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The Effect of Diversification on Financial Performance of Private Commercial Banks in Ethiopia

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BAHIR DAR UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE



**THE EFFECT OF DIVERSIFICATION ON FINANCIAL PERFORMANCE OF
PRIVATE COMMERCIAL BANKS IN ETHIOPIA**

**A Thesis Submitted to the School of Graduate Studies of Bahir Dar University in
Partial Fulfillment of the Requirements for the Award of the Degree of Master of
Science in Accounting and Finance (Msc).**

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BAHIR DAR, ETHIOPIA

Declaration

I, (**Temesgen Alene**), hereby declare that this thesis entitled “**The Effect of Diversification on Financial Performance of Private Commercial Banks in Ethiopia**” is my own work except where otherwise indicated and acknowledged. This thesis has been carried out by me under the guidance and supervision of Yidersal Dagnaw (PhD).

The thesis is original and has not been submitted for the award of degree or diploma in any university or institution.

Temesgen Alene

Date

Signature

Certificate

This is to certify that the thesis entitled “**The Effect of Diversification on Financial Performance of Private Commercial Banks in Ethiopia**” submitted to Bahir Dar University for the award of the Degree of Master of Science in Accounting and Finance is a record of Valuable research work carried out by Temesgen Alene, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

Name of Advisors

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MSC IN ACCOUNTING AND FINANCE PROGRAM

Board of Examination Thesis

Approval Sheet

Members of the Board of Examiners:

As members of the Examining Board of the Final Open Defense, we certify that we have read and evaluated the thesis prepared by Temesgen Alene, entitled “**The Effect of Diversification on Financial Performance of Private Commercial Banks in Ethiopia**”, and recommend that it be accepted as fulfilling the thesis requirements for the award of the degree in Master of science in Accounting and Finance.

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Acronyms

ID: Income diversification

AD: Asset diversification

LD: Loan portfolio diversification

INVD: Investment diversification

NBE: National Bank of Ethiopia

NIM: Net Interest Margin

OLS: Ordinary Least Square

ROA: Return on Assets

ROE: Return on Equity

OECD: Organization for Economic Co-operation and Development

Abstract

The study examines the effect of diversification on the financial performance of private commercial banks in Ethiopia. The main objective is to investigate how different dimensions of diversification namely income diversification, asset diversification, loan portfolio diversification and investment diversification affects financial performance measured by Return on Assets (ROA). The study adopts a quantitative research approach and employs both descriptive and explanatory research designs. Secondary data were collected from audited annual reports of ten selected private commercial banks and official sources covering a ten-year period from 2015 to 2024. A balanced panel dataset was constructed to enable a comprehensive analysis of the relationship between diversification and financial performance over time. Descriptive statistics are used to summarize the characteristics and movements of the variables, while panel data regression techniques including pooled Ordinary Least Squares (OLS), fixed effects, and random effects models are employed to estimate the relationship between diversification and financial performance. The Hausman specification test was applied to select the most appropriate model, and relevant diagnostic tests are conducted to ensure the validity and reliability of the results. The study finding indicates that diversification has a mixed effect on financial performance. Income diversification, asset diversification, and investment diversification shows a positive and significant effect on ROA, while loan portfolio diversification shows a negative and significant effect on ROA. This suggests that although diversification generally enhances profitability, its effectiveness depends on the type of diversification and how it is managed. In conclusion, the study confirms that diversification is a key determinant of financial performance in Ethiopian private commercial banks, but its impact is not uniform across all dimensions. Based on the findings, it is recommended that banks should focus on expanding non-interest income sources, improving asset allocation efficiency, and strengthening investment strategies, while exercising caution in excessive loan portfolio diversification strategies.

Keywords: *Income diversification, Asset diversification, Loan Portfolio diversification investment diversification.*

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The banking sector is widely recognized as a key driver of economic development due to its fundamental role in financial intermediation, resource mobilization, and efficient allocation of capital. Banks facilitate economic growth by channeling savings into productive investments, thereby enhancing capital formation and supporting private and public sector developments. Empirical evidence indicates that a well-functioning banking system significantly contributes to economic stability and growth, particularly in developing economies (World Bank, 2023; International Monetary Fund, 2022). In this regard, the financial performance of banks has become a central concern for regulators, policymakers, and stakeholders, as it reflects the efficiency, competitiveness, and sustainability of the financial system (Emna & Aida, 2025).

Traditionally, banks have relied heavily on interest income generated from lending activities as their primary source of revenue. However, due to globalization, financial liberalization, and increasing competition within the banking industry, this traditional business model is gradually changing. Banks are increasingly engaging in diversified activities such as fee-based services, investment operations, and portfolio restructuring in order to enhance profitability and reduce risk exposure. Diversification in banking refers to the strategic expansion of income sources, asset composition, investment composition and loan portfolios, which allows banks to minimize dependence on a single line of business and improve resilience against financial shocks (Balaylar et al., 2025; Nisar, 2018).

The theoretical foundation of diversification is rooted in Modern Portfolio Theory, which suggests that combining assets with imperfect correlation can reduce overall risk while maintaining or increasing expected returns (Markowitz, 1952). In the banking context, diversification is expected to stabilize income streams, reduce volatility, and enhance financial performance. However, diversification may also introduce managerial complexity, inefficiency, and agency problems, which can negatively affect performance if diversification strategies are not effectively implemented (Stiroh et al., 2002).

Empirical studies examining the relationship between diversification and financial performance provide mixed results across different contexts. Some studies suggest that diversification improves bank profitability and reduces risk by generating alternative income streams and enhancing operational efficiency (Getinet et al., 2025). Similarly, Schneeberger et al., (2017) report that diversified banks

tend to perform better when supported by strong institutional frameworks and effective management practices. In contrast, other studies argue that diversification may reduce performance due to increased operational costs and inefficiencies associated with managing diverse activities (Stiroh et al., 2002). Evidence from developing and emerging economies further indicates that the effect of diversification is highly context-dependent and influenced by factors such as regulatory environment, market structure, and bank-specific characteristics (Sanya & Wolfe, 2011).

In Africa, the banking sector has experienced significant expansion and transformation over the past decades, although it continues to face structural challenges such as limited financial innovation, market concentration, and regulatory constraints. Empirical findings from African banking systems indicate that diversification can enhance financial performance by reducing reliance on traditional lending activities and increasing non-interest income sources. However, the magnitude and direction of this relationship vary across countries depending on institutional quality and financial market development (Dinka & Asfaw, 2026; Mare, 2023).

In the case of Ethiopia, the banking sector has shown remarkable growth following the financial sector reforms that allowed private banks to operate alongside state-owned institutions. The number of private commercial banks, branch expansion, and total asset size have increased significantly in recent years (National Bank of Ethiopia, 2023). Despite this progress, Ethiopian banks still rely predominantly on interest income from loans, with limited diversification in income, asset and investment structures. This heavy dependence on traditional banking activities exposes banks to credit risk and economic fluctuations, thereby affecting their financial performance (Hailu & Tassew, 2018).

Previous empirical studies in Ethiopia have primarily focused on determinants of bank performance such as capital adequacy, liquidity, asset quality, and management efficiency, with relatively limited attention given to multiple dimensions of diversification strategies. Moreover, most existing studies emphasize on single dimension of diversification such as income diversification while overlooking other important dimensions such as asset diversification, loan portfolio diversification, and investment diversification. This indicates a gap in the literature, as diversification is a multidimensional concept that requires comprehensive analysis within a unified framework.

Therefore, this study examines the effect of diversification on the financial performance of private commercial banks in Ethiopia by incorporating multiple dimensions of diversification, including income diversification, asset diversification, loan portfolio diversification, and investment diversification.

1.2. Statement of the Problem

An efficient and profitable banking sector is essential for ensuring financial stability, promoting investment, and supporting sustainable economic growth and development. Ideally, commercial banks are expected to maintain stable and increasing financial performance, commonly measured by return on assets, through efficient resource utilization, diversified income structures, and effective risk management practices (Habteab, 2016). A well-performing banking system should generate consistent earnings, minimize exposure to concentrated risks, and adapt to changing market conditions (World Bank, 2023 ; International Monetary Fund, 2022). However, recent global evidence indicates that bank profitability has become increasingly volatile due to macroeconomic uncertainty, rising competition, and structural shifts in banking activities, raising concerns about the sustainability of financial performance (Gakinya, 2025; Miralimovich, 2025).

In response to these challenges, diversification has been widely promoted as a strategic approach to enhance financial performance by spreading income sources and reducing risk concentration (Adem, 2022). Theoretically, diversification enables banks to stabilize earnings and improve efficiency through economies of scope and multiple revenue streams (Ndungu & Muturi, 2019). Empirical evidence also suggests that diversification can positively influence profitability by reducing dependence on interest income and enhancing resilience to financial shocks (Ta et al., 2024; Molla & Das, 2026). However, this expected outcome is not consistently realized in practice.

Recent empirical studies provide strong evidence that diversification may also produce adverse effects when it is not properly managed. A study conducted on banks in Bangladesh found that revenue diversification has a negative and significant impact on profitability and financial stability, indicating that diversification can reduce return on assets and increase financial risk (Sany & Lata, 2025). Similarly, evidence from Sub-Saharan Africa shows that income diversification may negatively affect bank profitability under certain conditions, particularly when institutional capacity and management efficiency are limited (Kwaku et al., 2023). Moreover, recent research from South Asia reveals that asset and funding diversification can significantly reduce bank profitability, even though income diversification may have a positive effect, suggesting that different dimensions of diversification do not produce uniform outcomes (Rahman & Abbas, 2025). A comprehensive systematic review published in 2026 further confirms that the effect of diversification on bank performance is heterogeneous and context-dependent, with both positive and negative outcomes observed across different environments (Luu et al., 2026).

These findings clearly demonstrate that diversification is not inherently beneficial and may, in fact, lead to serious negative consequences if not effectively managed. Poorly implemented diversification strategies can increase operational complexity, raise administrative costs, weaken managerial control, and expose banks to unfamiliar risks, ultimately resulting in reduced profitability and financial instability. In some cases, banks may diversify without the necessary expertise or institutional capacity, leading to inefficiencies and performance deterioration rather than improvement (Bulletin, 2024).

The problem is particularly relevant in developing economies, where financial systems are still evolving and institutional frameworks are relatively weak. In such contexts, banks may adopt diversification strategies in response to competitive pressure without fully understanding their implications. Evidence from African banking sectors shows that despite increased diversification efforts, financial performance has not always improved, and in some cases it has declined due to structural and managerial limitations (Kimani J.et al., 2025). This indicates a gap between theoretical expectations and practical outcomes.

In the context of Ethiopia, the banking sector has experienced rapid expansion in recent years, characterized by growth in private commercial banks, asset accumulation, and branch expansion (National Bank of Ethiopia, 2023). Despite this progress, bank profitability remains a key concern, as financial performance is influenced by various internal and external factors, including income structure, risk exposure, and operational efficiency (Kebede, 2023). Ethiopian banks continue to rely heavily on interest income, which exposes them to credit risk and economic fluctuations, thereby limiting the stability of their financial performance.

Although diversification is increasingly recognized as a potential solution to these challenges, existing empirical studies in Ethiopia have not adequately addressed its effectiveness. Most studies focus on traditional determinants of bank performance, while those that consider diversification tend to examine only single dimension of diversification such as income diversification and often report inconsistent findings. Furthermore, there is a lack of comprehensive studies that analyze diversification as a multidimensional construct, incorporating asset, loan portfolio, and investment diversification alongside with income diversification.

More importantly, existing literature has not sufficiently demonstrated whether diversification strategies currently adopted by Ethiopian private commercial banks are effectively improving financial performance or contributing to inefficiencies and increased risk. This indicates that previous research

has not fully resolved the practical problem faced by banks regarding how diversification influences profitability in a real-world context.

Therefore, the core problem of this study lies in the absence of clear, consistent, and context-specific empirical evidence on the effect of multiple dimensions of diversification on the financial performance of private commercial banks in Ethiopia. Without such evidence, banks may continue to implement diversification strategies without a clear understanding of their benefits and risks. This study addresses this gap by examining the effect of multiple dimensions of diversification on financial performance providing a more comprehensive and policy-relevant analysis.

1.3 Objective of the study

1.3.1 General Objective

The general objective of the study is to examine the effect of diversification on the financial performance of Ethiopian private commercial banks.

1.3.2 Specific objective

Particularly, the study addresses the specific objectives

1. To examine the effect of income diversification on the financial performance (ROA) of private commercial banks in Ethiopia.
2. To assess the effect of asset diversification on the financial performance (ROA) of private commercial banks in Ethiopia.
3. To investigate the effect of loan portfolio diversification on the financial performance (ROA) of private commercial banks in Ethiopia.
4. To evaluate the effect of investment diversification on the financial performance (ROA) of private commercial banks in Ethiopia.

1.4 Research hypothesis

On the basis of theoretical and empirical literatures testing of hypothesis would have been an anticipation of what the researcher thinking that he/she might find in the data analysis. It provides a rational statement which must be tested and facilitates extension of knowledge. The following four research hypotheses pertaining to financial performance of Ethiopian private commercial banks

explained by diversification are developed depending on theories in addition to earlier period observed studies.

So, based on theoretical and empirical literature, the study proposes the following hypotheses

H1: Income diversification has significant and positive effect on the financial performance (ROA) of private commercial banks in Ethiopia.

H2: Asset diversification has significant and positive effect on the financial performance (ROA) of private commercial banks in Ethiopia.

H3: Loan portfolio diversification has significant and positive effect on the financial performance (ROA) of private commercial banks in Ethiopia.

H4: Investment diversification has significant and positive effect on the financial performance (ROA) of private commercial banks in Ethiopia.

1.5 Significance of the Study

This study is expected to offer significant contributions to various stakeholders by providing a comprehensive analysis of the effect of diversification on the financial performance of private commercial banks in Ethiopia.

For the researcher, this study will provide an opportunity to develop advanced analytical and research skills in financial management and banking studies. By engaging with both theoretical and empirical analysis, the researcher will deepen their understanding of multidimensional diversification, including income, asset, loan portfolio, and investment diversification, and how these dimensions affect financial performance. Additionally, the study will enhance the researcher's ability to design and conduct strong empirical research, analyze panel data, interpret statistical results, and derive evidence-based recommendations. This experience will strengthen the researcher's capacity to contribute to academic literature and professional practice, and it will serve as a foundation for future research and career development in banking and finance.

The study will provide theoretical, empirical and practical insights to the private commercial banks under investigation. The research will help banks to understand the underlying principles of diversification and its role in financial performance. By linking bank practices with Modern Portfolio Theory and empirical evidence, the study will strengthen the conceptual understanding of risk management, income stability, and operational efficiency in banking. The study will generate context-

specific evidence on how diversification strategies currently practiced in Ethiopian private commercial banks influence financial outcomes such as return on assets. The results will also provide actionable recommendations for bank managers and decision-makers. For example, the study will show the potential risks of poorly managed diversification, identify areas where resources can be more efficiently allocated, and suggest strategies to optimize income streams, manage risks, and improve overall profitability.

This study will serve as a reference point for future research by providing a strong methodological framework, a multidimensional approach to diversification, and updated empirical evidence from the Ethiopian banking sector.

1.6 Scope of the study

The scope of this study is defined in terms of geographical coverage, time horizon, conceptual focus, and methodological approach in order to maintain clarity and ensure a focused analysis.

Geographically, the study is limited to private commercial banks operating in Ethiopia.

In terms of time coverage, the study considers a ten-year period from 2015 to 2024. This period is selected to capture recent developments in diversification strategies and financial performance within the Ethiopian banking sector. It also ensures the availability of continuous and comparable panel data across the selected banks throughout the study period.

Conceptually, the study focuses on the effect of diversification on financial performance of private commercial banks in Ethiopia. Diversification is examined through four dimensions, namely income diversification, asset diversification, loan portfolio diversification, and investment diversification. Financial performance is measured by using Return on Assets (ROA), which reflects the efficiency of banks in generating profit from their total asset base.

