis.

One method for evaluating hypotheses is the t-test, which determines if independent variables are significant. The calculated t-value should be compared to the t-critical value; if the t-calculated value is more than the t-critical value (5%), the null hypothesis must be accepted; if not, it must be rejected. Independent factors including CAR, GDP, NPL, INF, MER, and MKS had a substantial impact on ROA at a 5% significance level for Ethiopian commercial banks throughout the study period (2010–2024), according to the significance of the impact of the individual variables on ROA. Consequently, these variables' null hypotheses were disproved. The hypotheses for these variables were accepted since, at a 10% significance level, one independent variable, DRS, had no discernible effect on ROA.

When other variables remain constant, a coefficient for explanatory variables in statistics and regression analysis is the alteration in the dependent variable for every unit change in the independent variable. It sheds light on how strongly and in which direction the independent and dependent variables are related. The dependent variable ROA in this study shows a positive correlation with independent factors like CAR, MER, MKS, and BSZ, meaning that a one-unit change in these explanatory variables causes a comparable change in ROA. On the other hand, the dependent variable ROA exhibits a negative or inverse association with other independent variables such as GDP, NPL, INF, and DRS.

- i) **Bank Size (BSZ):** With a coefficient of 0.219038 for the independent variable Bank Size (BSZ), the dependent variable Return on Asset (ROA) should rise by 0.219038 for each unit increase in bank size. The low probability value of 0.0004 indicates the statistical significance of the affiliation between bank size and return on assets at the 0.05 significances level. This suggests strong sign that these two elements are not coincidentally related.

This assertion is further supported by the t-statistic of 3.576302, since a t-statistic greater than 2 frequently denotes a significant coefficient. Overall, our findings demonstrate a robust and positive connection amongst bank size and ROAs, with larger banks typically generating higher returns. The relationship results have a hypothesis. This has implications for

understanding the potential influence of bank size on profit and performance. It's true that bank's profitability can be influenced by its size. Larger banks, like CBE, usually exhibit higher profitability because to economies of scale, risk diversification, and more financial resources for investment activities. However, other elements such as macroeconomic circumstances, risk management strategies, and management efficacy can also affect a bank's profitability.

ii) Capital Adequacy Ratio (CAP): If all other factors stay the same, the dependent variable ROA should grow by 1.872915 units on averages of every units rise in CAP, according to the coefficients of 1.872915. The probability value of 0.0129 for the coefficient indicates that the association betweenness CAP and ROA is statistically significances at the 5% level. In other words, there is a 1.29% possibility that the observed association is the product of random chance.

The importance of the correlation between CAP and ROA is further supported by the t-Statistic value of 2.510085. Since the coefficient for CAP is unlikely to be zero, an t-Statistic larger than 2 (in absolute terms) is often regarded as statistically significant. All things considered, these findings indicate that the explanatory variables CAP and the dependent variable ROA have a strong and positive association, indicating that adjustments to CAP have a considerable effect on ROA in the situation. According to them, a greater CAR throughout the study period of banks suggests that the bank is in a stronger financial position and is more capable of withstanding losses. Higher ROA and higher earnings may follow this.

iii) Management Efficiency Ratio (MER): conclusions drawn from a regression study that emphasizes the connection b/n the independent variable "MER" and the dependent variable "ROA." It indicates a significant relationship between MER and ROA with a coefficients of 0.020174, a probabilities value of 0.0000 (signaling statistical significance), and an t-Statistic of 16.20934.

According to the coefficients of 0.020174, ROA is expected to rise by 0.020174 units for every unit increase in MER, providing all other factors stay the same. a probabilities value of 0.0000, the MER-ROA relationship is statistically significant and unlikely to be the result of chance. The regression model's influence of MER on ROA is further supported by the t-Statistic of 16.20934, which indicates that the MER coefficient deviates significantly from

zero. These results imply that MER is an important predictor of ROA and that changes in MER are associated with changes in ROA. Profitability, managerial effectiveness, and ROA have all increased because of the chosen banks' efficient decision-making, risk management, and resource allocation during the research period. Also, the regression result is inline with the hypothesis.

