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THE IMPACT OF ASSET DIVERSIFICATION ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN ETHIOPIA

BY :- TSEGAZEAB SOLOMON

ADVISOR : SIMON (ASS. PROFESSOR)

JUNE, 2024

ADISS ABABA,

ETHIOPIA

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(SGS/0675/2015A)

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DECLARATION

I the undersigned, declared that the thesis entitled "THE IMPACT OF ASSET DIVERSIFICATION ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN

ETHIOPIA" is my original work, prepared under the guidance of Simon Tarekegn (asst.prof).all the source of material used for this thesis have been duly acknowledged .I further confirmed that the thesis has not been submitted either in partial or in full to any other higher learning institution for the purpose of earning any degree

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Certification

This is to certify that the thesis prepared by TSEGAZEAB SOLOMON , entitled: The Impact of Asset Diversification on financial performance of Commercial Banks in Ethiopia and submitted in partial fulfillment of the requirements for MBA in Accounting and Finance and complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

Approved by:

External Examiner_____ Date_____

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List of Acronyms

FINA.ASSET = Financial Assets

L AND ADV = Loan and advances

C & C EQ = Cash and Cash Equivalent

FIX ASSET = Fixed Asset

CURR.ASSET = current asset

ROA = return on asset DGP = data generating process

GTP =growth and transformation plan

BLUE = best linear unbiased estimate

Abstract

The objective of this study is to see how asset diversification affected the financial performance (ROA) of Ethiopian commercial banks. For the study, the population was the entire commercial banks in Ethiopia, which is thirty-one, and the sample size is eight commercial banks which have more than ten years. The study covered the period from 2014-2023 which is a total of 80 observations was made using audited financial statements. The methodology this study adopted was explanatory research design, which was used to understand the cause-and-effect relation of asset components and its financial performance. The study was conducted based on quantitative research approach. The collected panel data was analyzed using descriptive statistics, and multiple linear regression analysis using EViews software. Besides the descriptive interpretation, the researcher used tables and figures to present the findings of the study. The study finding shows that loan and cash have positive and significant effect on the financial performance whereas fixed asset has negative and significant effect but the remaining two(financial asset and current asset) shows insignificant relationship with the financial performance so the researcher recommended that bank manger as well as bank policy makers should be more focuses on diversifying their asset on loan and advance and should increase their allocation of cash holding through cash budgeting (estimated projection of cash position in the future) to maintain optimum cash position level and banks should decrease investment on fixed asset so as to increase the banks' profitability

Key words:- *asset diversification,financial performance,financial asset,current asset,fixed ,cash and loan and advance*

CHAPTER ONE

INTRODUCTION

.

Background of the study

The banking sector is the fundamental part of the financial sector and the backbone of the national economy, especially in developing countries where the capital market is not strong enough or nonexistent. It plays a key role in any country's economic growth through intermediation services, ensuring efficient allocation of resources, and transmission of monetary policy to the entire economic system (Allahham, 2015; Odewole et al.,2016). The banking sector is the leading sector in modern economies and even becomes the criterion for measuring the safety of a country's economy

Financial institutions play a crucial role in the distribution of economic resources. One of the main objective of financial institutions is to maintain a competitive advantage in a competitive and volatile environment. in order to do that financial institution should allocating resources effectively and efficiently and channel those resources to the potential investors .to achieve the objective. financial organization in our case banks should have adequate amount of revenue to pay for all of their expenses, in order to do that banks should be profitable, sustainable and maintain long term financial performance. Asset diversification is one of the best strategies that should be used in the world to achieve their business objective. most organizations around the world consider diversification as one of the best ways of value creation (Marinelli, 2011)

Nowadays unpredictable economic situation needs well-organized and effective financial structures for specialization in offering services and production, and because of volatility of economic environment, commercial banks focus on their ways of undertaking their operations with the aim of reducing risk, increasing profitability and increasing market share , to win and maintain a friendly relationship with investors' and maintain competitive advantage in the market so as to boost economic transaction. Therefore, having a financial system which is efficient and stable is vital.(Abate & Kaur, 2023)

Perez (2015) also argues that commercial banks need to have assets that earn more income especially in this period of increasing adoption and utilization of technology-enabled products and services. This is based on the fact that different assets achieve different performance when subjected to different economic settings, and the performance realized from such assets seem to have no correlated. Therefore, asset diversification can have a pivotal role by ensuring a firm against market conditions and economic variations

A nation's development is significantly influenced by its commercial banks. Economic development is essentially dependent on a stable, forward-thinking, and vibrant banking sector (Vossen, 2010).

A robust and successful banking industry can better endure unfavorable shocks and support the stability of the financial system. Bank profits are a significant source of equity, particularly when they are put back into the company. so, large profits may help to maintain financial stability(Vossen, 2010). Placing all your eggs within one basket is a dangerous move, according to (Kimani, 2012). Thus, diversifying one's investment portfolio is a key investing principle. The chance of an abrupt, unexpected outcome is decreased by distributing investments among several and unrelated investments within

A company's profitability is determined by how much money it makes compared to the capital it invests. The quantity of recorded profits in a fiscal year might be used to gauge this degree of financial performance. According to (Spronk et al., 2005), there are risks and uncertainties in the corporate environment. In order to maintain competitiveness in the market, banks diversify their assets while accounting for risk, earnings, liquidity, profit, solvency, and the amount of deposits and loans extended. This helps to reduce losses and boost profitability.

Singh (2012), heard about two important figure of speech which talk about the role of diversification in alternating ways i.e. “Don’t put all your eggs in one basket” supporting the theory of asset diversification which means that we should not use all our resources in one investment because we may lose everything and the other “Put all your eggs in one basket and watch that basket” which concentrates on focusing strategy.

According to Gupta (2011) putting all your eggs in one basket is a risky decision.because we may loss all resources we invest,so to reduce risk of losing all the resource we divide the resources in

to multiple investments in order to avoid risk which means the loss of one resource compensated by the gain of the other resource so we choose to study the impact asset diversification (“Don’t put all your eggs in one basket”) on the financial performance commercial banks in Ethiopia

Background of banking in Ethiopia

Ethiopia, which is one of the least developing countries located on the African continent, In Ethiopia, the banking sector is the pillar of the financial sector and a critical member of the country’s economy. It constitutes approximately 93 percent of the financial sector’s total capital and contributes 4.2 percent to the national economy(Abate & Kaur, 2023)