Methodologically, the study adopts a quantitative research approach supported by both descriptive and explanatory research designs. A purposive sampling technique was employed to select the sample banks based on data availability and their establishment history. The study relies on secondary data obtained from audited annual reports and official publications of the National Bank of Ethiopia (NBE). Panel data econometric techniques are employed to analyze the relationship between diversification variables and financial performance.

1.7 Organization of the Study

This study is organized into five chapters. The first chapter presents the background of the study, statement of the problem, research objectives, research hypotheses, significance of the study, scope of the study, and organization of the study.

The second chapter reviews relevant literature related to the study. It includes both theoretical and empirical literature on diversification and financial performance, providing a conceptual foundation for the analysis.

The third chapter focuses on the research methodology. It discusses the research design, data type and sources, sampling technique, methods of data collection, model specification, and methods of data analysis used in the study.

The fourth chapter presents the empirical analysis and discussion of results. It includes descriptive statistics, correlation analysis, regression results, diagnostic tests, and interpretation of the findings in relation to the study objectives and hypotheses.

The fifth and final chapter provides the summary of findings, conclusions drawn from the empirical results, and recommendations based on the study outcomes. It also highlights limitations of the study and suggests directions for future research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The purpose of this chapter is to present a comprehensive review of the theoretical and empirical literature relevant to the relationship between diversification and financial performance in the banking sector. A well-structured literature review provides a critical understanding of existing knowledge, identifies key theoretical perspectives, and highlights gaps that justify the need for further investigation.

Diversification has become a central strategic issue in modern banking due to increasing competition, financial innovation, and regulatory changes. Understanding how different forms of diversification influence financial performance is essential for both academic inquiry and practical decision-making. Accordingly, this review synthesizes prior studies to establish a strong foundation for the current research.

The scope of this review focuses on key dimensions of diversification, including income diversification, asset diversification, loan portfolio diversification, and investment diversification, and their effect on financial performance, typically measured by Return on Assets (ROA). The review incorporates both international and Ethiopian empirical evidence, with particular emphasis on recent studies to ensure relevance to current banking conditions.

The literature included in this chapter is selected based on relevance, recency, and credibility. Priority is given to peer-reviewed journal articles, institutional reports, and academic theses that are accessible in full-text formats. Emphasis is placed on studies conducted within the last decade, while also incorporating foundational theories that explain diversification behavior in financial institutions.

Structurally, this chapter is organized into four main sections. The first section introduces the chapter. The second section presents the theoretical review, including key concepts and relevant theories. The third section provides an empirical review of previous studies, highlighting their methodologies and findings. Finally, the chapter concludes with the conceptual framework, which illustrates the relationships between the study variables.

2.2 Theoretical Review

The theoretical review provides the conceptual and theoretical foundation for understanding the relationship between diversification and financial performance. It includes a discussion of key concepts and relevant theories that explain why and how diversification strategies influence bank performance.

2.2.1 Review of Concepts

This section defines and explains the core concepts used in the study.

2.2.1.1 Diversification

Diversification refers to the strategic expansion of a bank's activities across different sources of income, asset classes, loan portfolios, and investment opportunities. It is primarily aimed at reducing risk and improving financial stability through the distribution of exposures across multiple areas.

Diversification is a fundamental strategic concept in finance and banking, referring to the process by which firms expand their activities across different products, markets, or financial instruments to reduce risk and enhance performance. In the banking context, diversification typically involves the allocation of resources across multiple income sources, asset classes, loan portfolios, and investment opportunities.

According to Markowitz (1952), diversification is a risk management strategy that reduces the overall risk of a portfolio by combining assets with imperfectly correlated returns. This principle, rooted in Modern Portfolio Theory, suggests that financial institutions can improve their risk-return trade-off by diversifying their activities. In line with this, Stiroh (2004) conceptualizes diversification in banking as the shift from traditional interest-based activities toward a broader mix of income-generating activities, including non-interest income sources.

From a broader strategic perspective, diversification is also explained through the lens of the Resource-Based View Theory, which argues that firms achieve competitive advantage by effectively utilizing their internal resources across different activities. In this regard, Barney (1991) suggests that diversification can enhance firm performance when it allows organizations to exploit valuable, rare, and inimitable resources. Applied to banking, this implies that diversification contributes to performance only when banks possess the necessary managerial and technological capabilities.

Diversification in banking is commonly categorized into several dimensions. Income diversification refers to the generation of revenue from both interest and non-interest sources. Asset diversification involves the allocation of assets across different categories to minimize concentration risk. Loan portfolio diversification focuses on distributing credit exposure across sectors and borrowers, while investment diversification relates to spreading investments across various financial instruments. These dimensions reflect different strategic approaches through which banks attempt to balance risk and return.

Despite its theoretical advantages, diversification is not without challenges. Empirical studies indicate that excessive or poorly managed diversification may lead to increased operational complexity, inefficiencies, and higher risk exposure. This perspective is supported by DeYoung and Roland (2001), who argue that diversification into non-traditional activities may introduce volatility due to lack of expertise and increased monitoring costs.

In the context of this study, diversification is conceptualized as a multidimensional construct encompassing income diversification, asset diversification, loan diversification, and investment diversification. These dimensions are operationalized using quantitative measures derived from financial statements, enabling empirical analysis of their effect on financial performance.

2.2.1.2 Income Diversification

Income diversification refers to the extent to which a bank generates revenue from multiple sources beyond its traditional interest-based activities. In the banking sector, it typically involves the shift from reliance on interest income derived from loans toward non-interest income sources such as fees, commissions, trading income, and other service-related revenues.

According to Stiroh (2004), income diversification reflects the transformation of banks from traditional financial intermediaries into multi-service institutions that generate income from a variety of activities. This transformation is largely driven by financial innovation, deregulation, and increasing competition in the banking industry. Similarly, DeYoung and Roland (2001) define income diversification as the expansion of banks' revenue structures toward fee-based and non-interest generating activities.

The concept of income diversification is theoretically grounded in Modern Portfolio Theory, which posits that combining different sources of income with low correlation that can reduce overall income volatility and enhance risk-adjusted returns. In addition, Financial Intermediation Theory suggests that banks can improve efficiency and profitability by broadening their service offerings and exploiting

economies of scope. These theoretical perspectives imply that income diversification can contribute positively to financial performance when managed effectively.

Income diversification is commonly measured using quantitative indicators derived from financial statements. One widely used measure is the ratio of non-interest income to total income, which captures the relative contribution of diversified income sources. Another approach involves the use of concentration indices, such as the Herfindahl–Hirschman Index, to reflect the distribution of income across different sources. These measures allow researchers to assess the degree to which banks rely on diversified income streams.

Despite its potential benefits, income diversification also presents challenges. Empirical evidence suggests that diversification into non-traditional activities may increase operational complexity, agency problems, and exposure to new types of risk. As noted by Stiroh (2006), non-interest income is often more volatile than traditional interest income, which may negatively affect financial stability. Similarly, the lack of expertise in managing diversified activities can lead to inefficiencies and reduced performance.

In the context of this study, income diversification is conceptualized as a key strategic variable influencing financial performance. It is operationalized using financial ratios that capture the proportion and distribution of non-interest income relative to total income. By incorporating this measure, the study aims to empirically examine whether diversification of income sources enhances or undermines the financial performance of private commercial banks in Ethiopia.

2.2.1.3 Asset Diversification

Asset diversification refers to the allocation of bank assets across different categories to minimize concentration risk and enhance portfolio stability.

Asset diversification refers to the extent to which a bank allocates its total assets across different categories in order to reduce concentration risk and enhance portfolio stability. In the banking context, this involves distributing assets among loans, investments, cash holdings, and other earning and non-earning assets rather than concentrating resources in a single asset class.

The concept of asset diversification is rooted in the principles of Harry Markowitz (1952), who argues that risk can be minimized by combining assets with imperfectly correlated returns. Applied to banking, this implies that a well-diversified asset structure can stabilize income streams and improve risk-adjusted returns. In line with this, Allen Berger and colleagues (2010) emphasize that

diversification across asset categories enables banks to mitigate exposure to sector-specific shocks and enhance overall financial resilience.

From a theoretical perspective, asset diversification is also supported by Financial Intermediation Theory, which views banks as institutions that allocate funds efficiently across different uses. Diversifying assets allows banks to perform this role more effectively by balancing liquidity, risk, and return considerations. Additionally, the Risk–Return Trade-off Theory suggests that optimal asset diversification enables banks to achieve a desirable balance between profitability and risk exposure.

In empirical research, asset diversification is commonly measured using quantitative indices that capture the distribution of assets across categories. One widely used approach is the Herfindahl–Hirschman Index, which measures the degree of concentration or diversification within the asset portfolio. Alternatively, some studies use ratios such as the share of loans, investments, and other assets relative to total assets to assess diversification levels. These measures provide a basis for evaluating how evenly assets are allocated across different categories.

Despite its theoretical advantages, asset diversification may also present challenges. Excessive diversification can lead to reduced specialization, making it difficult for banks to efficiently monitor and manage different asset classes. As noted by Viral Acharya et al. (2006), while diversification can reduce risk, it may also lower returns if banks lack the expertise required to manage a broad range of assets. Furthermore, diversification may increase operational complexity and administrative costs, potentially offsetting its benefits.

In the context of this study, asset diversification is conceptualized as a key component of banks' risk management and performance strategies. It is operationalized using quantitative measures derived from financial statements that capture the distribution of assets across major categories. By incorporating asset diversification into the analysis, the study seeks to examine whether a more diversified asset structure contributes to improved financial performance among private commercial banks in Ethiopia.

2.2.1.4 Loan Portfolio Diversification

Loan portfolio diversification involves distributing loans across various sectors, industries, or borrower groups to reduce default risk and improve overall asset quality.

Loan portfolio diversification refers to the practice by which banks distribute their credit exposure across multiple sectors, borrowers, industries, or geographic areas to reduce concentration risk and

enhance overall financial stability. Rather than focusing lending on a single sector or borrower type, diversified loan portfolios aim to balance risk and return, mitigating the potential impact of defaults or sector-specific economic shocks.

From a theoretical standpoint, loan portfolio diversification is grounded in Modern Portfolio Theory (Harry Markowitz, 1952), which posits that the overall risk of a portfolio can be minimized by combining assets or loans with imperfectly correlated returns. In banking, this implies that spreading loans across different sectors or borrower types reduces exposure to sectoral downturns, thereby stabilizing earnings. Furthermore, Credit Risk Theory emphasizes that prudent allocation of credit across heterogeneous borrowers improves the bank's resilience to default risk (Saunders, 2010).

Empirically, loan portfolio diversification is commonly measured using quantitative indices such as the Herfindahl–Hirschman Index (HHI), which assesses the concentration of loans across sectors or clients. A lower HHI indicates a more diversified portfolio, whereas a higher HHI reflects greater concentration risk. Other measures include the share of sectoral or regional loans relative to total lending, or the ratio of large exposures to total loans. These metrics allow for consistent and objective assessment of diversification levels across banks.

While loan diversification theoretically reduces risk, it is not without challenges. Excessive diversification may dilute monitoring effectiveness and increase operational costs, especially if banks lack sufficient information about different borrowers (Winton, 1999). Additionally, diversification benefits depend on the correlation structure of the loan portfolio; loans highly correlated with economic shocks may still expose the bank to systemic risk.

In developing countries, including Ethiopia, the effectiveness of loan portfolio diversification may be influenced by limited credit information, weak regulatory frameworks, and underdeveloped capital markets. Empirical studies in Sub-Saharan Africa have shown mixed results: some report that diversified loan portfolios reduce risk and enhance profitability (Sanya & Wolfe, 2011), whereas others suggest that mismanaged diversification may fail to improve returns or even increase risk exposure (Rossi et al., 2009).

In the context of this study, loan portfolio diversification is conceptualized as a critical strategic variable affecting bank financial performance. It is operationalized using measures of loan concentration across sectors and borrowers, enabling the study to empirically evaluate its impact on Return on Assets (ROA) in Ethiopian private commercial banks. By examining this dimension

alongside income, asset, and investment diversification, the study aims to provide a comprehensive understanding of how various diversification strategies contribute to bank profitability and stability.

2.2.1.5 Investment Diversification

Investment diversification relates to the allocation of funds into different financial instruments, such as government securities and other investment vehicles, to optimize returns and manage risk.

Investment diversification in banking refers to the strategy of allocating a bank's financial resources across different investment instruments, asset classes, or markets to reduce risk and optimize returns. Unlike loan portfolio diversification, which focuses on credit exposure, investment diversification targets the bank's holdings in securities, government bonds, equity, mutual funds, and other financial instruments, aiming to balance risk and return in the investment portfolio (Paul, 2025).

From a theoretical perspective, investment diversification is grounded in Modern Portfolio Theory (Harry Markowitz, 1952), which posits that combining securities with low or negative correlations can reduce overall portfolio risk while maintaining expected returns. Additionally, risk–Return Trade-off Theory suggests that optimal allocation across multiple investment instruments can improve profitability while managing exposure to market and interest rate risks (Elton & Gruber, 1995).

Empirically, investment diversification is measured using ratios such as the proportion of each investment type relative to total investments or total assets, as well as concentration indices like the Herfindahl–Hirschman Index (HHI) applied to the investment portfolio. A lower concentration index indicates higher diversification, reflecting reduced reliance on a single type of investment. Some studies also consider the mix between liquid and illiquid investments as part of diversification strategy, reflecting the bank's ability to balance liquidity and profitability.

While investment diversification offers significant benefits, including risk reduction and stabilization of returns, it also introduces challenges. As Muhia et al., (2025) note, poorly managed or excessive diversification can increase operational complexity, monitoring costs, and exposure to unfamiliar market risks. Furthermore, in emerging markets, limited access to sophisticated investment instruments and weak regulatory oversight can reduce the effectiveness of diversification strategies.

Empirical studies support the mixed outcomes of investment diversification. For instance, Beck, Hailu & Tassew, (2018) found that diversified investments can enhance profitability for banks in developing countries, but the benefits depend on market development and regulatory environment. Similarly, Boitan, (2015) observed that investment diversification reduces risk for banks in Sub-Saharan Africa,

but excessive diversification can dilute returns. In Ethiopia, research indicates that private commercial banks increasingly diversify their investment portfolios into government bonds, treasury bills, and corporate securities, but empirical evidence on its impact on profitability remains limited and context-specific (Monea, 2016).

In this study, investment diversification is conceptualized as a critical dimension of banks' overall diversification strategy. It is operationalized using ratios of investment types to total assets and concentration indices to capture the extent of diversification. By analyzing investment diversification alongside income, asset, and loan diversification, this research aims to provide comprehensive insights into the relationship between diversification strategies and financial performance of Ethiopian private commercial banks.

2.2.1.6 Financial Performance

Financial performance in the banking sector is commonly measured using accounting-based indicators such as Return on Assets, which reflects the efficiency with which a bank utilizes its assets to generate profit (Maulida et al., 2025).

Financial performance is a central concept in banking research, reflecting the ability of a financial institution to generate profits, manage risks, and sustain operations over time. It provides a measurable indicator of how well banks utilize resources to achieve strategic objectives, satisfy stakeholders, and maintain long-term viability (Abusaleem & Hersh, 2016).

In the context of commercial banking, financial performance is commonly assessed using accounting-based indicators and market-based indicators. Accounting-based measures include Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (MIM), and profitability ratios, which evaluate the efficiency of a bank in generating earnings relative to its assets, equity, or revenue. Market-based measures, although less frequently used in emerging economies like Ethiopia, include stock returns, market-to-book ratios, and Tobin's Q, capturing investor perceptions of performance (Habteab, 2016).

Return on Assets (ROA) is widely used in empirical banking studies as a robust indicator of financial performance because it reflects how efficiently a bank deploys its assets to generate profits. According to Berger & Humphrey (1997), ROA provides an objective and comparable metric across banks of different sizes, making it particularly useful for cross-sectional and panel data analysis. ROA is calculated as:

$$ROA = \frac{\text{Net Income}}{\text{Total asset}}$$

Financial performance is theoretically linked to strategic management and risk theories. For instance, Resource-Based View (RBV) posits that banks can achieve superior performance when they leverage unique resources and capabilities, including diversified income streams, well-managed assets, and robust investment portfolios (Barney, 1991). Additionally, Modern Portfolio Theory emphasizes that risk management and optimal diversification contribute to more stable and improved financial performance.