- iv) Diversification of Income (DRS):** With all other variables held constant, the dependent variable Return on Assets (ROA) should fall by 0.004793 units for every unit growth in the independent variable Diversification of Income (DRS), according to the negative coefficient of -0.004793. The likelihood that the observed association between DRS and ROA is just the result of chance is 13.77%, with a p-values of 0.1377.

The depth of the link between the explanatory and dependent variables is evaluated using the t-Statistic value of -1.490409, which shows that the coefficient is -1.490409 standard errors away from zero. Even though Diversification of Income and Return on Assets have a negative association, the coefficients are not considered statistically weighty at the standard significance levels, which are usually 10% or less. This implies that the relationship among ROA and DRS might not be statistically significant or useful in explaining differences in ROA. To draw more firm conclusions on the relationship between these two variables, more research or data may be required.

- v) Non-Performing Laon (NPL):** The regression model's coefficient of -1.723596 for the explanatory variable indicates that, while all other variables are held constant, the dependent variable ROA should decrease by about 1.72 units for each unit increase in NPL. The likelihood of t value (0.0136) associated with NPL, which shows that the coefficient for NPL is statistically significant at the standard significance threshold of 0.05, suggests that NPL has a significant impact on ROA. The coefficient estimate's distance from the null hypothesis (typically 0 standard errors) is indicated by the t-Statistic value of -2.489269. In this case, the t-value of -2.489269 shows that ROA is considerably impacted by NPL.

The statistical findings, it can be determined that during the selected banks' research period, NPL had a statistically significant negative impact on the dependent variable ROA in the regression model. Since a bank must account for substantial amounts of provision, a high percentage of NPLs in its portfolio may lead to an increase in NPLs; consequently, during

the study period, when NPLs were bigger, profitability (ROA) decreased. The hypothesis is supported by the regression results of these independent variables.

vi) Market Share (MKS): With net loans as the independent variable, the market share has an t-Statistic of 16.20934, a statistically significant probability of 0.0000, and a coefficient of 3.083956. These figures show a robust correlation amongst the dependent variable ROA & market share (MKS).

A coefficient of 3.083956 suggests that with each unit increase in MKS, ROA is expected to increase by approximately 3.084 units. The low p-value of 0.0000 signifies that this association is not random, and the high t-Statistic value of 16.20934 further confirms its significance. This data suggests that market share has a substantial positive impact on ROA, highlighting a direct relationship between these variables. Generally, a bank's profitability is positively correlated with its market share, as evidenced by larger banks like CBE having more customers and assets under management, leading to increased profits. It's important to consider other factors that can influence this relationship, such as operating efficiency, risk management practices, and economic conditions. Overall, these regression results align with the hypothesis regarding the effect of market share on a bank's profit.

vii) Gross Domestic Product (GDP): A statistically substantial negative association between GDP and the outcome variable ROA's is implied by the interpretation of a coefficient of 0.153008 on GDP in a regression model with a probability of 0.0000 and an t-Statistic of -4.14714. This shows the ROA is anticipated to fall by 0.153008 units for every unit growth in GDP. Given that the probability amount is near zero, it is improbable that this association happened by accident. The strength of this link is further supported by the negative t-Statistic. In conclusion, the results show that the ROA is meaningfully impacted negatively by changes in GDP, as shown by the statistical measures and coefficients presented. The hypothesis is supported by the regression results for these independent variables.

viii) Inflation Rate (INF): According to the interpretation, there is a statistically substantial negative association amongst the explanatory variable (INF) and the out come variable (ROA), as designated by the coefficients for INF being -0.017551 with a probability of 0.0136 and an t-Statistic of -3.206928. This directs that the dependent variable ROA is anticipated to fall by the coefficient (-0.017551) when the independent variable INF rises.