Ethiopia currently has a banking sector made up of both public- and private-sector banks. Banks in the public sector are those that are entirely owned by the Government of Ethiopia. In contrast, private sector banks are those whose share capital is solely owned by private individuals and corporates. Despite this, Ethiopia’s banking sector currently has a small market size as compared to many other low-income Sub-Saharan African countries and is incompatible with international world experiences (Marinelli, 2011). After nearly thirty years of liberalization, the banking sector of Ethiopia constitutes a central bank (National Bank of Ethiopia or NBE), public-sector banks, and private-sector operating banks. The public sector banks include one state-owned commercial bank and one state-owned specialized (development) bank. The private sector banks are further categorized into commercial, cooperative, and specialized banks

As of June 2023, a total of 29 commercial banks, 1 cooperative bank, and 1 specialized bank were in operation in the private banking sector. The private sector commercial banks are further divided into conventional commercial banks and Islamic commercial banks. NBE is the sole regulator and supervisor of the banking sector. Till this time, there are no foreign banks (whose registration and head offices are in a foreign country), investment banks, licensed foreign exchange (forex) offices, or licensed money remittance providers that are operating in Ethiopia (Abate & Kaur, 2023)

Even though the banking sector of Ethiopia currently permits private sector banks to operate in the country, the sector remains closed to foreign banks insisting on the gradual liberalization strategy adopted by the country. There is however a strong intention to open up the sector to foreign banks and foreign ownership shortly as the Ethiopian government pursues extensive reforms in the financial sector as per the 15-year Growth and Transformation Plan (GTP)

implemented in 2010/11 and the 10-Year Development Plan implemented in 2020/21. (Innovation, 2023)

Statement of the problem.

Banks have organized their portfolio assets in a way that influence its profitability. Wherever there is space to improve profitability, banks will surely exploit that area for increasing their profit so Optimization of banks' asset structure and components is difficult to manage because of the interest of different stakeholders such as creditors, depositors, shareholders and regulatory body especially using capital and liquidity constraints on the banking industry

Commercial banks have a significant impact on a nation's development. A resilient and innovative banking system is crucial for fostering economic growth (Vossen, 2010). A well-capitalized and adaptable financial sector can not only support businesses during economic downturns but also help mitigate the severity of financial crises. Traditionally, financial theory emphasizes the importance of balancing risk aversion with diversification

A well-diversified portfolio, in Markowitz's opinion, will have lower risk due to its decreased unsystematic risk, which leaves the portfolio just vulnerable to market risk. As a result, well-diversified portfolios should yield a larger return per unit of risk than undiversified ones, which will carry risk at no additional benefit. Putting all of your eggs in one basket is a dangerous move, according to Gupta (2011). As a result, diversifying your portfolio of investments is a key financial principle. A rapid, unexpected outcome is less likely when investments are spread across a number of unrelated investments. A loss (risk) in one investment is balanced out by gains in another in a diversified portfolio. Imagine you have all your eggs in one basket. If you drop the basket, all the eggs break. This perfectly illustrates the risk of putting all your investment money in one place. Diversification is a key strategy to avoid this scenario. It involves spreading your investments across various asset classes, such as stocks, bonds, and real estate. This way, if one asset class performs poorly, the losses may be balanced out by gains in another.

Singh (2012) described the importance of diversification with one saying, "Don't put all your eggs in one basket," supporting the theory that one should not focus all efforts and resources in one area because they risk losing everything.

Diversification and its implications on performance are currently receiving a lot of attention from academics, policymakers, and philanthropists. Diversifying one's asset holdings, according to Chakrabarti et al. (2007), can boost performance. many businesses' low profitability is caused by underperformingasset

According to the literature analysis, earlier research did not consider all asset components and did not examine other financial performance correlates in the context of banks' asset diversification. Therefore, in order to close the information gap, fixed asset has been included in this study as one of the asset components that influences Ethiopian commercial banks' financial performance

In the context of Ethiopian banking industry, there is not been much research done on the topic in relation to Ethiopia's banking sector. Under such circumstances, empirical research the study needs to either support the aforementioned premises or explore alternative hypotheses on the connection between asset diversification and the financial performance of Ethiopia's banking industry. To the best of my knowledge, there hasn't been any local research on bank profitability in relation to asset diversification. A study conducted in 2016 by Mutega is more globally relevant to my research topic. The impact of the requirement for fixed assets on the various facets of the bank's financial performance was not addressed by (Asmare & Worku, 2018) So the study focus and give emphasis on fixed asset ,Financial assets, loans, current asset, cash and cash equivalents will be the study's main emphasis. Therefore, it is important to study how asset diversification affects Ethiopian commercial banks' financial Performance

More often asset generates the major share of the bank’s income even if the quality of loan portfolio determines the profitability of banks to the best knowledge of the researcher, these prior studies are not inclusive all components of assets. None of the studies above considered cash holding as an asset component that effect on the financial performance of private banks in Ethiopia. In addition, financial performance was not measured by return on asset.

In view of the research gap identified above, the objective of this study is to determine the components of asset that have impact on banks’ profitability and seek to evaluate the extent of which components of asset have effect on the financial performance of commercial banks in Ethiopia. The researcher focuses on five components of asset such as cash holding, financial asset, current asset, loan and fixed asset considered as independent variables that have impact on the banks. financial performance (return on asset)- considered as dependent variable in line with the

restriction/limitation of the regulatory body. Hence, this study seeks to fill the gap by addressing the impact of asset structure on the banks' financial performance in Ethiopia

Research question

- What effect does financial asset have on commercial banks' financial performance?
- How do loans affect the commercial banks' financial performance?
- How do cash and cash equivalents affect the commercial banks' financial performance?
- How do fixed assets affect commercial banks' financial performance?
- How do financial assets affect commercial banks' financial performance?

Objective of the Study

General Objectives of the Study

The overall objective of the study is to examine the impact of asset diversification on the financial performance of commercial banks in Ethiopia.

Specific objectives of the study

- To determine how fixed asset affect financial performance of commercial banks 'of Ethiopian
- To determine how financial assets affect financial performance of commercial banks 'of Ethiopian
- To determine how cash and cash equivalent affect financial performance of commercial banks 'of Ethiopian
- To determine how loan and advances affect financial performance of commercial banks 'of Ethiopian
- To determine how current assets affect financial performance of commercial banks 'of Ethiopian

Hypotheses of the Study

To meet the study's goal, the researcher developed some hypotheses on the impact of asset diversification on the financial performance of Ethiopian commercial banks, based on several theoretical and empirical research on asset diversification and financial performance evaluation.

- **Financial asset**

Financial assets are intangible assets such as bank deposits, bonds, and stocks, the value of which is determined by a contractual claim on what they represent. They are not physical (except from the paper in the documents), unlike property or commodities.

According to (Alex, 2023) financial asset is a contracts that initiates creditor relationship with debtor and asset owners acquire unconditional claims on economic resources of other institutional units. Alex further notes that financial assets are easily liquidized compared to other tangible assets including real estate, commodities, and tradable on financial markets. Alex (2013) concludes by saying that financial asset increases a company's worth.