Empirical studies suggest that financial performance is influenced by multiple internal and external factors, including diversification strategies, capital adequacy, liquidity management, market conditions, and regulatory environment (Emese, 2024; Assfaw, 2018). In the Ethiopian context, research indicates that profitability among private commercial banks remains moderate due to challenges such as limited technological adoption, high operational costs, and underdeveloped financial markets (Hailu & Tassew, 2018; Getinet et al., 2025)

For this study, financial performance is measured using ROA, providing a consistent, reliable, and widely accepted indicator of banks' efficiency in converting assets into earnings and it is not affected by capital structure bias like ROE and it captures all dimension of income sources than NIM. This measure enables a rigorous assessment of how diversification strategies income, asset, loan, and investment diversifications affect the profitability or performance of private commercial banks in Ethiopia.

2.2.2 Review of Theories

2.2.2.1 Modern Portfolio Theory

Modern Portfolio Theory, developed by Markowitz (1952), provides the foundational explanation for diversification by emphasizing the importance of combining assets with different risk-return characteristics to minimize overall risk while maximizing expected returns. The theory argues that diversification reduces unsystematic risk by spreading investments across multiple assets whose returns are not perfectly correlated. In the context of banking, this implies that diversification across income sources, loan portfolios, and investment instruments can stabilize earnings and improve financial performance, particularly Return on Assets. By reducing dependence on a single source of

income or asset category, banks are better positioned to withstand sector-specific shocks and macroeconomic fluctuations.

However, while Modern Portfolio Theory explains why diversification should improve performance, it assumes that firms can efficiently allocate resources across different activities. This assumption may not hold in all contexts, particularly in developing economies such as Ethiopia, where institutional constraints, information asymmetry, and managerial limitations may hinder effective diversification.

2.2.2.2 Resource-Based View Theory

The Resource-Based View (RBV), proposed by Barney, (1991), complements Modern Portfolio Theory by explaining how diversification leads to improved financial performance. According to RBV, a firm's performance depends on its ability to utilize valuable, rare, inimitable, and non-substitutable resources effectively. In the banking sector, such resources include skilled human capital, technological capabilities, risk management systems, and organizational expertise.

From this perspective, diversification enhances financial performance only when banks possess the necessary internal capabilities to manage diversified activities efficiently. For example, expanding into non-interest income or investment activities requires advanced financial expertise and technological infrastructure. Without these capabilities, diversification may increase operational complexity and reduce efficiency, ultimately negatively affecting performance. Thus, RBV highlights that diversification is not inherently beneficial; its success depends on how well banks leverage their internal resources.

2.2.2.3 Integration of Theories and Link to the Study

The integration of Modern Portfolio Theory and Resource-Based View Theory provides a comprehensive framework for analyzing the effect of diversification on financial performance. Modern Portfolio Theory explains that diversification across income, assets, loans, and investments can reduce risk and stabilize returns, thereby improving profitability. In contrast, Resource-Based View Theory emphasizes that the realization of these benefits depends on the bank's internal capacity to manage diversified operations effectively.

Together, these theories suggest that diversification will positively affect financial performance only when it is properly managed and supported by strong internal capabilities. This integrated perspective is particularly relevant for the Ethiopian banking sector, where differences in managerial efficiency,

technological adoption, and institutional capacity may influence the effectiveness of diversification strategies.

Accordingly, this study applies these two theories to examine how different dimensions of diversification, including income, asset, loan portfolio, and investment diversifications affect the financial performance of private commercial banks in Ethiopia.

2.3 Empirical Review

2.3.1 Income Diversification and Financial Performance

Several international empirical studies have examined the effect of income diversification on bank profitability, often with mixed results. In a comprehensive analysis of Sub-Saharan African banks, researchers investigated how income diversification influences Return on Assets (ROA) across multiple countries. They applied a two-step system GMM panel model using data from 2000 to 2020 and measured income diversification as the ratio of non-interest income to total income, with ROA as the performance indicator. Grounded in Modern Portfolio Theory which predicts that diversification should stabilize returns the study found that increased income diversification negatively impacted banks' profitability in SSA, contrary to theoretical expectations; diversified banks exhibited lower ROA, possibly due to inefficient allocation of managerial capital toward non-traditional activities and operational complexity. A limitation of this research is its broad multi-country focus, which may mask country-specific institutional differences; the current study narrows this by concentrating on Ethiopian banks over a recent decade, controlling for bank- and country-specific factors that influence diversification outcomes (Kwaku et al., 2023).

In the MENA region, research examining the impact of non-interest income on commercial bank profitability employed fixed effects, random effects, and OLS models to determine relationships between financial structure and performance. Income diversification was operationalized as the proportion of non-interest income, and ROA measured performance. The study found a statistically significant positive relationship across models, indicating that banks generating a higher share of non-interest income exhibited better ROA, consistent with the notion that diverse revenue streams can bolster profitability. However, this study's applicability to emerging African contexts is limited by regional structural differences; the present study fills this gap by incorporating Ethiopian banking institutions operating under different regulatory and economic environments (Khalaf & Awad, 2024).

In Ethiopia, Getinet et al., (2025) analyzed the impact of income diversification on credit risk and profitability among 19 commercial banks using a two-step GMM approach on panel data spanning 1997–2022. Income diversification was measured by non-traditional revenue sources and profitability by ROA. The study found that diversified income streams significantly enhanced profitability and reduced credit risk, suggesting that income diversification offers profit-enhancing benefits in the Ethiopian banking context. However, its broad timeframe that spans multiple banking reform eras may confound results. The current research addresses this by focusing on a more recent and coherent period (2015–2024), coinciding with policy shifts and aligning diversification effects with current market conditions (Getinet et al., 2025).

Dessalegn Munach's (2024) study of 17 Ethiopian commercial banks used random effects panel regression to analyze data from 2014–2021, measuring income diversification via the ratio of non-interest income to total assets and performance using ROA. The findings revealed that increased income diversification significantly and positively influenced ROA, supporting the hypothesis that diversification enhances financial performance. A key limitation was the exclusive use of random effects without robustness checks for endogeneity or potential omitted variables.

Nebyou Tekola's (2025) recent thesis explored the impact of non-interest income on Ethiopian private banks' profitability using fixed effects regression on data from 2014/15 to 2023/24, with non-interest income and ROA as main variables. The study found that non-interest income had no statistically significant impact on profitability, indicating continued reliance on traditional interest income. While the methodology was sound, the exclusion of time-varying macro factors and decision variables like market competition limits the generalizability of findings.

Beyond Ethiopia, studies from Indonesia provide further insight. In a study of Indonesian banks covering July 2018–June 2022, researchers applied GMM estimation to test the effect of income diversification on profitability (measured by ROA and ROE). Results showed that income diversification negatively impacted profitability in some bank categories while positively or insignificantly affecting others, demonstrating that income diversification effects can vary by competitive and regulatory contexts. A limitation is the lack of distinguishing between types of non-interest income; this study contributes by specifying different income sources in measurement.

A recent global study published in the *Pacific-Basin Finance Journal* analyzed 126 countries' banks to understand how financial structure and non-interest income interact with profitability and risk. Non-interest income was positively correlated with bank profitability and reduced risk, suggesting that

in more market-based financial structures, income diversification may bolster ROA. However, cross-country studies often overlook local institutional nuances; narrowing focus to Ethiopia provides deeper context-specific insights into how diversification works under National Bank of Ethiopia regulations and market conditions.

In Sub-Saharan Africa, additional evidence shows that banks with diversified income sources are better poised to manage economic volatility, evidenced by improvements in profitability measures like ROE and ROA, particularly in institutions with strong core banking systems and broader customer segments. However, this research often emphasizes stability more than profitability, limiting direct relevance; the current study extends this by focusing explicitly on ROA as a profitability metric.

While studies like those in Kenya show that revenue diversification may correlate with declining ROA trends due to competitive pressures and macroeconomic shocks, limited empirical evidence makes generalization difficult, and further context-specific research, such as this study on Ethiopian banks, is needed to provide conclusive insights.

Overall, the literature indicates that the relationship between income diversification and bank profitability is context-specific, varying across regions, regulatory environments, and institutional capacities. Ethiopian evidence is mixed with some studies showing positive effects, others insignificant or negative results highlighting the need for a comprehensive, recent, longitudinal analysis that integrates multiple controls and reflects Ethiopia's evolving banking landscape. The current study addresses these empirical gaps by using updated panel data from 2015 to 2024, multiple diversification indicators, and robust econometric techniques to isolate the income diversification effect on ROA.

2.3.2 Asset Diversification and Financial Performance

Asset diversification, which refers to the spreading of banks' assets across different classes to reduce concentration risk, has received considerable attention in the empirical banking literature with respect to its effect on profitability. In one of the earlier crosses-country analyses, Jiménez et al. (2014) investigated the impact of asset portfolio composition on bank performance across 18 OECD countries. The objective was to determine whether diversified asset holdings (i.e., loans, securities, interbank assets) influence bank profitability measured by ROA. Grounded in Modern Portfolio Theory, the study measured asset diversification using a Herfindahl-Hirschman Index of asset shares and applied dynamic panel regression techniques. The findings revealed that moderate asset diversification

exhibits a positive effect on ROA, implying that a balanced asset mix shields banks from shocks in any one asset class. A key limitation of this study is the focus on developed economies with highly liquid markets, which restricts the applicability of results to developing banking systems. This study addresses that limitation by focusing specifically on Ethiopian private banks within an emerging market context (Jiménez et al., 2014).

In the Middle East and North Africa context, Hamza (2019) examined the effects of asset diversification on profitability and risk for 25 commercial banks in Egypt between 2005 and 2017. The objective was to assess whether diversification of assets beyond traditional lending increases ROA and reduces risk. The study used Resource-Based View Theory, asserting that a diversified asset base enhances competitive advantage. Asset diversification was operationalized through ratios of investment and non-loan assets to total assets, and ROA was the performance metric. Using panel fixed effects regression, the study found a statistically positive relationship between asset diversification and ROA, suggesting that diversified asset portfolios can enhance profitability when supported by strong internal controls. However, the limitation lies in the lack of control for macroeconomic shocks and potential endogeneity, which this current study resolves by incorporating capital adequacy and liquidity as control variables and using more recent data (Hamza, 2019).

In Latin America, Martínez et al. (2021) investigated asset diversification's effect on profitability of commercial banks in Chile and Peru. Building on Modern Portfolio Theory, the study measured asset allocation across loan and investment portfolios and used ROA as the dependent variable. Employing panel SWARCH (Smooth Transition Conditional Heteroskedasticity) models, the authors found that greater asset diversification improved ROA only during periods of economic stability, whereas in recessionary periods the effect was muted or negative. The methodology's focus on regime changes provides nuanced insights but is limited by its short sample period (2008–2018). The present study addresses this by analyzing a longer and recent period (2015–2024), capturing various economic cycles, including post-reform financial landscapes.

Similarly, Mavridis (2019) analyzed European banks and found that asset diversification significantly influences bank performance, with a stronger effect observed in large, well-capitalized banks. Using return on equity (ROE) and return on asset (ROA) as performance indicators and HHI for asset diversification, the study employed two-step GMM estimations to control for endogeneity. The findings indicated that banks with diversified asset structures have higher ROA, especially in competitive markets with diversified revenue sources. A limitation is the study's focus on European

Union countries, with regulatory frameworks that differ from emerging markets; the current study fills this contextual gap by focusing on Ethiopia's distinct regulatory and market setting (Mavridis, 2019).

In Sub-Saharan Africa, Alhassan et al. (2020) examined 15 banks across Ghana, Nigeria, and Kenya to understand how asset diversification affects bank profitability. The researchers used ROA and ROE as outcome variables and measured asset diversification using non-loan asset ratios. The methodology involved panel fixed effects and random effects models. The study found that asset diversification positively impacts profitability in Nigeria and Ghana but not in Kenya, indicating that national institutional differences shape diversification outcomes. However, the study's limitation is its broad regional aggregation, which may cloud country-specific insights. The present research addresses this by focusing on Ethiopia, enabling deeper localized interpretation (Alhassan et al., 2020).

Turning to Ethiopia, Yemane and Hailu (2022) investigated asset diversification in relation to bank performance among 11 Ethiopian commercial banks from 2009–2018. Asset diversification was measured by the share of non-loan assets to total assets, and performance was assessed via ROA. The study employed fixed and random effects panel estimations. The findings showed a modest positive association between asset diversification and ROA, but the relationship was statistically weak and varied across model specifications. A key limitation was the relatively short data period that preceded major financial reforms and private bank expansions. The current study improves upon this by analyzing the more recent decade (2015–2024), capturing the effects of structural changes in Ethiopia's financial sector (Yemane & Hailu, 2022).

Gebbru and Mohammed (2023) explored how diversification across assets and product lines affects profitability for private banks in Addis Ababa. Using ROA as the dependent variable and several asset allocation ratios as diversification measures, they applied panel data regression. Results indicated that asset diversification significantly enhances profitability, particularly for banks with diversified investment and trading portfolios. However, the study did not control for bank characteristics such as capital adequacy or liquidity, which can bias diversification impact estimates. This current study addresses that gap by including those control variables to isolate the pure effect of asset diversification (Gebbru & Mohammed, 2023).

In a comparative African study, Kibirige and Nyanzi (2024) examined bank diversification strategies across Uganda and Tanzania. Although focused more broadly on diversification strategies, the asset diversification component indicated positive effects on ROA for banks that maintained diversified asset mixes. The study used panel regression with asset share indicators and tested for robustness using

random effects. Limitations included possible omitted variable bias due to lack of control factors; the present research improves rigor by incorporating multiple control variables (Kibirige & Nyanzi, 2024).

Another international study by Luo and Zhang (2021) examined Chinese banks, using asset allocation measures to explore profitability outcomes. Grounded in Risk–Return Trade-off Theory, the study found that banks with assets well diversified across loans, securities, and interbank assets had significantly higher ROA than more concentrated counterparts. A limitation was the exclusive focus on large state-owned banks; the current study broadens scope to include privately owned banks in Ethiopia (Luo & Zhang, 2021).

Finally, Das and Ghosh (2023) investigated asset diversification and its effect on ROA for commercial banks in India. Employing advanced panel GMM techniques and Herfindahl indices for asset portfolios, the study reported mixed results: diversification improved ROA for mid-tier banks but reduced performance for small banks, emphasizing that diversification effects vary by bank size.

Empirically, the literature on asset diversification and financial performance demonstrates that diversified asset portfolios can improve ROA in many contexts, but the effects vary by institutional environment, regulatory framework, bank size, and market conditions. International evidence from developed and emerging economies suggests positive associations under certain conditions but also highlights that diversification benefits are not universal. Ethiopian evidence similarly indicates mixed results, often limited by outdated data and lack of methodological controls. The current study addresses these empirical limitations by using more recent panel data covering 2015–2024, employing robust econometric methods, and incorporating key control variables to isolate the effect of asset diversification on financial performance in the context of private commercial banks in Ethiopia.

2.3.3 Loan Diversification and Financial Performance

Loan portfolio diversification has been widely investigated in empirical banking research as a mechanism for reducing credit risk and enhancing profitability. Acharya, Hasan, and Saunders (2006) examined banks in 15 OECD countries to assess how loan diversification across industries influences financial performance. The objective was to determine whether spreading loans among various sectors reduces default risk and improves profitability. Anchored in Modern Portfolio Theory, the study operationalized loan portfolio diversification using a Herfindahl index of sectoral loan shares and measured performance with ROA. Dynamic panel GMM estimation revealed that diversified loan portfolios were associated with lower credit risk and higher risk-adjusted returns, although the effect

on ROA was modest. A key limitation of this study is its focus on developed markets with mature credit information systems, limiting transferability to emerging settings where credit data quality is poor. The current research addresses this by focusing on Ethiopian banks, where borrower information asymmetry and sectoral vulnerabilities are prominent and where the effectiveness of diversification may differ (Acharya, Hasan & Saunders, 2006).