The hypothesis is supported by the regression results for these independent variables. This association is unlikely to have happened by accident, as indicated by the likelihood of 0.0136. The notion that variations in INF actually affect the value of ROA is further supported by the statistical significance of this relationship, as indicated by the t-Statistic value of -3.206928. Bank profitability can be significantly impacted by high inflation. The purchasing value of money decreases when inflation increases, which raises bank expenses and surges the chance of borrower failure. Bank's profitability may suffer as a result, particularly in the last seven years when double-digit inflation rates—up to 33 percent—have been the norm in Ethiopia

4.4. Hypothesis and Test Result

- i) **Bank Size (BSZ):** The independent variable of bank size is hypothesized to have a positive direct relationship with the dependent variable. Test results indicated that BSZ has direct relationship with return on assets.
- ii) **Capital Adequacy Ratio (CAR):** Regression testing reveals a significant positive relationship between the capital adequacy ratio and return on assets, aligning with the hypothesis.
- iii) **Management Efficiency Ratios (MER):** The hypothesis posits a direct positive relationship between management efficiency ratios and return on assets, which is confirmed by regression results.
- iv) **Diversification of Revenue Streams (DRS):** The hypothesis suggests a positive and significant relationship for the diversification of revenue streams. However, test results indicate that DRS does not have a significant relationship with the return on assets of Ethiopian commercial banks during the study period.
- v) **Non-Performing Loan (NPL):** The hypothesis states a negative and significant relationship between non-performing loans (NPL) and return on assets. Actual data and test result confirms this significant relation for Ethiopian commercial banks during the study period.
- vi) **Market Share (MKS):** Testing results demonstrate a significant positive relationship between market share and return on assets, consistent with the hypothesis.

-
- vii) **Economic Growth Rate (GDP):** The hypothesis suggests a direct positive relationship between economic growth rate and return on assets, which is confirmed by regression results.
 - viii) **Inflation Rate (INF):** The hypothesis proposes a positive relationship between the inflation rate and return on assets. Test results indicate a positive and significant relationship between inflation rate and return on assets

Chapter Five

5. Summary, Conclusions and Recommendations

5.1. Introduction

The objectives of this study was to identify the factors influencing the profitability of commercial banks in Ethiopia. A sample of 14 commercials banks was chosen, and panel data from 2010 to 2024, including dependent and independent variables, was gathered from their financial reports. Macro-economic data was also collected from a reliable source. The data collected was then analyzed through regression E-view 12 software in the preceding chapter, Chapter Three. The analysis revealed the relationship, strength, and interactions between outcomes and explanatory variables. In the present chapter, these results are summarized, based on the findings’ conclusions are drawn, and possible recommendations.

5.2. Summary of Findings

The table outlines the results of the regression analysis, illustrating the power, direction, and extent of the association between the dependents and explanatory variables.

Table 5 – 1 Summary of Regression Results

Category	Variables	Hypothesis	Summary of Regression Results			
			+Ve	-Ve	Significant	Insignificant
Bank Specific Variables	Bank Size (BSZ)	Significant +Ve	√		√	
	Capital Adequacy Ratio (CAR)	Significant +Ve	√		√	
	Management Efficiency Ratio (MER)	Significant -Ve	√		√	
	Diversification of Revenue Stream (DRS)	Significant +Ve		√		√
	Non-Performing Loan (NPL)	Significant -Ve		√	√	
Industry Specific	Market Share (MKS)	Significant +Ve	√		√	
Macro-Economic Variables	Economic Growth Rate (GDP)	Significant +Ve	√		√	
	Inflation Rate (INF)	Significant -Ve		√	√	

Source: e-view 12 own regression summarized

5.3. Conclusions

The research results reveal that the CAR is a crucial factor that impacts the profit of commercial banks in Ethiopia. It is recommended that Ethiopian banks carefully assess both their capital levels and asset quality to improve their financial results .

The research findings indicate that the CAR is a key factor affecting the profit of commercial banks in Ethiopian. It suggests that Ethiopian banks need to carefully evaluate both their capital levels and asset quality to enhance their financial result.