- H1: there is a positive and significant relationship between financial asset and financial performance of commercial banks in Ethiopia.

- **Loans**

Loan portfolio is typically the largest asset and source of revenue for banks. However, loans and advance is the most profitable and liquid asset for the bank to maintain its maximum liquidity obligation to their depositors or lender. Bank accept customer deposits and use that fund to diversify loans to borrowers or invest in other assets that will yield a return higher than the amount bank pays the depositor (Obamuyi, 2013)

- H2: there is a positive and significant relationship between loan and financial performance of commercial banks in Ethiopia.

- **Cash and cash equivalent**

Cash and cash equivalents are short-term commitments with temporarily idle cash and easily convertible into a known cash amount. Cash and cash equivalent constitute the amount of cash

available to the bank for daily operations. It is generally accepted as cash on hand and cash equivalent such as bank drafts, demand deposits, cheques, Treasury bill, bond and cash balances including cash and restricted and non-restricted deposits with the central bank. Cash equivalents are short term liquid investments that are readily convertible to cash with original maturity of three months or less(Lam, 2015)

The quality of cash and bank balances could improve the income of a bank and increase the bank's financial performance. This cash and bank balances have a positive impact on the financial performance of deposit money banks in Nigeria (Yahaya et la., 2015).

- H3: there is a positive and significant relationship between cash and cash equivalent and financial of performance commercial banks in Ethiopia.

- **Fixed Asset**

According to(Am, 2020), components of asset such as property, plants and equipment, and long-term investments and funds have a statistically significant effect on bank's financial performance. Based on the study's finding, they recommended that all financial and services firms should increase their allocation of resources towards long term investments and funds to improve their financial performance.

A study by (Adegbite & Tajudeen, 2018) examined the effect of investment in fixed assets on profitability of selected banks in Nigeria. The relationship between these variables indicated that there is a significant relationship between them. The study findings have indicated that investment in fixed assets have negative and significant effect to the performance of the selected banks: the lower the level of investment in fixed assets, the higher the profit of banks.

NBE has allowed banks with limited percentage of amount to invest on fixed assets up to 10% of bank's paid-up capital, this refers to the business of buying and developing properties consistence of building for facilitating their own operation or for resale.

H4: Investment in fixed asset has negative and significant effect on financial performance of commercial banks in Ethiopia.

- **Current asset**

The definition of current asset by different scholars has been based on various aspects and study directions Schmidt (2014) description of current assets was in terms of cash and inventories Martina (2015) described current asset structure to be compromised of different aspects which include components like current investments, inventories, cash in hand and cash at bank. Sheng and zhi (2013) conceptualize the concept of current asset based on companies inventories recoverable foreign exchange adjustment, trade and other receivables as well as short term deposits

- H5: there is a positive and significant relationship between current asset and financial performance of commercial banks in Ethiopia.

Significance of the Study

This study seeks to create some insight about the impact of asset components on the financial performance of selected private commercial banks in Ethiopia. It is also verified the impact of each component of asset on the performance of the listed banks. Therefore, this study is expected to provide empirical evidence on components of asset that affect banks performance and contributes as an indicator to management of NBE who are policy makers to pursue amending the directives and issue to the commercial banks for implementing so as to improve banks' operations. Moreover, it may also use for the bank managements about how to make a decision to optimize asset structure that improves the bank's profitability. Finally, there is lack of research on this topic in the country's framework thus, this study is enough to give academic insight to further studies in this area

Scope of the Study

The research basically focused on examining each component of asset components and their impact on the financial performance of commercial banking in Ethiopia. It also determined the components of asset and to what extent they affect the banks financial performance. Return on asset is used to measure the banks financial performance.

In order to accomplish the goals, the study's use panel data that which is crossectional data of eight commercial banks and time series data that covers from year 2014 to 2023, and it will also examine the relationship between asset diversification and the financial performance of Ethiopian commercial banks by assessing the impact of loans, fixed assets, current asset cash and cash equivalents, and financial assets on the financial performance of Ethiopian commercial banks

Limitations of the Study

. The period of review has been limited to ten years from 2014 to 2023 due to the data availability. In addition, the study consists of eight commercial banks that operate in Ethiopia more than ten years. The study has excluded some of the commercial banks that have operation less than ten years in the banking industry. Besides, there are some banks that have total asset, profitability and amount of each component are very small or far beyond with the amount of the selected eight commercial banks.

Organization of the Study

The study is structured in five chapters. The first chapter covers an introduction of the study. Chapter two has contained a review of related literature. The research design and methods include in chapter three. In chapter four, the result and finding of the study discuss. Finally, the last chapter has enclosed the conclusion and recommendation

Chapter Two

2.Litrature review

This chapter explores the theoretical foundation of the impact of asset structure on the financial performance of commercial banks in Ethiopia. The review has theoretical aspects related to assets components and its financial performance, an examination of previous research studies on the subject matter in empirical review, a conclusion from the literature review indicates the gaps the research is addressing. Finally, it shows the conceptual framework of the study

Theoretical literature

This section reviews the basic theoretical issues related to asset structure and financial performance of commercial banks. Asset structure has been defined by different scholars based on the method of the study is used. According to (Journal et al., 2013) asset structure shows the allocation of the resources and has different components such as: financial asset, current asset, fixed asset ,loan and cash and cash equivalent

Portfolios are constructed from a basis of selected assets that maximize for investors wealth and minimizes their risks. Determining the universe of stocks that seems interesting to get in a portfolio is done by financial analyst. That is what is about portfolio theory that a good theory should produce well diversified portfolio, to decrease risks and volatility of the portfolio. (Simon 2010)

Asset Structure

- **Traditional Portfolio Theory**

This theory requires basic knowledge and understanding in the field of the financial investments in order to manage a portfolio in a manner that it is profitable and valuable. It has to know how to consider and exploit different variables that affect the investment.

Prior to Markowitz work, investors focused on assessing the risk and return of individual securities in constructing their portfolios. In order to mitigate the risk associated with any single stock, the idea was to diversify the portfolio by selecting a number of low risks with high return stocks (Darok, 2012).

Management of investment portfolio is what an investment portfolio is and what the different financial factors that affects it. In order to succeed in managing the portfolio in a wise manner, shouldn’t invest the entire amount in one course. It is recommended to scatter the investment in a

number of different courses to decreases the risks while increase return. Traditional portfolio planning emphasizes on the character and the risk bearing capacity of the investor.