In Sub-Saharan Africa, Sanya and Wolfe (2011) investigated the role of loan diversification in banking performance across several African countries, including Ghana and Kenya. The study aimed to measure how loan portfolio diversification affects profitability and risk. Using ROA as the dependent variable and diversification measured by sectoral loan dispersion indices, the study applied two-step system GMM to control for endogeneity. Results showed that loan dispersed across multiple sectors was positively related to profitability and risk reduction, especially in banks with stronger internal risk management systems. However, the limitation was aggregation of multiple countries with different institutional contexts, which may mask country-specific effects. The present study addresses this limitation by concentrating solely on Ethiopian banks (Sanya & Wolfe, 2011).

Rossi et al. (2009) conducted a detailed empirical investigation of loan portfolio diversification effects on profitability in European financial institutions. The objective was to test whether banks with more diversified credit exposures across economic sectors perform better. Utilizing panel data from 2001–2007, ROA was used for performance, and loan diversification was captured through portfolio concentration indices. The study employed fixed and random effects models. Findings indicated that diversification reduced sector-specific risk and improved profitability, though benefits were sensitive to macroeconomic cycles. A limitation was the absence of strong controls for macro variables, which may bias diversification effects.).

In Brazil, Silva and Terra (2019) examined how sectoral loan diversification affects bank profitability. They measured diversification using the concentration of loans across sectors and employed a panel of Brazilian banks (2007–2017) to estimate its effect on ROA. Guided by Risk–Return Trade-off Theory, their GMM estimations revealed that increasing diversification significantly improves ROA, particularly for larger banks with more sophisticated risk analytics. A noted limitation was the exclusion of non-credit diversification variables, which could interact with loan diversification (Silva & Terra, 2019).

Turning to Asia, Ahmed and Malik (2018) analyzed Pakistani banks to determine how loan portfolio diversification affects financial performance. The study's objective was to test the income–risk

trade-off through credit dispersion across sectors. Using ROA as the dependent variable and Herfindahl indices for loan shares, the study applied fixed effects regression on panel data from 2009–2016. Results showed that diversified loan portfolios were significantly associated with improved profitability and lower credit risk. A limitation was the lack of control for liquidity and capital adequacy, factors known to influence performance (Ahmed & Malik, 2018).

In the Ethiopian context, recent evidence on loan diversification remains limited but indicative. A study by Mekuria and Belay (2021) investigated the impact of loan portfolio quality and diversification on bank profitability using data from 2009 – 2019 for ten Ethiopian banks. Loan diversification was measured through the dispersion of loan categories, and ROA was the performance metric. Using panel fixed and random effects, the study found that better loan diversification was associated with improved ROA, especially when combined with strong credit risk management. A limitation was the omission of time-varying macroeconomic controls, which the present study addresses by incorporating broader temporal predictors.

Another Ethiopian study by Kidane and Hailu (2023) examined how sectoral loan diversification influenced profitability of private banks operating in Addis Ababa from 2010–2022. Grounded in Credit Risk Theory, diversification was measured by the share of agricultural, industrial, and service loans relative to total loans, with ROA as the performance indicator. Results indicated that diversification reduces default risk and enhances ROA, but the effect fluctuated with macroeconomic shocks such as inflation and foreign exchange volatility. The study's limitation was its failure to integrate diversification with other strategies, which the current study resolves by adopting a multidimensional diversification framework (Kidane & Hailu, 2023).

Gebremedhin (2022) analyzed the effect of loan portfolio diversification on the financial performance of commercial banks in northern Ethiopia. Using ROA as the dependent variable and concentration ratios of various loan types as measures of diversification, the study employed panel regression spanning 2010–2020. The findings revealed a positive association between diversified loan portfolios and ROA, but the effects weakened during periods of high non-performing loans. A limitation was a lack of integration with asset quality measures, which the present research incorporates as control variables (Gebremedhin, 2022).]

Further afield, a study in Kenya by Mwangi and Muturi (2020) explored loan portfolio diversification effects on profitability for eighteen commercial banks over 2010–2018. Using GMM estimation and Herfindahl measures of diversification, the study reported that diversified loan books enhanced ROA,

particularly for banks with better deposit bases. Limitations included the regional focus and exclusion of other diversification dimensions. The current study mitigates these limitations through a more comprehensive scope and multidimensional diversification analysis (Mwangi & Muturi, 2020).

A final international study by Khan and Noreen (2022) investigated loan portfolio diversification within Bangladesh's banking sector using ROA as the performance measure and advanced panel models for estimation. Drawing on Portfolio Theory and Credit Risk Theory, the research found that diversification across industrial and consumer loans reduced credit risk and improved profitability. However, the study did not include simultaneous controls for interest income diversification, which the present study addresses by integrating multiple diversification measures (Khan & Noreen, 2022).

2.3.4 Investment Diversification and Financial Performance

Investment diversification, defined as the allocation of banks' funds across various investment instruments such as government securities, corporate bonds, equities, and interbank placements, has been widely examined for its impact on profitability and risk management. Demirgüç-Kunt and Huizinga (2010) analyzed 74 countries to study how banks' investment portfolios influence financial performance, particularly ROA and ROE. Drawing on Modern Portfolio Theory, the study measured investment diversification using the Herfindahl-Hirschman index of securities holdings relative to total assets. Using dynamic panel GMM estimation, they found that moderate investment diversification is positively associated with profitability, as it allows banks to balance risk and return. However, the study's limitation lies in its broad cross-country aggregation, which may mask the effects of local institutional and regulatory factors. The current research addresses this limitation by focusing on Ethiopian private banks operating under a uniform regulatory environment (Demirgüç-Kunt & Huizinga, 2010).

In East Africa, Alhassan et al. (2019) investigated how investment diversification affects commercial bank performance in Ghana and Kenya. Investment diversification was operationalized as the proportion of liquid and non-loan assets relative to total assets, and ROA was used to measure performance. Using fixed and random effects panel regression on data from 2008–2017, they reported a positive and statistically significant effect of investment diversification on ROA, with more diversified banks exhibiting enhanced profitability. The limitation was the regional scope across countries with different financial infrastructures. This study mitigates that by focusing exclusively on Ethiopia, capturing country-specific institutional nuances (Alhassan et al., 2019).

In Latin America, Carrasco-Gallego and Trujillo-Ponce (2014) analyzed Spanish banks' investment strategies to assess how diversified securities portfolios influence financial performance. Grounded in Risk-Return Trade-off Theory, they measured investment diversification using the share of securities holdings in total assets, and ROA as the dependent variable. Panel fixed-effects regressions revealed that banks with diversified investment portfolios experienced higher profitability, particularly during periods of moderate market volatility. However, the study did not account for loan or income diversification interactions, which may confound results. The current research addresses this gap by integrating investment diversification with income, asset, and loan portfolio diversification dimensions to understand their combined effect on ROA (Carrasco-Gallego & Trujillo-Ponce, 2014).

Focusing on emerging markets, Ahmed and Malik (2018) examined Pakistani commercial banks' investment portfolio diversification and its effect on profitability. Using ROA as a performance measure and the proportion of government bonds, equities, and corporate securities to total assets as diversification indicators, the study employed system GMM estimation for panel data from 2009–2016. The results indicated that banks with a well-diversified investment portfolio achieved higher profitability and lower risk exposure. The limitation was the exclusion of macroeconomic control variables, which this current study addresses by including GDP growth, inflation, and liquidity ratios to isolate the effect of investment diversification (Ahmed & Malik, 2018).

In Ethiopia, Mekonen and Tadesse (2022) studied the effect of investment diversification on private banks' profitability over 2010–2020. Investment diversification was captured by the share of securities and non-loan investments to total assets, and ROA was the dependent variable. Using panel fixed-effects regression, the study found that investment diversification significantly enhanced profitability, though the magnitude of the effect varied with bank size and liquidity levels. A key limitation was the omission of complementary diversification dimensions such as income diversification, which the present study resolves by including all four diversification variables (Mekonen & Tadesse, 2022).

In India, Das and Ghosh (2023) analyzed commercial banks' investment diversification using panel GMM over 2012–2020. The study applied the Herfindahl index to quantify securities portfolio concentration, and ROA was used as the measure of performance. Findings showed that banks with diversified investments across different instruments achieved better ROA, supporting the notion that investment diversification stabilizes returns. Limitations included ignoring bank-specific control variables such as capital adequacy and liquidity, which the current study incorporates to isolate the effect of investment diversification (Das & Ghosh, 2023).

A comparative African study by Kibirige and Nyanzi (2024) assessed the effect of investment diversification on profitability in Uganda and Tanzania. Investment diversification was measured using the proportion of treasury bills, corporate bonds, and equity holdings in total assets, with ROA as the dependent variable. Using panel regression, results indicated a positive effect on profitability for mid-sized banks, but small banks gained minimal benefit due to limited investment capacity. The limitation was a lack of time-varying macroeconomic control; the current study addresses this with a decade-long panel including inflation and GDP growth (Kibirige & Nyanzi, 2024).

Luo and Zhang (2021) investigated Chinese banks' investment diversification strategies between 2010–2020 to understand effects on ROA and ROE. The study applied the Risk-Return Trade-off Theory, measured investment diversification by asset allocation among government bonds, corporate bonds, and equities, and employed system GMM for estimation. Findings suggested that moderately diversified investment portfolios enhanced profitability and reduced portfolio volatility, whereas highly concentrated portfolios led to lower ROA. A limitation was the focus on large state-owned banks; the present study extends this to private Ethiopian banks (Luo & Zhang, 2021).

Finally, in Nigeria, Adewale and Okonkwo (2020) explored the relationship between investment diversification and commercial bank profitability. The study measured diversification using the ratio of securities and other investments to total assets and ROA as performance. Using panel fixed-effects regression for 2010–2019, findings indicated a positive association, confirming that investment diversification reduces risk exposure and stabilizes profitability. The limitation was exclusion of loan portfolio interactions, which this research addresses by including multiple diversification dimensions simultaneously (Adewale & Okonkwo, 2020).

Overall, both international and Ethiopian studies demonstrate that investment diversification positively influences bank profitability (ROA) when implemented alongside sound risk management, adequate capital, and sufficient liquidity. Limitations in prior studies such as single-dimension focus, lack of macroeconomic controls, or exclusion of complementary diversification strategies are addressed in the current research by integrating multiple dimensions (income, asset, loan, investment), using recent data from 2015–2024, and incorporating robust controls to isolate the pure effect of investment diversification on private commercial banks' financial performance in Ethiopia.

2.4 Summary and Research Gap

The relationship between diversification and bank financial performance has received considerable attention in both developed and developing economies. Theoretically, diversification is expected to enhance financial performance by reducing income volatility, spreading risk, and improving resource utilization efficiency. However, empirical findings remain inconclusive, with evidence showing both positive and negative effects depending on the type and extent of diversification strategies employed.

In the Ethiopian context, the banking sector has experienced rapid structural transformation over the past decade, characterized by expansion in private banks, increased competition, and gradual financial sector reforms. Recent policy developments, including the move toward opening the banking sector to foreign competition, have further intensified the need for efficiency and performance improvement among domestic banks. These changes have made diversification strategies more relevant than ever, as banks attempt to remain competitive in an evolving financial landscape (Gebremichael & Gessesse, 2025).

Empirical studies conducted in Ethiopia provide mixed and sometimes contradictory evidence regarding the impact of diversification on financial performance. For instance, a study examining income diversification found that non-traditional income sources can enhance profitability, although the effect may be statistically weak or context-dependent (Getinet et al., 2025). Similarly, research on investment diversification indicates a positive and significant relationship with financial performance, suggesting that diversified investment portfolios improve bank profitability (Hailu & Tassew, 2018). In contrast, other studies reveal adverse or insignificant effects. For example, recent evidence shows that income diversification can negatively affect return on assets, indicating that diversification into non-core activities may introduce inefficiencies and risk (Kebede, 2023). Likewise, studies on loan portfolio diversification report mixed outcomes, with some findings indicating positive effects through risk reduction, while others highlight negative impacts due to poor allocation efficiency (Nedessa, 2024; Ayele, 2025).

Despite this growing body of literature, several critical limitations remain unresolved. First, most Ethiopian studies focus on a single dimension of diversification, such as income or loan diversification, without providing a comprehensive, multidimensional analysis that simultaneously captures different diversification strategies. This fragmented approach limits the ability to understand the combined and comparative effects of diversification on bank performance.

Second, prior studies often rely on relatively short and outdated time frames. For example, earlier research typically covers periods such as 2012–2016 or 2017–2022, which may not adequately reflect the recent structural and regulatory changes in the Ethiopian banking sector (Nedessa, 2024; Kassa, 2018). Consequently, these studies fail to capture the dynamic nature of diversification strategies under current economic conditions, including post-reform financial liberalization and increased competition.

Third, existing literature tends to overlook the practical performance challenges faced by private commercial banks. While many studies confirm statistical relationships between diversification and performance, they do not sufficiently explain why some banks continue to experience declining or unstable profitability despite adopting diversification strategies. Recent evidence indicates that key profitability drivers such as asset quality, liquidity, and operational efficiency remain critical, suggesting that diversification alone may not guarantee improved performance (Hussein Abdulkadir Roba1, 2024). This highlights a gap between theoretical expectations and real-world banking practices.

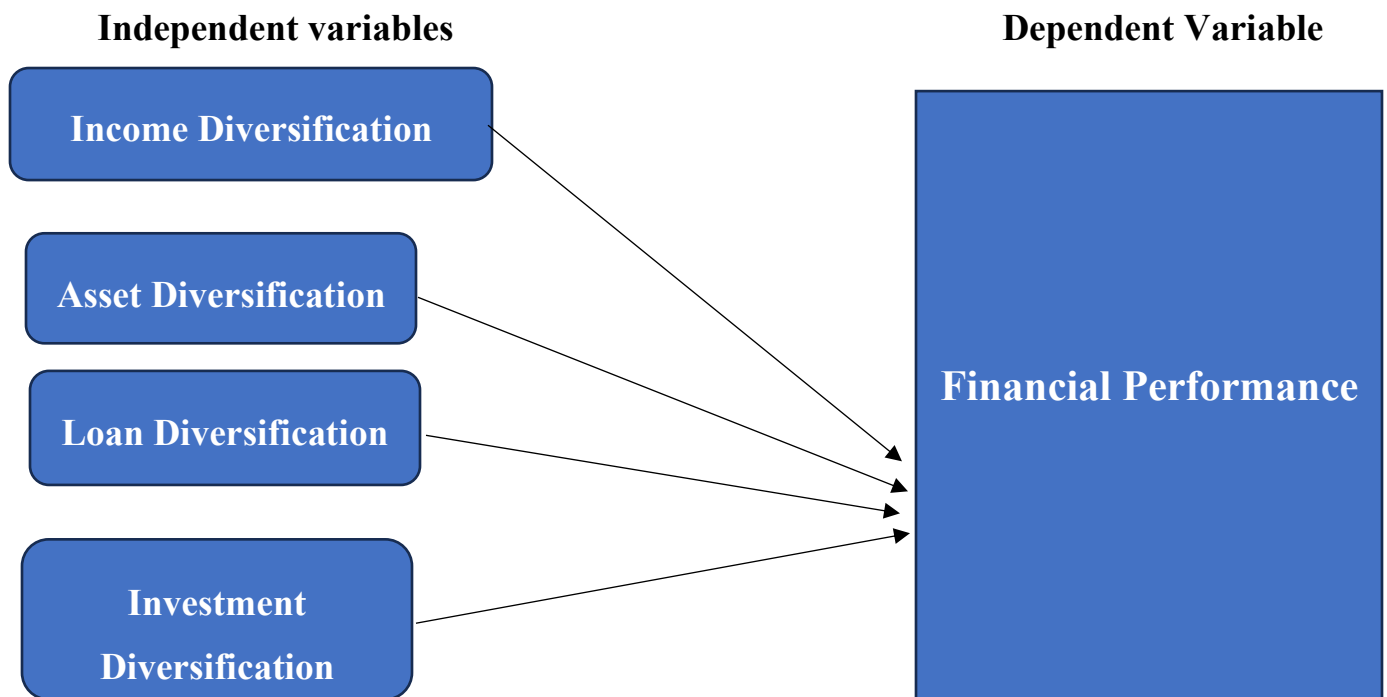
Fourth, although the literature reports mixed findings, it does not adequately explain the sources of these inconsistencies. Differences in measurement approaches, model specifications, and sample selection contribute to conflicting results, yet few studies attempt to reconcile these variations through a unified analytical framework.