Another independent variable that positively affected profitability is Bank Size (BSZ). During the study period (2010 and 2024), the size of a bank played a vital role in shaping the profitability of commercial banks in Ethiopia. In this study, the bank size was quantified using the natural logarithm of total assets. These assets might encompass various elements such as cash deposits from customers, loans, and the bank's capital itself. Therefore, bank management should be aware that the BSZ (Banks Size) correlates positively with the profit of commercial bank's.

Management efficiency (MER) was measured by total cost to total income. MER measures how effectively a company uses its resources to generate revenue and manage its operation. During the study period MER has significant and positive relation with ROA

Market Share (MKS) The market share of banks can be assessed utilizing various variables, with net loans being a primary measurement in this study. The regressions examination showed that the markets share (MKS) has a notable influence on the profitability (ROA) of commercial banks. This suggests that commercial banks should focus on improving their market share by offering a variety of services and products. Have a high market share helps

The macroeconomics variables employed for this research are Gross Domestic Product (GDP) and Inflation rate. Hence, GDP has a positive and substantial association with ROA while inflation has a negative significant association.

5.4. Recommendation

Based on the discoveries outlined in the preceding chapter, potential recommendations have been provided below.

Capital Adequacy Ratio (CAR): Maintaining a high CAR is essential for increasing commercial banks' profit, as was previously mentioned. Growing capital reserves should be a top priority for

Ethiopian commercial banks to optimize this benefit and fortify the CAR. To strengthen the bank's financial situations, this might be accomplished by luring in new investments or reinvesting profits. Additionally, banks should concentrate on improving the qualities of their assets in order to raise their overall capital adequacy ratios.

Bank Size (BSZ): Empirical studies have demonstrated that the size of banks has a considerable impact on the profit (ROA) of commercial banks. To improve their ROA through size, banks should prioritize boosting their capitals, deposits, loans to upsurge their size.

Management Efficiency (MER): Different strategies should be prioritized by commercial banks in order to improve management efficiency and boost profitability. Among the important actions they may take to reduce expenditure and increase overall profit are streamlining processes and improving workflow effectiveness. Modern technological solutions can improve customer service, increase operational efficiency, and yield higher profits. By keeping an eye on vital performance pointers and comparison them to business standards, commercial banks can classify opportunities for development and determine how managerial effectiveness affects profitability. Performance metrics and comparing them against industry norms can allow commercial banks to pinpoint areas for enhancement and gauge the influence of management competence on profit.

Market Share (MKS): To upsurge their profitability, commercial banks should emphasize on strategies that improve their market share. This could mean growing their customer base through fruitful marketing campaigns, offering good interest rates and loan options, providing excellent customer service, and implementing technological innovations to increase operational effectiveness. Additionally, banks can increase their market share and get entree to new markets by forming strategic partnerships with fintech companies or other financial institutions. Banks can eventually increase their ROA and support their profitability by concentrating on market share development.

Non-Performing Loan (NPL): Commercial banks' profitability could be adversely impacted by an increase in NPLs because of higher bad debt expenses. Commercial banks are encouraged to follow the NBE Directive asset clarifications to mitigate this risk, and if at all possible, keep their NPL percentage <5%. Banks should carefully inspect loan requests, perform in-depth valuations of their borrowers, and keep a tight eye on their behavior. Additionally, it is suggested that banks provide guidance for skill development to their employees who are directly in charge of managing customer credits.

Gross Domestic Products (GDP): Since GDP is a macroeconomic element outside their control, banks and other businesses would be obstructed by fluctuations in Ethiopia's GDP. Commercial banks should match their plans to the nation's overall economic objectives and GDP growth in order to take advantage of chances and lower risks.

Inflation (NIF): Commercial banks should develop several techniques to guard their assets due to inflation. This could demand increasing their loan portfolios, modifying lending rates, and evaluating market conditions.

Finally, I would like to suggest that upcoming researchers focus their studies on this area

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