- **Modern Portfolio Theory**

The Modern Portfolio Theory (MPT) is a theory of portfolio choice developed by Harry Markowitz (1952). As per Grishina, (2012) Harry M. Markowitz has introduced a modern portfolio theory on risk averse investors can construct portfolios to optimize expected return based on a given level of market risk. Markowitz model is a theoretical framework for analysis of risk and return and their relationships by selection the proportions of various assets in the portfolio so as to maximize an expected return with the least risk. It indicates that an investor will take more risk only if he or she is expecting more reward. He came up with on his model two types of assets- risky asset and risk- free assets

Darok, (2012) determined that one of the principal objectives of investors is to diversify their portfolio based on risk diversification in addition to maximize their returns. The investors select assets in such a way that the risk of their portfolio matches with their risk preferences. An investor then chooses how much risk to take on by investing less in risky assets in order to maximize its profit. In order to select combination of asset with maximize expected earnings, initially, standard deviation measures and it computes with expected return on portfolio of assets. In theory, the higher the risk take, the higher the return would be earned; thus, investors are compensated for bearing risk. It shows that an investor can construct multiple assets portfolio that will maximize returns for given level of risk.

One of the Markowitz biggest contributions to the financial theory is the concept of diversification as a way to reduce risk. The optimal portfolio can be chosen in accordance with the investors' preferences and their attitude towards risk and return. Both scientific thoughts from previous years and his followers have encouraged Markowitz to conceptualize the framework of portfolio selection and led to the solution of the portfolio optimization problem (Grishina, 2012).

- **Balanced Portfolio Theory**

There is a theoretical explanation about asset structure that is the most relevant and plays an important role in bank performance, (Tharu & Shrestha, 2020). Based on the portfolio balance model of asset diversification, holding optimum of each asset in the portfolio is a function of

policy decisions determined by a number of factors such as risks associated with the ownership of each

financial asset, the size of the portfolio and rates of return on all assets held in the portfolio. It becomes clear that risk minimization is at least as important as profit maximization.

The main contribution of portfolio theory to bank management of asset structure is maintaining optimal asset structure of the bank depends on the profitability of assets adjusted by the levels of risk. The banks managements make a decision on portfolio diversification and the desired portfolio composition of commercial banks.

To concluded, the Markowitz's idea of minimizing risks for a given level of return is still widely accepted. Asset allocation is today a topic of real significance and all investors want to invest in the winning combination of assets. This combination should give them the maximum level of return for the level of risk they are able to take.

Components of Asset Structure

In line with Koralun-Bereznicka (2013) study, asset diversification is a combination of various asset components such as fixed assets, tangible fixed assets, current assets and cash in hand and at bank. Similarly, Schmidt (2014), described asset components in terms of current assets, long term investments and funds, property, plant and equipment, intangible assets and other assets. (Kareem & Ani, 2017)on the other hand defined assets structure theoretically as a component of fixed assets and current assets(Resian, 2022).

- **Cash Holding**

Cash and bank balances constitute the amount of cash available to the bank for daily operations. It is generally accepted as cash on hand and cash equivalent such as bank drafts, demand deposits, cheques, treasury bill, bond and cash balances including cash and restricted and no restricted deposits with the central bank. Cash equivalents are short term liquid investments that are readily convertible to cash with original maturity of three months or less (Yahaya et la., 2015). The banks have to possess enough funds to meet its financial obligations. When keeping excessive amount of cash for unexpected circumstances as this idle money could leads to incur loss because of cost of fund while keeping lower amount of cash face a shortage of operating cash. These excess amounts of cash have to invest elsewhere to generate returns. Management of cash is important to optimize the amount of cash available, obtain maximum benefit from return on idle funds and minimizing losses caused by delays in the transmission of funds. This reduces the growth of the business and it has impact on profitability.

- **Fixed Assets (FA)**

Profits can be generated by investing in fixed assets like land, building, plant and machinery, fixtures, fittings and motor vehicle enhances the productive capacity of firms to ensure long term profitability. This category of assets does not change frequently and they are purchased to produce and sell more. Assets have significant role in determining the efficiency and the profit ratio of a firm. Since a firm acquires plant and machinery and other productive fixed assets for the purpose of generating sales. Therefore, efficiency in the use of fixed assets should be judged in relation to sales (Olatunji and Adegbite, 2014).

National Bank of Ethiopia has allowed banks with limited percentage to invest on fixed assets (10% of the total paid up capital), this included buying and developing properties to facilitate their own operation or for reseal. It is measured by the total amount of investment on fixed asset.

- **Loans and Advances**

It means any financial assets of a bank arising from a direct or indirect advance or commitment to advance funds by a bank to a person that are conditioned on the obligation of the person to repay the funds. Loans and advances to customers consist of overdraft, term loans, advances and commercial papers. The general creditworthiness of a corporate customer tends to be the most relevant indicator of credit quality of a loan extended to it. However, collateral provides as a security and banks generally request to the borrowers provide it. The bank may take collateral in the form of a first charge over real estate and other form of guarantees. Loans and advances to customers are net of charges for impairment. The amount and quality of loans and advances to customers can improve the interest income of a bank and thus increase the bank's financial performance (Yahaya et la., 2015)

- **Financial asset**

Financial assets are intangible assets such as bank deposits, bonds, and stocks, whose values are derived from a contractual claim of what they represent. Unlike property or commodities, they are not physical (apart from the documents' paper). Such contracts initiates creditor relationship with debtor and asset owners acquire unconditional claims on economic resources of other institutional units.

A contract probably to be settled in the entity's own equity and that is a non-derivative under which the entity may receive a variable amount of its own equity instruments, or a derivative that probably will be settled other than through the exchange of cash or similar for a fixed amount of the entity's equity. Laurie (2013)

In the case of private investor portfolio diversification, Blume and Friend (1975) state that a sizable portion of investors do not possess diversified portfolios of risky financial assets, despite the predictions of capital asset pricing theory.

According to (douglas .2014), who shares similar opinions, investors' erratic expectations about risk and revenue, as well as their incapacity to accurately aggregate the risks associated with individual assets and portfolio dangers, are the main causes of an enterprise's lack of diversity. Which indicates that investors expect a significant level of risk associated with the portfolio unless the varied assets are managed appropriately.

Financial Performance

- **The Efficiency Theory**

The efficiency hypothesis, considers that banks earn high profits because they are more efficient than others. There are also two distinct approaches within this theory; the X-efficiency and Scale– efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability. The scale efficiency approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can obtain lower unit cost and higher profits through economies of scale.

Profitability is a company’s ability to earn a reasonable profit on the owner’s investment. Most organizations exist is to earn profit and profitability ratios show a company’s overall efficiency and performance. We can divide profitability ratios into parts: profit margin and returns. Ratios that show margins represent the firm’s ability to translate into profits at various stages of measurement. Ratios that show returns represent the firm’s ability to measure the overall efficiency of the firm in generating returns for its shareholders (Bessis, 2005). The most popular profitability measurements are: profit margin on sale, return on asset and return on equity.