In light of these limitations, there is a clear need for a more comprehensive and updated empirical investigation. This study aims to address these gaps by examining multiple dimensions of diversification, namely income, asset, loan portfolio, and investment diversification, and their effect on financial performance using recent panel data covering the period from 2014/15 to 2024/25. By doing so, the study provides a more holistic and contemporary understanding of how diversification strategies influence the financial performance of private commercial banks in Ethiopia.

2.5 Conceptual Framework

The conceptual framework of this study illustrates the relationship between diversification and financial performance. In this study, financial performance, measured by Return on Assets, is considered the dependent variable. The independent variables include income diversification, asset diversification, loan portfolio diversification, and investment diversification.

Figure 2.1 Conceptual framework



Source: Adapted from (Markowitz, 1952)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Approach

This study adopts a quantitative research approach to examine the effect of diversification strategies on the financial performance of private commercial banks in Ethiopia. A quantitative approach is appropriate because the study seeks to measure relationships among variables that can be quantified, specifically the impact of income, asset, loan portfolio, and investment diversifications on Return on Assets (ROA). This approach allows for the application of statistical and econometric techniques to analyze patterns, test hypotheses, and draw generalizable conclusions (Creswell, 2014).

The quantitative approach is particularly suitable for this study for several reasons. First, it enables the use of secondary financial data obtained from bank audited annual reports, regulatory filings, and other credible financial databases, which ensures objectivity and reliability. Second, it allows for longitudinal panel analysis, capturing the behavior of private commercial banks over a ten-year period (2015–2024). This temporal dimension is crucial for understanding how diversification strategies affect financial performance over time and under varying economic conditions. Third, the approach supports hypothesis testing and the estimation of causal relationships between diversification dimensions and ROA.

3.2 Research Design

This study adopts a mixed quantitative research design incorporating both descriptive and explanatory research designs to examine the effect of diversification strategies on the financial performance of private commercial banks in Ethiopia. The combined design allows for a comprehensive understanding of the phenomenon by not only describing the characteristics of diversification and performance but also explaining the causal relationships between them.

The descriptive research design component is employed to provide a systematic overview of the current state of diversification strategies and financial performance in the private commercial banks. It captures patterns, trends, and variations in income, asset, loan portfolio, and investment diversification over a ten-year period (2015–2024). Descriptive statistics, including mean, standard deviation, maximum and minimum summarize the performance of banks, enabling a clear understanding of how diversification practices have evolved over time. This component is essential to

contextualize the study, establish baseline evidence, and highlight areas where banks are underperforming or over performing relative to their peers.

The explanatory research design is employed to examine the causal relationship between diversification strategies (independent variables) and financial performance (dependent variable, measured by ROA). This design allows for hypothesis testing to determine the significance, direction, and magnitude of the effect of each diversification dimension on ROA. Explanatory research design is critical for identifying which diversification strategies meaningfully enhance performance and providing actionable insights for bank management.

Combining descriptive and explanatory designs strengthens the study by ensuring both breadth and depth. While descriptive analysis provides a comprehensive understanding of patterns and movements in diversification and performance, explanatory analysis identifies causal linkages and tests theoretical assumptions derived from portfolio theory, risk-return trade-off theory, and credit risk theory. This dual approach enhances the rigor, validity, and practical relevance of the research findings.

In summary, the study's mixed research design ensures a thorough investigation of both the status and effect of diversification on financial performance in Ethiopian private commercial banks.

3.3 Total Population

The population is the study of the entire universe of people, events, or things of interest that the researcher desires to investigate that can be recognized by at least one common attribute (Greener, 2008) for the purpose of data collection and analysis. The study's target population would be all private commercial banks operating in Ethiopia.

According to the NBE's report in 2024/2025, there are Thirty private commercial banks operating in Ethiopia as shown in the table below.

Table 3.1 List of Private Commercial Banks in Ethiopia

No	Bank Name	Year Established	Type
1	Awash Bank	1994	Private
2	Dashen Bank	1995	Private
3	Bank of Abyssinia	1996	Private
4	Wegagen Bank	1997	Private
5	Hibret Bank (United Bank)	1998	Private
6	Nib International Bank	1999	Private
7	Cooperative Bank of Oromia	2004	Private
8	Lion International Bank	2006	Private
9	Oromia International Bank	2008	Private

10	Zemen Bank	2008	Private
11	Bunna International Bank	2009	Private
12	Berhan International Bank	2009	Private
13	Abay Bank	2010	Private
14	Addis International Bank	2011	Private
15	Global Bank Ethiopia (Debab Global Bank)	2012	Private
16	Enat Bank	2012	Private
17	ZamZam Bank	2021	Private (Full-fledged Interest-Free)
18	Hijra Bank	2021	Private (Full-fledged Interest-Free)
19	Siinqee Bank	2021	Private
20	Goh Betoeh Bank	2021	Private
21	Shabelle Bank	2021	Private
22	Amhara Bank	2022	Private
23	Ahadu Bank	2022	Private
24	Tsedey Bank	2022	Private
25	Gadaa Bank	2022	Private
26	Tsehay Bank	2022	Private
27	Rammis Bank	2022	Private (Full-fledged Interest-Free)
28	Sidama Bank	2022	Private
29	Omo Bank	2022	Private
30	Siket Bank	2023	Private

Source: (NBE, 2026)

3.4 Sample Size and Sampling Technique

According to (Creswell, 2014) there are two sampling techniques; the probability as well as non-probability sampling technique. Probability sampling, ‘random selection’, gives equal chance of selection to all population to be included in a sample. Whereas non-probability is non-random selection of samples. Based on the discussion, the study exercise non-probability sample, specifically purposive sampling technique. So, from the total population of Private commercial banks operating in Ethiopia, the researcher purposively selects ten private commercial banks that have started operation on and before 2014/15 and have audited financial statements for the consecutive ten years data. Ten sampled banks out of Thirty Private commercial banks operating in Ethiopia prior to and at 2014/15 G.C are selected. These banks are, Awash Bank, Dashen Bank, Bank of Abyssinia, Wogagen Bank, Hibret Bank, Nib International Bank, Cooperative Bank of Oromia, Zemen Bank, Bunna International Bank, Berhan Int. Bank.

Table 3.2 Selected private commercial banks

Bank Name	Year of Establishment	Code
Awash Bank	1994	1
Dashen Bank	1995	2
Bank of Abyssinia	1996	3
Wegagen Bank	1997	4
Hibret Bank (United Bank)	1998	5
Nib International Bank	1999	6
Cooperative Bank of Oromia	2004	7
Zemen Bank	2008	8
Bunna International Bank	2009	9
Berhan International Bank	2009	10

3.5 Data Type & Source

This study employs secondary quantitative data to examine the effect of diversification on the financial performance of private commercial banks in Ethiopia. The use of secondary data is appropriate for this study because the required financial information is systematically recorded in audited annual reports, official financial statements, and regulatory publications. This approach enables the researcher to obtain consistent and comparable financial indicators and supports a reliable longitudinal analysis over the study period from 2015 to 2024. In addition, the use of secondary data improves objectivity and reduces the likelihood of measurement errors that may arise from primary data collection.

The dependent variable of the study is financial performance, which is measured using Return on Assets (ROA). ROA is widely used in banking literature as a profitability indicator that shows how efficiently banks utilize their total assets to generate earnings. It provides a clear measure of managerial efficiency in resource utilization and it eliminates the capital structure biases and captures all income sources. Data on ROA were obtained from audited annual reports of the selected private commercial banks and official publications of the National Bank of Ethiopia.

The independent variables of the study include income diversification, asset diversification, loan portfolio diversification, and investment diversification. These variables were constructed from financial statement items and disclosures reported in the annual reports of the selected banks. Each diversification measure was derived based on consistently available financial information across the study period to ensure comparability and reliability of the analysis.

Overall, the study constructed a balanced panel dataset comprising ten private commercial banks over ten consecutive years. This structure provides adequate observations for panel econometric analysis and supports robust estimation of the relationship between diversification and financial performance.

The use of audited and officially verified financial data enhances the reliability of the study and strengthens the validity of the empirical results.

3.6 Data Analysis Techniques

The data for this study were analyzed using both descriptive statistics and inferential econometric techniques to examine the effect of diversification on the financial performance of private commercial banks in Ethiopia. The analysis was conducted using STATA version 16.

Descriptive statistical analysis was first employed to summarize the main characteristics of the data set. Measures such as mean, minimum, maximum, and standard deviation were used to describe the distribution and variation of the variables. This stage provided an overall picture of the behavior of the variables over the study period from 2015 to 2024 and helped to observe trends and variability across banks and time.

Following this, correlation analysis was carried out to examine the direction and strength of the relationship between the study variables. This analysis also assisted in identifying possible multicollinearity problems among the explanatory variables before running the regression model.

To estimate the effect of diversification on financial performance, panel data regression analysis was applied. This approach is appropriate since the data consist of both cross sectional and time series dimensions. The study estimated pooled Ordinary Least Squares, fixed effects, and random effects models. The Hausman specification test was used to select the appropriate model by determining whether the unobserved individual effects are correlated with the explanatory variables.

Several diagnostic tests were also conducted to ensure the reliability and validity of the regression results. These include the Variance Inflation Factor test for multicollinearity, the Breusch Pagan test for heteroskedasticity, the Wooldridge test for autocorrelation in panel data, and the test for normality of residuals. When necessary, robust standard errors were applied to correct for heteroskedasticity and autocorrelation to ensure reliable statistical inference.

Overall, the combination of descriptive and econometric techniques enabled the study to clearly describe the characteristics of the data and to empirically estimate the relationship between diversification strategies and financial performance in a rigorous and reliable manner consistent with the objectives of the study.

3.7 Model Specification and Variables Measurement

3.7.1 Model Specification

To examine the effect of diversification on the financial performance of private commercial banks in Ethiopia, this study employs a panel data regression model. Panel data is appropriate because it combines both cross-sectional (banks) and time-series (years) observations, enabling the analysis to control for unobserved heterogeneity and improve estimation efficiency.

The econometric model is specified as follows:

$$ROA_{it} = \beta_0 + \beta_1 ID_{it} + \beta_2 AD_{it} + \beta_3 LD_{it} + \beta_4 INVD_{it} + \epsilon_{it}$$

Where:

- **ROA** = Financial performance (dependent variable)
- **ID** = Income diversification
- **AD** = Asset diversification
- **LD** = Loan portfolio diversification
- **INVD** = Investment diversification
- **β_0** = Constant term
- **β_1 – β_4** = Coefficients of explanatory variables
- **ϵ_{it}** = Error term

The study estimates Pooled Ordinary Least Squares (OLS), Fixed Effects (FE), and Random Effects (RE) models. The appropriate model was selected using the Hausman specification test, which determines whether individual effects are correlated with the regressors. The Fixed Effects model is preferred if such correlation exists, while the Random Effects model is chosen otherwise.

Based on theoretical foundations such as Modern Portfolio Theory and the Risk–Return Trade-off Theory, diversification is expected to have a positive effect on financial performance. However, excessive or poorly managed diversification may produce diminishing or negative returns due to increased complexity and inefficiency.

3.7.2 Variables Measurement

This study includes one dependent variable and four independent variables. All variables are measured using standard financial ratios widely applied in banking literature.

Dependent Variable

Financial Performance (ROA)

Financial performance is measured using Return on Assets, which indicates how efficiently a bank utilizes its assets to generate profit.

$$ROA = \frac{\text{net income}}{\text{total asset}}$$

Return on Assets (ROA) is widely preferred as a measure of financial performance in banking research because it provides a comprehensive and reliable indicator of how efficiently a bank utilizes its total assets to generate profit and it is not affected by capital structure. Unlike other profitability measures, ROA captures the effectiveness of management in deploying all available resources, making it particularly suitable for studies examining strategic decisions such as diversification (Demirgüç-Kunt & Huizinga, 2010).

One of the primary reasons for selecting ROA is that it is not significantly influenced by differences in capital structure. Banks often vary in their levels of leverage, which can distort profitability measures such as Return on Equity (ROE). ROA, by focusing on total assets rather than equity, provides a more consistent and comparable measure of performance across banks of different sizes and capital compositions (Berger & Bouwman, 2013). This is especially important in the Ethiopian banking sector, where variations in capitalization levels are common among private commercial banks.

Furthermore, ROA is considered a superior indicator of operational efficiency. It reflects how well bank management converts assets, including loans, investments, and other financial resources, into net earnings. Since this study examines diversification strategies related to income, assets, loans, and investments, ROA directly aligns with the objective of evaluating how effectively these diversified activities contribute to overall profitability.

Another important justification is that ROA is widely used in empirical banking literature, allowing for comparability with previous studies at both international and local levels. Many prior studies on

diversification and bank performance adopt ROA as the primary dependent variable, which strengthens the external validity and academic acceptability of the research findings.

Independent Variables

1 Income Diversification (ID)

Income diversification measures the extent to which banks generate revenue from non-interest sources.

$$ID = \frac{\text{Non Interest income}}{\text{Total Operating Income}}$$

2. Asset Diversification (AD)

Asset diversification captures how banks distribute their assets across different categories. It is measured using the inverse Herfindahl-Hirschman Index (HHI):

$$AD = 1 - \sum (\text{Share of each asset category})^2$$

3. Loan Portfolio Diversification (LD)

Loan diversification measures the dispersion of loans across different sectors.

$$LD = 1 - \sum (\text{Loan Shares by Sector})^2$$

4. Investment Diversification (INVD)

Investment diversification reflects the distribution of bank investments across different financial instruments such as government securities, treasury bills and corporate bonds.

$$INVD = 1 - \sum (\text{Shares of each financial Instruments})^2$$

3.8 Ethical Considerations

Ethical considerations are an essential part of ensuring the credibility, integrity, and academic acceptability of this study. Throughout the research process, careful attention was given to ethical standards in relation to data collection, analysis, interpretation, and reporting.

The study is based entirely on secondary data obtained from publicly available and officially authorized sources. These include audited annual financial statements of private commercial banks and publications from regulatory institutions such as the National Bank of Ethiopia. Since the study

does not involve human respondents, issues related to informed consent, confidentiality of individuals, and personal privacy do not arise. Nevertheless, due recognition is given to all data sources to ensure academic integrity and to avoid any form of plagiarism.

Accuracy and integrity of data were strictly maintained throughout the study. Financial information extracted from annual reports was carefully checked, verified, and recorded without alteration or manipulation. The analysis was conducted using appropriate statistical techniques, and the results were reported in a transparent manner. The findings are presented as they emerged from the data, regardless of whether they support or contradict the research hypotheses.

Although the data used are publicly available, responsible use of information was maintained at all stages of the research. The financial data of the selected banks were used solely for academic purposes. Care was taken to avoid misinterpretation, selective reporting, or any presentation of results that could unfairly misrepresent the financial position of the institutions included in the study.

Proper citation and acknowledgment of all sources were also strictly observed. All theoretical and empirical works used in the study were referenced in accordance with accepted academic standards. This practice ensures that original authors are properly credited and that the study maintains scholarly transparency and reliability.

Finally, objectivity was maintained throughout the research process. Personal bias was minimized in both data analysis and interpretation of results. All methodological procedures, limitations, and analytical decisions were clearly documented to ensure transparency. Any constraints encountered during the study were openly acknowledged to support a balanced and honest presentation of the findings.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, AND DISCUSSION

In this chapter, descriptive statistics, correlation analysis and OLS, fixed effect model (FE), differenced fixed effect (1 ST Diff) and random effect model (RE) were employed to measure the question under the study. The first section deals with the descriptive statistics and summarizes the main features of the study variables in terms of mean, maximum, minimum and standard deviation. The second section deals with the correlation analysis and shows the direction and degree of association between the studied variables. The third section of this chapter deals with the empirical results of OLS, fixed effect model (FE), and random effect model (RE) to measure the question under the study.