Financial performance refers to the act of performing financial activity. The financial performance measures in this study uses return on assets (ROA)

The most popular profitability measurement formula is: Return on asset = (Net profit befor tax /Average Total Assets) * 100

The study uses Return on Assets (ROA) because it shows the percentage of profit that a company earns in relation to its overall resources (total assets). The ROA reflects the ability of banks' management to generate profits from the banks' assets and is expressed in percent. The best formula to measure the bank profitability is ROA, because it represents the ability of a firm to generate returns on its portfolio assets (Tharu & Shrestha, 2020) ROA indicates the profit earned per unit asset and which is most important, it shows the management's ability to utilize the bank's financial and real investment resources to generate profits (Blerta, 2014).

ROA has emerged as a key ratio for the evaluation of bank profitability and has become the most common measure of bank profitability in the literature. Therefore, ROA is considered as more significant and a better profitability measure (Blerta, 2014).

2.2. Empirical literatures

The impact of asset diversification on the financial performance of banks in various nations has been the subject of numerous studies. Empirical review involves examination of information's and researches done in the past relating to a specific topic. It's used to establish detailed understanding and comprehension of aspects a researcher is investigating in the research. Empirical Review also shows that the problem being investigated hasn't been carried out in the way proposed by the researcher A number of studies were been done both internationally and locally related to asset diversification The findings vary from study to study and are shown in the following manner:

An asset structure is important to determine the allocation of each asset that must owned. Empirical evidence has concluded that the study of asset structure is significant to the business organizations. ZhengSheng and NuoZhi (2013) contended that the research of assets structure has more practical value and universal significance than capital structure as they are the main source of creating corporate value and avoid risks. In line with the results of this study, on the optimal allocation of asset structure and business performance with an objective to evaluate

relationship between them, the study concluded that asset structures' research has more application value and significant

meaning. Gladys and Job (2017) also concluded that asset structure has a significant impact on the financial performance in the banking sector in Kenya

Titman and Wessels in Kesuma (2009) revealed that asset structure is the wealth or economic resources owned by the company which is expected to provide benefits in the future consisting of fixed assets, intangible assets, current assets and non-current assets. It had concluded that asset structure influenced positive and significant impact on earnings in Indonesia the amount and quality of cash and bank balances can improve the banks' profitability and increase the bank's financial performance. Cash and bank balance, financial assets held for trading, loans and advances to the customers, and derivate asset have positive impact on the banks performance (ROA), (Yahaya et la., 2015).

A study by Olatunji and Adegbite (2014) examined the effect of investment in fixed assets on profitability of selected banks in Nigeria, the relationship between these variables indicated that there is a significant relationship between them. The findings of the study indicated that investment in fixed assets has positive and significant impact on the performance of the selected banks: the higher the level of investment in fixed assets lead the higher the profits of banks are. Hence, in order to improve bank profitability there should be efficient management of fixed assets. The study finally concluded that Nigerian banks should improve the level of fixed assets investments in terms of building, ICT and machine in order to boost their profitability.

The components of asset such as property, plants and equipment, and long-term investments and funds have a statistically significant and positive effect on financial performance, whereas current assets and intangible assets do not have statistically significance effect on financial performance. In light of the study findings, it recommended that all financial and services firms should increase their allocation of resources towards long term investments and funds so as to improve their financial performance in Kenya (Gladys and Job, 2017). The result of current asset is consistence with the findings of Mawih (2014) that is current assets do not have statistically significance effect on financial performance

The relative performance of portfolio of commercial banks in Ghana was evaluated by Opoku et al. in 2014. The researcher used secondary data collected over a five-year period from 20 commercial banks in Ghana (2009–2013). To evaluate the hypotheses, the Analysis of Variance

and ordinary least squares regression analysis were utilized. According to the survey, commercial banks' lending generates the most revenue, followed by investment.

Oyewobi et al. (2013) investigated how diversification of businesses affected performance of construction firms in South Africa. The study employed case study; data was collected using interviews guides for a five-year period. The studies dependent variable was performance measured using Return on Capital Employed (ROCE), Profit Margin (PM) and Return on Total Assets (ROTA), while predictor variables were Geographic Diversification (GD) and Product/ Service Diversification (PD). Intervening variables considered included were capital structure, age of firms, size, and technical ability of the firms. The findings were that construction firms recorded more profit margin. However, the study failed to specify the criteria used to identify and separate large construction companies from newly upgraded companies.

(Of et al., 2018) examined the effect of lending diversity on the financial performance of Ethiopian commercial banks using data from 15 selected banks between 2012 and 2016. The study employed a quantitative research methodology for the bank performance indicators, evaluating secondary financial data through the use of linear regression models. Based on the primary roles of factors influencing bank performance, the empirical findings show that lending diversification has a significant and somewhat significant impact.

An empirical analysis of the effect of investments on the performance of Ethiopian banks was carried out by Eskedar (2016). The study used a balanced panel model to analyze the regression model and gather data from eight commercial banks during an eleven-year period, from 2005 to 2015. In the study, the Fixed Effect model was used. The study used Return on Equity (ROE) as one dependent variable. Additionally, four independent variables—fixed asset investment, foreign deposit, equity investment, and purchasing bills from the National Bank of Ethiopia (NBE)—were used. The regression's findings show that investments in fixed assets and foreign deposits positively and significantly impacted bank performance. Conversely, the effectiveness of commercial banks was adversely and dramatically harmed by the acquisition of NBE Bills.

Hayden et al. (2007) investigated the relationship between bank profitability and portfolio diversification across many businesses, larger economic sectors, and geographic geographies. To

look into this issue, they employed a unique data set that included the individual bank loan portfolios of 983 German banks. Because different types of diversification generally result in lower bank returns, the overall evidence suggests that diversification does not greatly increase performance.

(Turkmen, 2012) examined banking diversification and its effect on banks' performance using data from Turkey. Analyses of data from forty commercial banks were conducted. Profitability and diversification were determined using return on equity and return on assets. According to the study, banks' risk levels were impacted by portfolio diversification since profits in other regions or locations offset losses in one area or location.

George et al. (2013) studied the profitability and management of loan portfolios: a case study of Kenyan commercial banks using a descriptive survey. Regression analysis was used to find that a bank's profitability is directly impacted by its loan portfolio.

Eyerusalem (2019) examined the relationship between a few Ethiopian private commercial banks' financial performance and their asset structure. Using a research design, this study examined the causal explanatory relationship between an asset component and its financial performance. Using a quantitative approach, an empirical model was constructed. Secondary data for the years 2011– 2017 was supplied by thirteen private commercial banks. Out of sixteen private commercial banks, thirteen were selected throughout a seven-year period to create a constant panel and guarantee full data availability for those banks for the selected period. The results show that while fixed assets and deposits made with foreign banks have a favorable and considerable impact on financial performance, cash holdings have a positive but hardly noticeable impact.

(M, 2016) examined the impact of asset diversification on commercial banks' financial stability. The study used a descriptive research design. We obtained secondary data from commercial banks' annual reports. The study was carried out between 2011 and 2015, a span of five years. The quantitative data were analyzed using inferential statistics. The results of the study demonstrate that every independent variable significantly and favorably affects the financial results of commercial banks.

Financial assets, loans, cash and cash equivalents, and other investments are examples of these independent variables. Eric Nkuah (2015) examined the effect of loan portfolio quality on bank

performance using information from the annual reports of ten Ghanaian banks from 2007 to 2013. Panel regression analysis and STATA statistical software were utilized in the investigation. The results indicate that during the five years between 2011 and 2015, net interest margin had a positive influence and loan loss provision had a negative impact on the chosen banks' financial performance.

Paul (2017) evaluated how commercial banks' loan portfolios affected their bottom line. The study found that portfolio expansion in loans has a considerable negative influence on the profitability of Kenyan commercial banks.

A Review of earlier research conducted in Ethiopia

In Ethiopia, some related studies have been conducted to examine the impact of asset components on profitability of commercial banks in Ethiopia.

Eyerusalem (2019) investigates how some Ethiopian commercial banks' financial performance is impacted by their asset structure. To comprehend the cause-and-effect relationship between an asset's components and financial performance, the study used an explanatory research design. An empirical model was constructed in the interim using a quantitative technique. From 2011 to2017, from thirteen commercial banks provided secondary data. Thirteen private commercial banks with a seven-year timeframe were specifically chosen from a total of sixteen in order to establish a constant panel and make all the data available for the banks within that particular period. The data was analyzed using a pooled panel regression model. The findings showed that while cash holdings have a favorable but comparatively small impact on financial performance, fixed assets and foreign bank deposits have a positive and substantial impact. and NBE Bills has negative and significant effect on banks financial performance. as a result, the investigation's findings demonstrate that asset structure significantly influences the banking industry's financial performance.

(Asmare & Worku, 2018)examined the impact of industrial diversification on a few Ethiopian banks' financial results. The data covers ten private and two government commercial banks during a six-year period, from 2008/09 to 2013/14. Overall, the banks in Ethiopia may be said to have diversified their lending portfolios across several industries. The regression was estimated using a fixed effects model, and industry diversification was found to have a negative and significant impact on both asset and equity returns.

Eskedar (2016) conducted an empirical analysis of the impact of investments on Ethiopian banks' performance. To examine the regression model and collect data from eight commercial banks over a period of eleven consecutive years, 2005–2015, the study used a balanced panel model. The Fixed Effect model was employed in the study. One dependent variable, Return on Equity (ROE), was utilized in the study. Four independent variables, fixed asset investment, foreign deposit, equity investment, and National Bank of Ethiopia (NBE) bill buying, were also employed. The results of the regression demonstrate that foreign deposits and fixed asset investments had a favorable and significant impact on bank performance. On the other hand, the acquisition of NBE Bills significantly and negatively impacted the effectiveness of commercial banks.

Samuel (2018) investigated the impact of loan diversification on commercial banks' financial performance in Ethiopia, concluding that the impact of lending diversification is both substantial and moderate, based on the key roles of bank performance determinants. The majority of the arguers discovered that banks with risk diversification are more cost efficient and profitable than banks with no risk diversification

According to a review of the literature, a number of empirical studies on the impact of corporate diversification on financial performance of banks and other sectors have been conducted, but their findings are insufficient; therefore, more empirical evidence is needed, taking into account Ethiopia's economic, financial, regulatory, and operating context.

When we see the similarity of the above local study, they are use all the same research approach where us the difference is according to (Eyerusalem, 2019) and (Samuel,2018) empirical results suggest that Asset diversification has strong and significant effect on bank performance factors on the other hand (Elefachew and Hrushikesava,2016) the investigation result suggest that the industrial diversification was found to have a negative and significant effect on both return on asset and equity.

Asset Diversification

Asset diversification is the use of multiple asset classes within an investment portfolio or fund, as opposed to investing in a single class. (Impact et al., 2022) Diversification is a risk management strategy that mixes a wide variety of investments within a portfolio. A diversified portfolio contains a mix of distinct asset types and investment in an attempt at limiting exposure to any single asset or risk

Factors Affecting Banks Performance

Different studies undertaken on the performance of banks suggest that banks performance is affected by both internal and external factors (*June, 2014 Jimma, Ethiopia*, 2014)and these factors affect the performance of banks positively or negatively. (Nkegbe, n.d.) stated that some of the elements that affect the bank's performance may be under management's control, while others may be beyond management's control.

Internal or bank specific factors are those that may or may not be under management's control. They are known as bank specific factors, according to (Mohana , 2014), bthe bank's management can enhance (positive treatment) or decrease (negative treatment) them depending on their expected impact on the bank's profitability. Capital structure, asset quality, managerial efficiency, earning quality, liquidity, bank size, technology, human capital, loan performance, and income diversification are some of the primary internal elements that determine bank success. Furthermore, external or macroeconomic elements are those factors that are beyond the control of management and are related to the industry and macroeconomic issues. Bank concentration, inflation, real GDP growth, effective tax rate, and interest rate are some of these characteristics The study consists of independent variables, specifically financial assets, loans, cash and cash equivalents, and fixed assets. Because the external factors have an equal impact on the economic success of all commercial banks and the studies independent variables are representative of the internal factors that are mentioned above so, all independent variables in the study are selected based on internal factors related to bank performance. these independent variables are measured by calculating the ratio of each independent variable to the total asset, financial performance, on the other hand, is measured by a number of indicators, including NET PROFIT MARGIN, ROE, and ROA. Nevertheless, the study uses ROA as the sole dependent variable to quantify financial performance because Return on asset (ROA) is a measure of a bank's management's capacity to generate profits from its assets. Return on Equity (ROE) is the sum of money that is given back to investors

summary of Literature Review

According to the reviews diversification is a portfolio strategy that is established and implemented in the banking industry to decrease risk, raise bank revenues, reduce profit volatility, and improve overall bank performance by integrating various investments, assets, or products

Modern portfolio theory and balanced portfolio theory aims to maximize portfolios expected return for a given level of risk, or to reduce risk for a given level of expected return, by carefully balancing asset allocations (Fabozzi, Gupta, & Markowitz, 2002). This means that MPT tries to lower the overall variance of the portfolio return for listed commercial banks by mixing different investment options whose returns are not entirely positively correlated

Several studies have been reviewed which are related to asset diversification and financial performance such as Turkmen and Yigit (2012) using data from Turkey, investigated banking diversification and its impact on bank performance. The study discovered that diversifying credit portfolios affected banks' risk levels, with losses in one industry or location being offset by gains in other sectors or locations. The influence of investment diversification on the financial performance of commercial banks in Kenya was explored by Kipleting and Bokongo (2016), who found that a majority of banks had in practice used insurance investment on the financial performance of commercial banks in Kenya over the years.