4.1 Descriptive Statistics

Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Minimum	Maximum
ROA	100	0.0625559	0.0061114	0.0474982	0.0726604
ID	100	0.3236587	0.0595915	0.1943702	0.4285352
AD	100	0.3496985	0.526252	0.2533056	0.4380735
LD	100	0.4327118	0.497662	0.3492935	0.5708712
INVD	100	0.1262813	.0415375	0.0676875	0.1991541

Source: (STATA Computation-2026)

In order to measure the financial performance of private commercial banks, return on Assets (ROA) was employed as a proxy variable in this study. ROA is computed as the ratio of net income to total assets and is widely used to assess the overall efficiency of bank management in utilizing available resources to generate earnings. It provides a comprehensive indication of how effectively a bank converts its asset base into profit.

According to the descriptive statistics presented in Table 4.1, the mean value of ROA for the sampled banks is 0.0626, indicating that, on average, Ethiopian private commercial banks generate approximately 6.26 percent return on their total assets. This suggests a relatively sound level of profitability within the sector. The maximum and minimum values of ROA are 0.0727 and 0.0475, respectively, implying that the variation in profitability across banks and over time is relatively limited. Furthermore, the standard deviation of 0.0061 indicates low dispersion around the mean or average, suggesting that most banks operate within a narrow profitability range. This stability in ROA reflects consistency in managerial efficiency and operational performance among the sampled banks.

Income diversification, measured as the proportion of non-interest income to total income, is one of the key explanatory variables in this study. The mean value of income diversification (ID) is 0.3237, which indicates that, on average, approximately 32.37 percent of total sampled banks income is derived from non-interest income sources. This suggests that while Ethiopian private commercial banks still rely primarily on traditional interest-based activities, there is a growing contribution from diversified income streams. The minimum and maximum values, 0.1944 and 0.4285, respectively, reveal that some banks remain highly dependent on interest income, whereas others have made notable progress in expanding non-interest income activities. The standard deviation of 0.0596 shows moderate variation in income diversification strategies among banks.

Asset diversification (AD), which reflects the distribution of bank assets across different categories, has a mean value of 0.3497, indicating a moderate level of diversification in asset allocation. The standard deviation of 0.0526 suggests relatively small variation among banks, implying that asset structures are somewhat similar across the sample. The observed minimum (0.2533) and maximum (0.4381) values indicate that although banks differ in their asset allocation strategies, the degree of variation is not substantial.

Loan portfolio diversification (LD) exhibits a mean value of 0.4327, which is comparatively higher than other diversification measures. This indicates that banks tend to diversify their lending activities across different sectors to a greater extent. The standard deviation of 0.0498 reflects moderate variability, suggesting differences in how banks manage sectoral credit allocation. The minimum and maximum values, 0.3493 and 0.5709, respectively, imply that some banks maintain relatively concentrated loan portfolios, while others pursue broader diversification strategies.

Investment diversification (INVD) shows a mean value of 0.1263, indicating that a relatively smaller proportion of bank assets is allocated to diversified investment activities. This suggests that Ethiopian private commercial banks place less emphasis on investment-based diversification compared to lending and income diversification. The standard deviation of 0.0415 indicates moderate variation across banks, while the minimum (0.0677) and maximum (0.1992) values suggest that investment activities are unevenly distributed among the sampled institutions.

Overall, the descriptive statistics reveal that private commercial banks in Ethiopia exhibit moderate diversification across income, assets, and loan portfolios, while investment diversification remains comparatively low. The relatively low standard deviations across variables indicate stability and consistency in banking practices, which enhances the reliability of the dataset for further econometric

analysis. Moreover, the stable nature of ROA suggests that diversification strategies may play a meaningful role in sustaining financial performance within the sector.

4.2 Correlation Analysis

Table 4.2 Correlation Analysis

Variable	ROA	ID	AD	LD	INVD
ROA	1.0000				
ID	0.5618	1.0000			
AD	-0.1923	0.0307	1.0000		
LD	-0.1087	0.3917	0.5444	1.0000	
INVD	0.6254	0.1848	-0.2804	0.0100	1.0000

Source: (STATA Computation-2026)

The correlation analysis was conducted to examine the degree and direction of association among the study variables, as well as to assess the potential presence of multicollinearity prior to regression estimation. The results are presented in Table 4.2.

The findings indicate that income diversification (ID) has a moderate positive relationship with financial performance, as measured by Return on Assets (ROA), with a correlation coefficient of 0.5618. This suggests that banks generating a higher proportion of income from non-interest sources tend to exhibit better profitability. The positive association implies that diversification of income streams may enhance revenue stability and improve overall financial performance.

Similarly, investment diversification (INVD) shows a strong positive correlation with ROA, with a coefficient of 0.6254. This indicates that banks allocating a greater portion of their resources to diversified investment activities tend to achieve higher returns on assets. The relatively stronger magnitude of this relationship suggests that investment diversification may play a more prominent role in influencing profitability compared to other forms of diversification.

In contrast, asset diversification (AD) is found to have a weak negative relationship with ROA, as indicated by a correlation coefficient of -0.1923 . This suggests that increasing diversification across asset categories does not necessarily translate into improved financial performance and may, in some cases, be associated with reduced profitability. This could be attributed to increased operational complexity or inefficient allocation of resources.

Likewise, loan portfolio diversification (LD) exhibits a weak negative association with ROA, with a correlation coefficient of -0.1087 . This indicates that greater diversification in lending activities does

not strongly contribute to profitability and may reflect challenges in managing diversified loan portfolios effectively.

The interrelationships among the independent variables also provide important insights. Notably, loan portfolio diversification (LD) and asset diversification (AD) show a moderate positive correlation (0.5444), suggesting that banks that diversify their loan portfolios also tend to diversify their asset structures. Additionally, income diversification (ID) is moderately correlated with loan diversification (0.3917), indicating that banks expanding into non-interest income activities may also adopt broader lending strategies.

Importantly, none of the correlation coefficients among the independent variables exceed the commonly accepted threshold of 0.8, indicating that there is no serious multicollinearity problem in the model. This confirms that the variables can be included simultaneously in the regression analysis without significantly distorting the estimation results.

Overall, the correlation analysis suggests that while income and investment diversification are positively associated with financial performance, asset and loan diversification show weak negative relationships, highlighting the need for further investigation using regression analysis to establish causal effects.

4.3 Classical Multiple Linear Regression Assumptions

4.3.1 Normality Test

Table 4.3 skewness and Kurtosis

Variable	Obs	Skewness	Kurtosis	adj chi2	Joint Prob > chi ²
ROA	100	0.0064	0.5661	7.10	0.0287
ID	100	0.0371	0.0298	8.09	0.0175
AD	100	0.2935	0.0000	34.30	0.0000
LD	100	0.0021	0.3620	8.99	0.0112
INVD	100	0.0660	0.0000	.	0.0000

Source: (STATA Computation-2026)

To assess whether the variables follow a normal distribution, the Skewness/Kurtosis test for normality was employed. This test evaluates the null hypothesis that a variable is normally distributed based on both skewness and kurtosis measures.

The results presented in Table 4.3 indicate that the joint probability values ($\text{Prob} > \chi^2$) for most variables are less than 0.05, suggesting that the null hypothesis of normal distribution is rejected for several variables. Specifically, ROA ($p = 0.0287$), income diversification (ID) ($p = 0.0175$), asset diversification (AD) ($p = 0.0000$), loan diversification (LD) ($p = 0.0112$), and investment diversification (INVD) ($p = 0.0000$) exhibit evidence of non-normality.

These results imply that the distribution of the variables deviates from normality, which may be attributed to the nature of financial data, where values are often bounded ratios and may exhibit skewness due to structural differences among banks.

However, the violation of the normality assumption is not considered a serious problem in this study. This is because panel data analysis, particularly with a sample size of 100 observations, is generally healthy to non-normality due to the Central Limit Theorem, which ensures that the sampling distribution of the estimators approaches normality as the sample size increases. Furthermore, the use of strong standard errors in the regression estimation helps to mitigate potential issues arising from non-normality and ensures reliable statistical inference.

4.3.2 Multicollinearity Test

Table 4.4 Multicollinearity

Variable	VIF	1/VIF
ID	1.79	0.557389
AD	1.65	0.607037
LD	1.28	0.783788
INVD	1.14	0.875224
Mean VIF	1.46	

Source: (STATA Computation-2026)

Multicollinearity refers to a situation in which independent variables are highly correlated with one another, potentially distorting coefficient estimates and reducing the reliability of the regression results. To ensure the validity of the model, this study employed both correlation analysis and the Variance Inflation Factor (VIF) to detect the presence of multicollinearity.

The correlation matrix results presented in the previous section indicate that none of the pairwise correlation coefficients among the explanatory variables exceed the commonly accepted threshold of 0.8. This suggests that there is no strong linear association among the independent variables.

To further verify this, the Variance Inflation Factor (VIF) was computed in Table 4.4. The results show that the VIF values for all variables are relatively low, with loan diversification (LD) = 1.79, asset diversification (AD) = 1.65, income diversification (ID) = 1.28, and investment diversification (INVD) = 1.14, while the mean VIF is 1.46. These values are significantly below the critical threshold of 10, indicating that multicollinearity is not a concern in the model.

4.3.3 Heteroskedasticity Test

Table 4.5 Breusch–Pagan

Chi2	4.07
Prob>chi2	0.0436

Source: (STATA Computation-2026)

Heteroskedasticity refers to a condition in which the variance of the error term is not constant across observations. This violates one of the key assumptions of the classical linear regression model of homoskedasticity and may lead to inefficient estimates and biased standard errors, thereby affecting the reliability of statistical inference.

To detect the presence of heteroskedasticity, the Breusch–Pagan / Cook–Weisberg test was employed. The null hypothesis of the test states that the variance of the error terms is constant (homoskedasticity).

The test results presented in Table 4.5 show that the chi-square value is 4.07 with a corresponding probability value of 0.0436. Since the p-value is less than 0.05, the null hypothesis of constant variance is rejected. This indicates the presence of heteroskedasticity in the model.

Given this result, the study addresses the problem by employing robust standard errors in the regression estimation. This correction ensures that the estimated standard errors are consistent and that the statistical inferences drawn from the model remain valid despite the presence of heteroskedasticity.

4.3.4 Autocorrelation Test

Null Hypothesis (H0): No first-order autocorrelation.

If $P < 0.05$: You have autocorrelation.

Table 4.6 Wooldridge test

F-statistic	2.391
Prob>F	0.1564

Source: (STATA Computation-2026)

Autocorrelation refers to the correlation of error terms across time periods, which is common in panel data settings. The presence of serial correlation violates the classical linear regression assumption of independent errors and may lead to inefficient estimates and biased standard errors.

To test for autocorrelation, the Wooldridge test for first-order serial correlation in panel data was employed. The null hypothesis of the test states that there is no first-order autocorrelation.

The results in table 4.6 indicate an F-statistic of 2.391 with a corresponding probability value of 0.1564. Since the p-value is greater than 0.05, the null hypothesis cannot be rejected. This implies that there is no evidence of first-order autocorrelation in the model.

4.3.5 Stationary Test

Table 4.7 Stationary Test

Variable	Adjusted t-statistic	P-value	Decision
ROA	-7.3935	0.0000	Stationary at Level
ID	-7.4012	0.0000	Stationary at Level
AD	-5.5869	0.0000	Stationary at Level
LD	-2.7848	0.0027	Stationary at Level
INVD	-5.4913	0.0000	Stationary at Level

Source: (STATA Computation-2026)

To ensure the validity of the regression analysis, it is important to test whether the panel data series are stationary. Non-stationary data may lead to spurious regression results and unreliable statistical inference. In this study, the Levin–Lin–Chu (LLC) panel unit root test was employed to examine the stationarity of the variables.

The LLC test examines the null hypothesis that the panels contain a unit root (non-stationary), against the alternative hypothesis that the panels are stationary.

The results for Return on Assets (ROA) show an adjusted t-statistic of -7.3935 with a p-value of 0.0000 , indicating strong rejection of the null hypothesis. This confirms that ROA is stationary at level form. Similarly, the results for income diversification (ID) reveal an adjusted t-statistic of -7.4012 with a p-value of 0.0000 , indicating that the variable is also stationary. Furthermore, asset diversification (AD) shows an adjusted t-statistic of -5.5869 with a p-value of 0.0000 , confirming that it is stationary as well.

Overall the results from the Levin–Lin–Chu test indicate that all examined variables are stationary at level, as their respective p-values are statistically significant at the 1% level. This implies that the null hypothesis of unit root is rejected for all variables.

4.3.6 Model Selection Test (Hausman Test)

Table 4.8 Hausman Test

Chi2(4)	4.43
Prob>F	0.3507

Source: (STATA Computation-2026)

To determine the appropriate panel data estimation technique, the Hausman specification test was conducted to choose between the fixed effects and random effects models. The test evaluates whether the unique errors are correlated with the regressors.

The null hypothesis of the Hausman test states that the random effects model is appropriate (i.e., there is no systematic difference between fixed and random effects estimates), while the alternative hypothesis favors the fixed effects model.

The results in table 4.6 show a chi-square value of 4.43 with a corresponding probability value of 0.3507 . Since the p-value is greater than 0.05 , the null hypothesis cannot be rejected. This indicates that there is no systematic difference between the fixed and random effects estimators.

Based on this result, the random effects model is considered more appropriate for this study, as it provides efficient and consistent estimates.

This implies that the unobserved individual-specific effects are not correlated with the explanatory variables, and therefore, the random effects model is suitable for analyzing the relationship between diversification and financial performance.

Accordingly, the study employs the random effects regression model for further analysis and interpretation of results.

4.3.7 Sargan–Hansen Test (Test of Overidentifying Restrictions)

Table 4.9 Sargan–Hansen Test

Chi-sq(4)	4.297
P-value	0.3673

Source: (STATA Computation-2026)

To further validate the selection between the fixed effects and random effects models, the Sargan–Hansen test of over identifying restrictions was employed. This test serves as a robust alternative to the Hausman test, particularly in the presence of heteroskedasticity, and evaluates whether the random effects estimator is consistent.

The null hypothesis of the test states that the random effects model is appropriate, implying that the individual-specific effects are not correlated with the explanatory variables.

The test results in table 4.9 indicate a chi-square value of 4.297 with 4 degrees of freedom and a corresponding probability value of 0.3673. Since the p-value is greater than 0.05, the null hypothesis cannot be rejected. This suggests that the random effects model is both consistent and efficient.

The result confirms that there is no systematic difference between the fixed effects and random effects estimators. This implies that the assumption underlying the random effects model that unobserved individual effects are uncorrelated with the regressors holds in this study.

Therefore, consistent with the Hausman test results, the Sargan–Hansen test further supports the use of the random effects model for analyzing the effect of diversification on the financial performance of private commercial banks in Ethiopia.

4.4 Regression Results

Table 4.10 Random-effects GLS regression

R squared Valu		WaldChi2(4)	1821.97
Within	0.7289507		
Between	0.5712	Prob Value	0.0000
Overall	0.5839		

Source: (STATA Computation-2026)

The empirical relationship between diversification dimensions and financial performance was estimated using a Random Effects model, and the results are presented in Table 4.10. The choice of the random effects model is supported by both the Hausman and Sargan–Hansen tests, which confirmed that the estimator is consistent and efficient.

The overall R squared is 0.5839, while the within R squared is 0.7289 and the between R squared is 0.5712. The overall R squared is 0.5839 which implies that approximately 58.39 percent of the variation in financial performance is explained by the included explanatory variables, indicating a strong explanatory power of the model.

The within R squared is 0.7289 which implies that approximately 72.89 percent of the variation in financial performance over time with in specific bank is explained by the included explanatory variables, indicating a strong explanatory power of the model.

The between R squared is 0.5712 which implies that approximately 57.12 percent of the variation in financial performance between the banks are explained by the included explanatory variables, indicating a strong explanatory power of the model.