Kamwaro (2013) investigated the link between investment portfolio selection and investment company profitability on the Nairobi Securities Exchange while Maina (2013) looked into the impact of product diversity on microfinance companies' financial performance. The study, however, was unable to determine the type of product diversification, whether horizontal, vertical, or corporate, because each has its own impact on financial performance. Kahloul and Hallara (2010) demonstrate the link between diversification risk and performance. They also discovered that overall risk was unrelated to diversification in a linear fashion. However, ownership structure has the potential to influence the relationship between performance and diversification, as well as the relationship between diversification and risk.

Mutega (2016) looked into the impact of asset diversification on the financial performance of Kenyan commercial banks. The study's findings show that all independent factors have a favorable and significant impact on commercial banks' financial performance in Kenya

Some local research review in related with my research topic such as Elefachew and Hrushikesava (2016) investigated the impact of industrial diversification on the financial performance of selected Ethiopian banks, while Eyerusalem (2019) investigated the impact of asset structure on the financial performance of selected Ethiopian private commercial banks, concluding that asset structures have a positive impact on financial performance.

Samuel (2018) investigated the impact of loan diversification on commercial banks' financial performance in Ethiopia, concluding that the impact of lending diversification is both substantial and moderate, based on the key roles of bank performance determinants. The majority of the arguers discovered that banks with risk diversification are more cost efficient and profitable than banks with no risk diversification

Literature gap

So far as the review of the literature disclosed prior studies are not inclusive all asset component and never looked at other correlates of financial performance in the banks' asset diversification. Hence, to fill the knowledge gap this study has included fixed asset as one of the components of asset that affect financial performance of commercial banks in Ethiopia.

Conceptual framework of the study

The conceptual framework shows the connection between Ethiopian commercial banks' financial performance and asset diversification. The purpose of the study is to ascertain how the commercial banks' asset diversification influences the dependent variable—in this case, financial performance—by looking at the banks' independent factors- current asset, financial assets, loans, cash and cash equivalents, and fixed assets

Return on asset (ROA) is a comprehensive accounting-based indicator of a bank's overall performance. It is a key measure of managerial effectiveness since it demonstrates how well a bank's management has turned its assets into net profits. However, Rose and Hudgins (2006) contend that ROE is a reliable measure of accounting profitability from the perspective of shareholders. It roughly represents the net return on investment that stockholders receive from their capital investment.

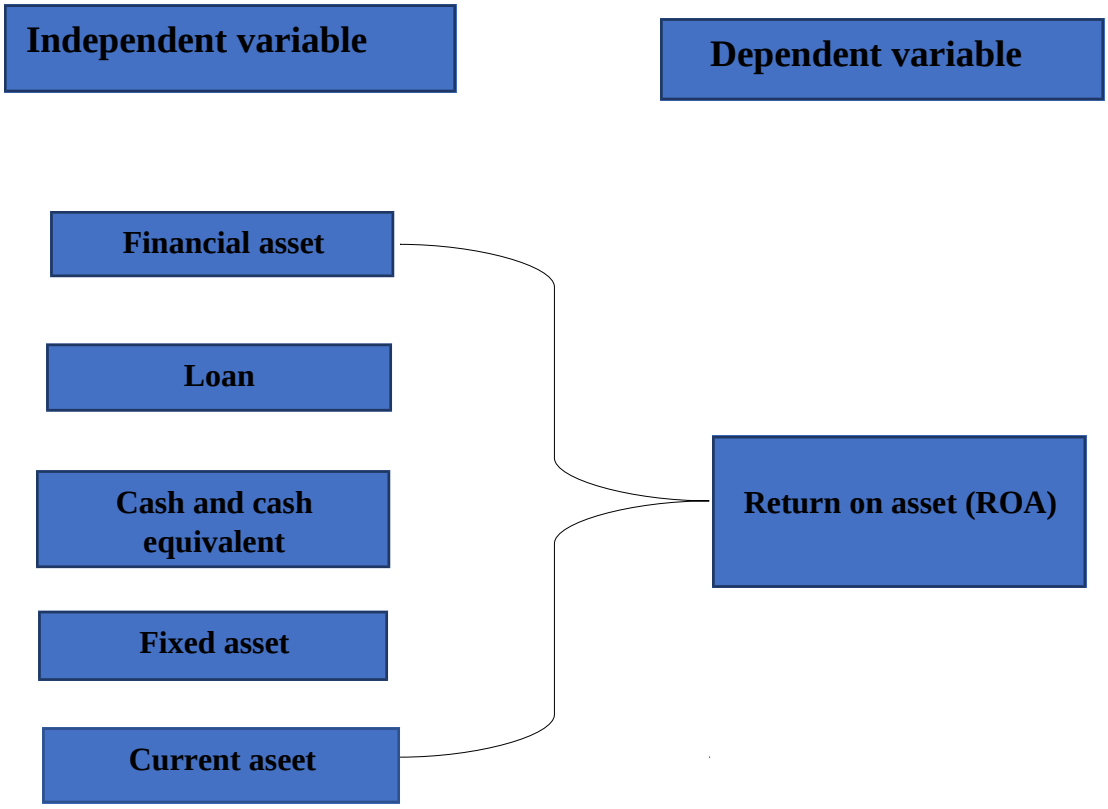
(Mirzaei, 2011) and (Sufian, 2014) contend that ROA—which is unaffected by high equity multipliers—is the most crucial indicator for evaluating bank profitability, while ROE overlooks the risks connected to excessive leverage and financial leverage. It is rare to find a study that employs ROE as the only indicator of profitability in this sense.

Other studies use ROE to compare its consistency with ROA. Return on assets (ROA) is employed as a proxy for profitability in the majority of studies on the banking industry, despite the fact that

ROA is typically used as a measure of profitability (Tharu & Shrestha, 2020) In addition to the previously mentioned justifications for choosing ROA as a profitability metric, in contrast to other profitability ratios, such as return on equity ROA measurements take into account all of a company's assets, including those resulting from debt obligations to creditors and those arising from contributions made by the owners. Therefore, ROA provides insight into the effectiveness of management in utilizing the Company's assets to produce revenue. Therefore, like the majority of the previously stated studies, this research uses ROA as an objective metric for measuring profitability. ROA is calculated by dividing net interest income by total assets.