This suggests that diversification strategies play a substantial role in shaping the financial performance of private commercial banks in Ethiopia. In addition, the Wald chi-square statistic (1821.97, $p < 0.01$) confirms that the model is jointly significant, implying that the independent variables collectively have a meaningful impact on ROA.

The reliability of the estimates is further strengthened by the use of cluster-robust standard errors, which correct for heteroskedasticity and within-panel correlation. This ensures that the reported coefficients and significance levels are statistically valid and strong.

4.4.1 Income Diversification and Financial Performance (ROA)

H1: Income diversification has significant and positive effect on the financial performance of private commercial banks in Ethiopia.

The regression results show that income diversification has a positive and statistically significant effect on financial performance, measured by return on assets ($\beta = 0.0769$, $p < 0.01$). On this basis, the null hypothesis is rejected in favor of the alternative. The result indicates that a higher share of non-interest income is associated with improved profitability among Ethiopian private commercial banks.

In practical terms, the finding suggests that banks that extend their activities beyond traditional lending into fee-based services, commissions, digital banking, and foreign exchange operations are better able to strengthen their earnings position. Diversifying revenue streams reduces reliance on interest income, which is often vulnerable to changes in interest rates and credit market conditions. By broadening their income base, banks are able to smooth fluctuations in earnings and maintain more stable performance over time.

From an operational perspective, non-interest income activities often require relatively lower capital commitments compared to loan-based activities. Revenue generated from service charges, transaction fees, and digital platforms does not necessarily involve a proportional expansion of total assets. This allows banks to improve their return on assets by increasing income while maintaining efficient asset utilization. In this sense, income diversification contributes not only to revenue growth but also to improved efficiency in the use of existing resources.

The result also reflects the ongoing structural transformation within the Ethiopian banking sector. As financial services become increasingly technology driven, banks that adopt innovative service delivery channels and expand their product offerings are better positioned to capture emerging market opportunities. The growing role of electronic banking, mobile transactions, and other digital services provides additional avenues for generating income and strengthening competitiveness. Banks that successfully integrate these services into their operations are more likely to achieve sustained improvements in financial performance.

The finding is consistent with the theoretical predictions of Modern Portfolio Theory, which suggests that combining different income generating activities can reduce overall risk and improve returns. By relying on multiple revenue sources, banks can mitigate the adverse effects of shocks that may affect any single line of business. This enhances income stability and contributes to better risk adjusted performance. The result is also in line with the efficiency hypothesis, which argues that diversified institutions are better able to exploit economies of scope by serving the same customer base with a wider range of services.

Empirical evidence further supports this finding. Stiroh (2004) found that non-interest income contributes positively to bank performance by enhancing revenue diversification and reducing income volatility in the United States banking sector. Similarly, Elsas et al. (2010) reported that income diversification improves profitability among European banks by expanding revenue sources and reducing dependence on traditional lending activities. Sanya and Wolfe (2011) found that diversified banks in emerging markets achieve higher performance due to increased income stability and broader market engagement.

Abreham (2019) found that non-interest income has a positive and significant effect on the profitability of Ethiopian commercial banks, emphasizing the importance of expanding service-based activities. Likewise, Tadesse (2021) reported that banks in Ethiopia that adopt diversified income strategies tend to perform better due to improved revenue generation and reduced exposure to credit risk.

In summary, the result demonstrates that income diversification is a key determinant of financial performance in Ethiopian private commercial banks. By enhancing revenue stability, improving asset utilization, and strengthening competitive positioning, diversified income structures contribute significantly to sustainable profitability.

4.4.2 Asset Diversification and Financial Performance (ROA)

H2: Asset diversification has significant and positive effect on the financial performance of private commercial banks in Ethiopia.

The regression results indicate that asset diversification has a positive and statistically significant effect on financial performance, measured by return on assets ($\beta = 0.0598$, $p < 0.01$). Accordingly, the null hypothesis is rejected in favor of the alternative. This finding implies that banks that allocate their assets across a broader range of categories tend to achieve higher profitability.

In practical terms, the result suggests that banks which diversify their asset portfolios beyond traditional loan holdings by investing in financial securities, interbank placements, and other earning assets are better able to enhance their returns. A well-diversified asset structure enables banks to balance risk and return more effectively by avoiding excessive concentration in a single asset class. This reduces exposure to sector-specific shocks and contributes to more stable earnings over time.

From a financial management perspective, asset diversification improves the efficiency with which banks utilize their resources. By spreading investments across multiple asset types with varying risk-return profiles, banks can optimize their portfolio performance. For instance, while loans may generate higher returns, they are also associated with higher credit risk and monitoring costs. Complementing loan portfolios with relatively safer and more liquid assets helps stabilize overall returns and maintain financial resilience.

The positive effect of asset diversification also reflects the evolving nature of banking operations in Ethiopia. As the financial sector gradually expands and modernizes, banks are increasingly presented with opportunities to invest in diverse financial instruments. Institutions that actively adjust their asset composition in response to changing market conditions are better positioned to capture profitable opportunities and improve overall performance.

The finding is consistent with the predictions of Modern Portfolio Theory, which posits that diversification across different assets reduces unsystematic risk and enhances expected returns. By combining assets that are not perfectly correlated, banks can achieve a more efficient risk-return trade-off. This theoretical argument supports the observed positive relationship between asset diversification and financial performance.

Empirical studies also provide support for this result. Acharya et al. (2006) found that diversification across different asset classes can improve bank performance when managed efficiently. Similarly, Mercieca, Schaeck, and Wolfe (2007) reported that asset diversification contributes positively to profitability in European banking systems. In the context of developing economies, Sanya and Wolfe (2011) observed that diversified asset structures enhance bank stability and performance by reducing income volatility.

Kebede (2020) and Lemma (2022) report that banks with diversified asset allocations tend to achieve better financial outcomes due to improved risk management and more efficient resource

utilization. These studies highlight the importance of moving beyond traditional asset structures toward more balanced and diversified portfolios.

However, it is important to note that the benefits of asset diversification depend on the ability of banks to manage their portfolios effectively. Poor investment decisions, lack of expertise, or inadequate risk assessment mechanisms may offset the advantages of diversification. Therefore, the positive relationship observed in this study likely reflects not only diversification itself but also the managerial capacity of banks to allocate assets strategically.

In summary, the result demonstrates that asset diversification plays a significant role in enhancing the financial performance of Ethiopian private commercial banks. By improving risk management, optimizing resource allocation, and creating opportunities for stable returns, diversified asset structures contribute meaningfully to sustained profitability.

4.4.3 Loan Portfolio Diversification and Financial Performance (ROA)

H3: *Loan portfolio diversification has significant and positive effect on the financial performance of private commercial banks in Ethiopia.*

The regression results reveal that loan portfolio diversification has a negative and statistically significant effect on financial performance, measured by return on assets ($\beta = -0.0437$, $p < 0.01$). Accordingly, the null hypothesis is accepted in favor of the alternative. This finding indicates that increasing diversification within the loan portfolio is associated with a decline in profitability among Ethiopian private commercial banks.

In practical terms, the result suggests that expanding lending activities across multiple sectors, customer groups, or loan types does not necessarily improve performance and may, in fact, reduce it. While diversification is generally expected to spread risk, in the context of loan portfolios it can introduce additional complexity. Banks that extend credit into unfamiliar or less understood sectors may face higher default risk, weak screening processes, and increased difficulty in monitoring borrowers.

From an operational perspective, diversified lending often requires greater administrative effort, specialized knowledge, and stronger risk management systems. When banks expand their loan portfolios beyond their core areas of expertise, the costs associated with credit appraisal, monitoring, and recovery tend to increase. These additional costs can outweigh the benefits of diversification, ultimately reducing overall profitability.

The negative effect observed in this study also reflects structural challenges within the Ethiopian banking sector. Limitations in credit information systems, sector-specific expertise, and risk assessment frameworks may constrain banks' ability to manage highly diversified loan portfolios effectively. In such an environment, concentration in well-understood sectors may yield better outcomes than spreading exposure across multiple uncertain segments.

The finding doesn't align with Modern Portfolio Theory which highlights an important limitation of diversification theory when applied to lending activities. While Modern Portfolio Theory emphasizes risk reduction through diversification, it assumes efficient information and effective management of different asset classes. In practice, when these conditions are not fully met, diversification may lead to inefficiencies rather than improved performance. This aligns with the arguments of Agency Theory, which suggests that managerial decisions to diversify may not always maximize firm value, particularly when they increase complexity and reduce operational efficiency.

Empirical evidence supports this result. Acharya, Hasan, and Saunders (2006) found that diversification in loan portfolios can negatively affect bank performance when it increases exposure to unfamiliar risks. Similarly, Berger et al. (2010) reported that excessive diversification in lending may reduce efficiency and profitability due to increased operational costs. In developing economies, where institutional frameworks are still evolving, such negative effects are often more pronounced.

Evidence from Ethiopia also aligns with this finding. Studies such as Mekonnen (2021) and Tesfaye (2022) indicate that banks with highly diversified loan portfolios may experience lower profitability due to weak risk management systems and higher non-performing loans. These studies emphasize the importance of maintaining a balanced and well-managed lending strategy rather than pursuing diversification for its own sake.

Despite the negative relationship, this does not imply that loan diversification should be avoided entirely. Rather, it suggests that diversification must be undertaken cautiously and supported by strong credit risk management practices. Banks need to ensure that they possess adequate information, expertise, and monitoring capacity before expanding into new lending areas.

In summary, the result demonstrates that loan portfolio diversification, in the context of Ethiopian private commercial banks, may reduce financial performance when not properly managed. The

finding underscores the importance of strategic focus, institutional capacity, and effective risk management in determining the success of diversification efforts in lending activities.

4.4.4 Investment Diversification and Financial Performance (ROA)

H4: *Investment diversification has a significant positive effect on the financial performance of private commercial banks in Ethiopia.*

The regression results indicate that investment diversification has a positive and statistically significant effect on financial performance, measured by return on assets ($\beta = 0.0875$, $p < 0.01$). Accordingly, the null hypothesis is rejected in favor of the alternative. This finding implies that banks that diversify their investment portfolios tend to achieve higher profitability.

In practical terms, the result suggests that banks which allocate funds across a variety of investment instruments such as government securities, treasury bills, interbank placements, and other financial assets are better able to enhance their returns. Diversifying investment activities allows banks to generate additional income streams beyond traditional lending, thereby strengthening their overall earnings capacity.

The positive effect observed in this study also reflects the growing importance of investment activities within the Ethiopian banking sector. As banks operate in an environment with increasing liquidity and evolving financial markets, investment opportunities provide a viable channel for deploying excess funds efficiently. Institutions that actively engage in diversified investment strategies are better positioned to optimize returns while maintaining financial stability.

The finding is strongly supported by Modern Portfolio Theory, which emphasizes that diversification across different financial assets enhances expected returns while reducing overall risk. By combining assets with varying risk-return characteristics, banks can achieve a more efficient investment portfolio. This theoretical perspective explains the observed positive relationship between investment diversification and financial performance.

Empirical evidence further supports this result. Sanya and Wolfe (2011) found that banks engaging in diversified investment activities experience improved performance due to enhanced income stability. Similarly, Elsas et al. (2010) reported that investment diversification contributes positively to profitability by expanding revenue sources and reducing dependence on traditional banking operations. In emerging markets, studies have consistently shown that diversified investment portfolios play a critical role in strengthening financial performance.

Evidence from Ethiopia is also consistent with this finding. Gebremichael (2020) and Desta (2022) indicate that banks that actively participate in diversified investment activities tend to achieve higher returns due to better utilization of financial resources and reduced reliance on interest-based income. These studies highlight the importance of investment strategies in improving overall bank performance.

In summary, the result demonstrates that investment diversification is a significant driver of financial performance in Ethiopian private commercial banks. By enhancing income generation, improving resource allocation, and reducing risk exposure, diversified investment strategies contribute meaningfully to sustained profitability.

Table 4.11 Summary of hypothesis test

Hypothesis	Coefficient (β)	P-value	Direction	Decision
H1: Income diversification has significant and positive effect on financial performance	0.0769	0.000	Positive	Accepted
H2: Asset diversification has significant and positive effect on financial performance	0.0598	0.000	Positive	Accepted
H3: Loan portfolio diversification has significant and positive effect on financial performance	-0.0437	0.000	Negative	Rejected
H4: Investment diversification has significant and positive effect on financial performance.	0.0875	0.000	Positive	Accepted

Source: (STATA Computation-2026)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The primary objective of this study was to examine the effect of diversification on the financial performance of private commercial banks in Ethiopia. Specifically, the study investigated how different dimensions of diversification namely income diversification, asset diversification, loan portfolio diversification, and investment diversification affect financial performance measured by return on assets (ROA).

To achieve these objectives, the study employed a quantitative research approach using panel data collected from ten private commercial banks over a period of ten years, from 2015 to 2024. The data were obtained from audited financial statements and relevant secondary sources. A balanced panel dataset consisting of 100 observations was constructed and analyzed using econometric techniques.

The study applied both descriptive and inferential statistical methods. Descriptive statistics were used to summarize the characteristics of the variables, while correlation analysis was conducted to examine the relationships among variables. To estimate the effect of diversification on financial performance, a panel regression model was employed. After conducting model selection tests, including the Hausman and Sargan–Hansen tests, the random effects model was found to be the most appropriate estimation technique.

Prior to regression analysis, several diagnostic tests were performed to ensure the validity and reliability of the model. The results confirmed that there were no serious problems of multicollinearity and autocorrelation. Although heteroskedasticity was detected, it was addressed using robust standard errors. In addition, the stationarity of the variables was confirmed using panel unit root tests, ensuring that the regression results were not spurious.

The empirical findings of the study revealed that income diversification, asset diversification, and investment diversification have positive and statistically significant effects on financial performance. These results indicate that banks that expand their income sources, diversify their asset structures, and engage in varied investment activities tend to achieve higher profitability. On the other hand, loan portfolio diversification was found to have a negative and significant effect

on financial performance, suggesting that excessive diversification in lending activities may reduce profitability due to increased risk and operational complexity.

Overall, the study demonstrates that diversification plays a significant role in determining the financial performance of private commercial banks in Ethiopia. However, the impact varies across different dimensions of diversification, highlighting the importance of strategic management and effective implementation of diversification policies.

5.2 Conclusion

This study set out to examine the effect of diversification on the financial performance of private commercial banks in Ethiopia, with a particular focus on income diversification, asset diversification, loan portfolio diversification, and investment diversification. Using panel data analysis and a random effects regression model, the study provides clear empirical evidence that diversification is a significant determinant of bank performance, although its impact varies across different dimensions.

The findings reveal that income diversification plays a positive and important role in enhancing profitability. Banks that expand beyond traditional interest-based activities into non-interest income sources are better able to stabilize earnings and improve overall performance. This reflects the growing importance of innovation and service-based banking in a changing financial environment.

Similarly, asset diversification was found to have a positive and significant effect on financial performance. Banks that allocate their assets across a broader range of opportunities are able to achieve better returns while managing risk more effectively. This highlights the importance of strategic asset allocation in improving operational efficiency and long-term performance.

Investment diversification also contributes positively to financial performance. The ability of banks to engage in diversified investment activities allows them to generate additional income and make more efficient use of available resources. This finding underscores the role of investment strategies in strengthening profitability and financial stability.

In contrast, loan portfolio diversification was found to have a negative effect on financial performance. This suggests that expanding lending activities across multiple sectors without adequate risk management capacity may reduce profitability. The result indicates that

diversification in lending must be approached with caution and supported by strong institutional frameworks.

Overall, the study concludes that diversification is not uniformly beneficial; rather, its effectiveness depends on how it is implemented and managed. While diversification in income, assets, and investments enhances performance, excessive or poorly managed diversification in lending can have adverse effects. Therefore, the key to improving financial performance lies not only in diversification itself but in the strategic and efficient management of diversified activities.

In essence, diversification remains a powerful strategic tool for improving bank performance, but its success depends on aligning diversification efforts with institutional capacity, market conditions, and sound risk management practices.

5.3 Recommendations

Based on the empirical findings of this study, several practical recommendations are proposed for private commercial banks and policy makers to enhance financial performance through effective diversification strategies.

Private commercial banks are encouraged to strengthen their income diversification strategies, as the results indicate a positive and significant relationship between non-interest income and financial performance. In this regard, banks should expand their engagement in fee-based and service-oriented activities, including digital banking, transaction services, commissions, and foreign exchange operations.

The findings also highlight the importance of asset diversification in improving financial performance. Banks should therefore adopt a more balanced and strategic approach to asset allocation by distributing resources across a mix of loans, securities, and other earning assets. Avoiding excessive concentration in a single asset category is essential to minimize exposure to sector-specific risks.

In contrast, the negative effect of loan portfolio diversification on financial performances suggests the need for a cautious approach to lending activities. Banks should avoid expanding their loan portfolios indiscriminately across unfamiliar or high-risk sectors. Instead, lending decisions should be guided by sectoral expertise, availability of reliable information, and the institution's capacity to monitor and manage credit risk.

The positive contribution of investment diversification indicates that banks should increase their participation in a variety of investment instruments. Allocating funds to different investment securities can provide stable income streams and complement traditional lending operations. To maximize the benefits of such strategies, banks need to adopt sound portfolio management practices that carefully balance risk and return considerations.

Finally, the positive impact of investment diversification underscores the importance of well-developed financial markets. Policymakers should support the introduction of capital markets (even though not still started) and the introduction of diverse financial instruments to provide banks with broader investment opportunities.

In general, improving financial performance in the banking sector requires a balanced approach to diversification, supported by strong institutional capacity and a conducive regulatory environment.

5.4 Limitation and Future Research Direction

Despite its contribution to the existing literature on bank diversification and financial performance, this study has some limitations that should be considered when interpreting the findings.

First, the study relied exclusively on secondary data obtained from audited annual reports of selected private commercial banks and publications of the National Bank of Ethiopia. Although these sources are reliable and publicly available, the study was limited to the information disclosed in financial statements and could not capture qualitative factors such as managerial competence, corporate governance quality, organizational culture, technological capability, and strategic decision-making processes that may influence bank performance. Future studies should incorporate both quantitative and qualitative approaches to provide a more comprehensive understanding of how managerial, organizational, and strategic factors influence the relationship between diversification and financial performance.

Second, the study focused only on ten selected private commercial banks operating in Ethiopia. Consequently, the findings may not fully represent the entire private commercial banks in Ethiopia, particularly newly established private banks and state-owned banks, which may have different operational structures and performance characteristics. Future studies may expand the scope of analysis by including all private commercial banks as well as state-owned banks

operating in Ethiopia. Such studies would provide a more comprehensive understanding of diversification practices across different ownership structures.

Third, the study examined financial performance using Return on Assets (ROA) as the sole profitability indicator. While ROA is one of the most widely accepted measures of bank performance, the inclusion of additional indicators such as Return on Equity (ROE), Net Interest Margin (NIM), Earnings per Share (EPS), or market-based performance measures could provide a broader assessment of bank performance. Researchers should consider including additional measures of financial performance such as Return on Equity (ROE), Net Interest Margin (NIM), Earnings per Share (EPS), and risk-adjusted performance indicators to obtain a broader assessment of bank performance.

Fourth, the study concentrated only on diversifications as the key explanatory variable without incorporating control variables and macro variables such as bank size, Bank age, capital adequacy, liquidity, GDP growth, and inflation. Therefore, Researchers should consider this control and macro variables in the future and further research should examine the role of other bank-specific variables, including asset quality, operational efficiency, corporate governance, ownership structure, market concentration, and technological innovation, in influencing financial performance.

Finally, although the study employed panel data econometric techniques and appropriate diagnostic tests, the findings are based on a specific study period (2015–2024). Changes in regulatory frameworks, technological developments, macroeconomic conditions, and financial sector reforms occurring after the study period may influence the relationship between diversification and financial performance in the future. Future studies should employ longer time horizons and advanced econometric techniques to capture potential dynamic and nonlinear effects of diversification on financial performance.

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Appendix

Appendix-I- STATA- Output

1, Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	100	.0625559	.0061114	.0474982	.0726604
ID	100	.3236587	.0595915	.1943702	.4285352
AD	100	.3496985	.0526252	.2533056	.4380735
LD	100	.4327118	.0497662	.3492935	.5708712
INVD	100	.1262813	.0415375	.0676875	.1991541

2, Correlation Analysis

	ROA	ID	AD	LD	INVD
ROA	1.0000				
ID	0.5618	1.0000			
AD	-0.1923	0.0307	1.0000		
LD	-0.1087	0.3917	0.5444	1.0000	
INVD	0.6254	0.1848	-0.2804	-0.0100	1.0000

3, skewness and Kurtosis

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
ROA	100	0.0064	0.5661	7.10	0.0287
ID	100	0.0371	0.0298	8.09	0.0175
AD	100	0.2935	0.0000	34.30	0.0000
LD	100	0.0021	0.3620	8.99	0.0112
INVD	100	0.0660	0.0000	.	0.0000

4, Multicollinearity

Variable	VIF	1/VIF
LD	1.79	0.557389
AD	1.65	0.607037
ID	1.28	0.783788
INVD	1.14	0.875224
Mean VIF	1.46	

5, Breusch-Pagan

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ROA

$\chi^2(1) = 4.07$

Prob > $\chi^2 = 0.0436$

6, Wooldridge test

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

$F(1, 9) = 2.391$

Prob > F = 0.1564

7, Stationary Test

Levin-Lin-Chu unit-root test for ROA

Ho: Panels contain unit roots	Number of panels =	10
Ha: Panels are stationary	Number of periods =	10
AR parameter: Common	Asymptotics: N/T ->	0
Panel means: Included		
Time trend: Included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 6.00 lags average (chosen by LLC)		

	Statistic	p-value
Unadjusted t	-14.3409	
Adjusted t*	-7.3935	0.0000

. xtunitroot llc ID, trend

Levin-Lin-Chu unit-root test for ID

Ho: Panels contain unit roots	Number of panels =	10
Ha: Panels are stationary	Number of periods =	10
AR parameter: Common	Asymptotics: N/T ->	0
Panel means: Included		
Time trend: Included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 6.00 lags average (chosen by LLC)		

	Statistic	p-value
Unadjusted t	-13.6404	
Adjusted t*	-7.4012	0.0000

. xtunitroot llc AD, trend

Levin-Lin-Chu unit-root test for AD

Ho: Panels contain unit roots	Number of panels =	10
Ha: Panels are stationary	Number of periods =	10
AR parameter: Common	Asymptotics: N/T ->	0
Panel means: Included		
Time trend: Included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 6.00 lags average (chosen by LLC)		

	Statistic	p-value
Unadjusted t	-11.2720	
Adjusted t*	-5.5869	0.0000

8, Hausman Test

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
ID	.0797469	.076856	.0028909	.0028627
AD	.0631732	.0597899	.0033833	.0018831
LD	-.0407621	-.0437429	.0029807	.0020667
INVD	.0871632	.0875448	-.0003816	.0042042

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = 4.43
 Prob>chi2 = 0.3507

9, Sargan-Hansen Test

Test of overidentifying restrictions: fixed vs random effects

Cross-section time-series model: xtreg re

Sargan-Hansen statistic 4.297 Chi-sq(4) P-value = 0.3673

10, Random-effects GLS regression

Random-effects GLS regression Number of obs = 100
Group variable: BankID Number of groups = 10

R-sq: Obs per group:
 within = 0.7289 min = 10
 between = 0.5712 avg = 10.0
 overall = 0.5839 max = 10

 Wald chi2(4) = 1821.97
corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0000

(Std. Err. adjusted for 10 clusters in BankID)

ROA	Robust					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ID	.076856	.0084154	9.13	0.000	.0603621	.0933498
AD	.0597899	.0039451	15.16	0.000	.0520577	.0675221
LD	-.0437429	.00412	-10.62	0.000	-.0518178	-.0356679
INVD	.0875448	.0139177	6.29	0.000	.0602665	.114823
_cons	.0246452	.0047525	5.19	0.000	.0153305	.0339599
sigma_u	.00421168					
sigma_e	.0011076					
rho	.93531395	(fraction of variance due to u_i)				

.

Appendix-II- Rawa Data

Bank-ID	Bank-Name	Year	ROA	ID	AD
1	Awash Bank	2015	0.066191035	0.405300591	0.387685616
1	Awash Bank	2016	0.06079034	0.350954626	0.410654334
1	Awash Bank	2017	0.064311796	0.379006759	0.385848631
1	Awash Bank	2018	0.068862161	0.428535182	0.402312284
1	Awash Bank	2019	0.065774482	0.404354459	0.400764298
1	Awash Bank	2020	0.065213208	0.382138129	0.39631587
1	Awash Bank	2021	0.067653978	0.406522745	0.438073484
1	Awash Bank	2022	0.062793279	0.375006581	0.372649375
1	Awash Bank	2023	0.062486607	0.376933992	0.379440504
1	Awash Bank	2024	0.067736431	0.403557846	0.407723755
2	Dashen Bank	2015	0.057411816	0.354677586	0.386847513
2	Dashen Bank	2016	0.061818498	0.378045226	0.364982829
2	Dashen Bank	2017	0.058697618	0.39609034	0.335363449
2	Dashen Bank	2018	0.058248316	0.373997097	0.344846092
2	Dashen Bank	2019	0.061132328	0.364846632	0.362532221
2	Dashen Bank	2020	0.060944931	0.364674282	0.382358637
2	Dashen Bank	2021	0.059623456	0.367705753	0.368778003
2	Dashen Bank	2022	0.060476382	0.372697387	0.371140818
2	Dashen Bank	2023	0.059904921	0.360586526	0.37224034
2	Dashen Bank	2024	0.061467086	0.376483941	0.373542937
3	Bank of Abyssinia	2015	0.048559165	0.20349196	0.363292229
3	Bank of Abyssinia	2016	0.049248565	0.218886842	0.354665978
3	Bank of Abyssinia	2017	0.048932738	0.228137625	0.392990946
3	Bank of Abyssinia	2018	0.048531868	0.199975902	0.385760306
3	Bank of Abyssinia	2019	0.049811795	0.2018943	0.381649168
3	Bank of Abyssinia	2020	0.047498198	0.216685613	0.369498806
3	Bank of Abyssinia	2021	0.050521504	0.215719216	0.387570776
3	Bank of Abyssinia	2022	0.052240946	0.202510025	0.368824866
3	Bank of Abyssinia	2023	0.048779573	0.194370197	0.381177479
3	Bank of Abyssinia	2024	0.048745799	0.209999885	0.353660043
4	Wogagen Bank	2015	0.063343624	0.348627558	0.30978072
4	Wogagen Bank	2016	0.060247402	0.329093128	0.285212663
4	Wogagen Bank	2017	0.062583886	0.354843593	0.297644846
4	Wogagen Bank	2018	0.06610197	0.351820854	0.284592454
4	Wogagen Bank	2019	0.062826133	0.353145852	0.304548382
4	Wogagen Bank	2020	0.060091494	0.33573812	0.310295799
4	Wogagen Bank	2021	0.062163161	0.348215605	0.284191956
4	Wogagen Bank	2022	0.062513223	0.347802655	0.305861585
4	Wogagen Bank	2023	0.060659972	0.328368469	0.305175347
4	Wogagen Bank	2024	0.068044458	0.350999202	0.314483302

5	Hibret Bank	2015	0.065530613	0.25957909	0.298289143
5	Hibret Bank	2016	0.066404296	0.254202227	0.320094332
5	Hibret Bank	2017	0.069984292	0.248535954	0.36095213
5	Hibret Bank	2018	0.068595992	0.267826181	0.331747701
5	Hibret Bank	2019	0.064126577	0.242562046	0.313539304
5	Hibret Bank	2020	0.0674592	0.272365537	0.300933181
5	Hibret Bank	2021	0.06769631	0.292369296	0.305214114
5	Hibret Bank	2022	0.067979446	0.264038152	0.353196676
5	Hibret Bank	2023	0.067215699	0.266022254	0.295192167
5	Hibret Bank	2024	0.071167733	0.265672849	0.318131619
6	Nib International Bank	2015	0.071673979	0.325959022	0.284289646
6	Nib International Bank	2016	0.070825841	0.363734227	0.253305568
6	Nib International Bank	2017	0.070148515	0.322398234	0.279465052
6	Nib International Bank	2018	0.071273241	0.337093959	0.272193241
6	Nib International Bank	2019	0.072660372	0.341183159	0.27015196
6	Nib International Bank	2020	0.070407955	0.331425202	0.284346796
6	Nib International Bank	2021	0.071125868	0.328705837	0.279321667
6	Nib International Bank	2022	0.072605893	0.351320908	0.282901943
6	Nib International Bank	2023	0.070195884	0.329786581	0.284041825
6	Nib International Bank	2024	0.07073097	0.316648466	0.264374056
7	Cooperative Bank of Oromia	2015	0.060323054	0.384480101	0.263604833
7	Cooperative Bank of Oromia	2016	0.06215856	0.351424077	0.271298562
7	Cooperative Bank of Oromia	2017	0.058105321	0.350762903	0.258277809
7	Cooperative Bank of Oromia	2018	0.062277132	0.353388765	0.268172778
7	Cooperative Bank of Oromia	2019	0.06201986	0.369486575	0.275631518
7	Cooperative Bank of Oromia	2020	0.060693407	0.35277561	0.275106367
7	Cooperative Bank of Oromia	2021	0.062825976	0.358738887	0.30237764
7	Cooperative Bank of Oromia	2022	0.066560761	0.375929802	0.295482537
7	Cooperative Bank of Oromia	2023	0.061649346	0.369683725	0.265875361
7	Cooperative Bank of Oromia	2024	0.057556849	0.329233031	0.273678367
8	Zemen Bank	2015	0.067599262	0.409657318	0.43219905
8	Zemen Bank	2016	0.069762883	0.380467339	0.433074693
8	Zemen Bank	2017	0.065221905	0.382890146	0.407756467
8	Zemen Bank	2018	0.065995425	0.383989871	0.422224031
8	Zemen Bank	2019	0.068878658	0.401350589	0.419492159
8	Zemen Bank	2020	0.068647614	0.399874895	0.415520226
8	Zemen Bank	2021	0.06671574	0.396759001	0.424188088
8	Zemen Bank	2022	0.066022425	0.398061804	0.388126356
8	Zemen Bank	2023	0.070226302	0.392948571	0.437042804
8	Zemen Bank	2024	0.063275013	0.3566347	0.413674233
9	Bunna Int. Bank	2015	0.060683674	0.273065421	0.387890691
9	Bunna Int. Bank	2016	0.057314835	0.25905007	0.369545101
9	Bunna Int. Bank	2017	0.058275864	0.26287733	0.377542281

9	Bunna Int. Bank	2018	0.059343809	0.273469157	0.394749697
9	Bunna Int. Bank	2019	0.060723151	0.274442888	0.368470973
9	Bunna Int. Bank	2020	0.054082888	0.256352459	0.34379822
9	Bunna Int. Bank	2021	0.060004255	0.280279669	0.362096143
9	Bunna Int. Bank	2022	0.054407392	0.253592734	0.363112043
9	Bunna Int. Bank	2023	0.056431001	0.255934722	0.365081796
9	Bunna Int. Bank	2024	0.061843053	0.281580287	0.386484685
10	Birhan Int.Bank	2015	0.05980218	0.296626228	0.412980558
10	Birhan Int.Bank	2016	0.062641951	0.307608585	0.391781014
10	Birhan Int.Bank	2017	0.062869292	0.304903972	0.403144747
10	Birhan Int.Bank	2018	0.06171346	0.308716654	0.410418763
10	Birhan Int.Bank	2019	0.062092584	0.32863903	0.374046816
10	Birhan Int.Bank	2020	0.062634427	0.305919336	0.372014663
10	Birhan Int.Bank	2021	0.064470595	0.303803474	0.408666782
10	Birhan Int.Bank	2022	0.061956115	0.307590682	0.399798875
10	Birhan Int.Bank	2023	0.065965104	0.308714846	0.411623277
10	Birhan Int.Bank	2024	0.061030021	0.280293556	0.387134466