ROA = Profit befor tax /average total assets.*100

Conceptual framework of the study



Chapter Three

3.Methodoogy

This chapter clarifies how the study is carried out, designed and implemented in order to achieve the research objective. The specific purpose of this chapter explained how to empirically examine the quantitative effect of asset diversification on the bank's performance, to present essential research methodology, choose appropriate research method and develop research hypothesis with its objectives. The methodology was conducted based on general and specific objective of the study.

3.1 Research Design

Research design is a comprehensive plan of sequence of actions that a researcher intends to carry out to achieve the research objectives(Rekik & Maha, 2021). This study adopted explanatory research design, which was used to understand the cause-and-effect relation of asset components and its financial performance. The study was conducted based on quantitative research approach to construct an empirical model to measure the impact of asset components on the banks' performance. Data was analyzed by using a multiple regression model for predicting the associative relationship between components of assets held as independent variables and financial performance - dependent variable.

The study used explanatory research design since it determines the cause and impact of asset diversification on financial performance, which is pertinent to the goal of the investigation and to achieve the study objective

3,2 Research Approach

In order to achieve the primary research goals, a quantitative research approach has employed to make generalizations regarding the influence of asset diversification on the financial performance of commercia banks in Ethiopia. Using this approach has the purpose of gathering information that helps the researcher look at cause-and-effect relationships.

Method of Data Collection

In order to analyze the effect of asset diversification on financial performance of the banks, secondary data (audited financial statements) were collected from of NBE for ten consecutive years from 2014-2023. it is apparent to use survey of structured documentary review. As a result, audited financial statements, particularly the balance sheet and income statement, has been used to achieve its goal. Secondary data was derived from annual audited reports of Ethiopian commercial banks. To achieve the goal, the paper relies heavily on panel data gathered from secondary sources

Population and Sample Size

For the study, the population was the entire commercial banks in Ethiopia, which is thirty-one, and for the sample, the size is eight commercial banks which have more than ten years. The study covered the period from 2014 to 2023, which means 10 years of data was used with the sample size of eight banks; and the total number of observations would be 80.

As of June 2023, Ethiopia has 31 licensed commercial banks that are actively doing business, out of the 31 active commercial banks some of them are new and have no ten-year background work experience because of the data availability and some of the banks are new which has no ten-year experience so the study uses eight out of 31 commercial banks that would carry out the survey and analysis. Purposive sampling is the method of sampling that have been used for this study.

The reason the study prefer commercial banks among the governmental organizations is because the Commercial Banks objectives are similar to those of other private banks. Since its goals differ from those of a commercial bank, Development Bank of Ethiopia, the other state bank, is not included in the sample.

Sample:-

Sample of Selected commercial banks is listed below: -

NO	Commercial banks	Establishment year
1	Commercial bank of Ethiopia	1963
2	Abyssinia bank	1996
3	Dashen bank	1995
4	Awash bank	1994
5	Abay bank	2010
6	Berhan bank	2009
7	Adiss international bank	2011
8	Oromia bank	2008

Table 3.1 sample of selected commercial banks

The time span chosen for this study took data availability, research time, and expense into account. Consequently, the study's time frame will essentially be from 2014 to 2023. This study makes use of yearly data on how asset diversification affects the financial performance of particular Ethiopian commercial banks.

The reason the researcher choose panel data is as (Baltagi, n.d.)states panel data has the advantage over simple time series and crossectional data in that it can track trends in the data, reduce co linearity among variables, and compensate for individual variability. The study used statistical tools to extrapolate from the data the research outcome in quantitative notation.

Data Analysis method

To investigate the association between asset diversification and financial performance of the listed commercial banks, the data was analyzed using descriptive and inferential statistics. Fixed effect model was used to examine the data collected by the researcher. The study findings were interpreted using descriptive statistical measurement such as percentages, means, and standard deviation. The researcher used tables and figures to show the study's findings in addition to the descriptive interpretation.

- The econometric model used in the study is given as:

  $Y = \beta 0 + \beta nX + \varepsilon$

  Where,

  - Y is the dependent variable.
  - β0 = Constant term,
  - βn =Coefficient of explanatory variable,
  - X= Explanatory variable and
  - E = Error term

  Based on the above basic econometric relation the study will use the following regression model to establish the relationship among the study variables.

ROA = β0+ β1 (FINA.ASSETS) + β1 (LOAN) + β3 (C & C EQ) + β4 (FIX.ASSET) + β5 (CURR.ASSET + E)

Where by;

- Y = Financial performance of banks measured by net income / total asset * 100
- FINA.ASSETS = Financial Assets as measured by financial asset / total asset * 100
- LOAN AND ADVANCE = Loan Portfolio as measured by loan and advances / total asset * 100
- C & C EQ = Cash and Cash Equivalent as measured by Cash holding / total asset * 100
- FIXED ASSET = Fixed Asset as measured by fixed asset / total asset * 100
- CURR.ASSET = current Asset as measured by current asset / total asset * 100

- β0 = constant term
- β1, β2, β3 and β4 = coefficients associated with predictor variables
- ε = Residual (error) term

Data analysis process

In this study, quantitative data was gathered from selected commercial banks and banks annual reports. After that, collected data was rearranged, edited and calculated in order to become complete data that is needed for this study. Next, the collected panel data was analyzed using descriptive statistics, and multiple linear regression analysis. The descriptive statistics (Mean, maximum and minimum values and standard deviations) was used to analyze the general trends of the data from 2014 to 2023. A multiple linear regression model was used to determine the relative importance of each independent variable in explaining the variation financial performance of commercial banks in Ethiopia. The multiple linear regressions model was conducted by ordinary listing square (OLS) method using E-views 9 econometric software package.

According to (Brooks & Centre, n.d.), ordinary least squares (OLS) or linear least squares is a method to estimate the slope and intercept in a linear regression model. This study used an ordinary least squares (OLS) regression to estimate the linear equation. The rational for choosing OLS is that, if the Classical Linear Regression Model (CLRM) assumptions hold true, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators (Brooks, 2008). In addition, as noted in Petra (2007) OLS outperforms the other estimation methods when the following holds; the cross section is small and the time dimension is short. Therefore, as far as both the above facts hold true in this study it is rational to use OLS.

Diagnostic checking is done to test whether the sample is consistent with the CLRM assumptions:

Assumption 1: E(Ut) = 0

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Brooks, 2008).

Assumption 2: var(Ut) = σ2

This assumption state that the variance of the errors is constant and finite over all values this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they

are said to be heteroscedastic (Brooks, 2008). If heteroscedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this study, the popular white test was employed to test for the presence of heteroscedasticity. The hypothesis for the Heteroscedasticity test was formulated as follow:

H0: There is no Heteroscedasticity problem in the model.

H1: There is Heteroscedasticity problem in the model.

$\alpha = 0.05$ (significance level= 5%)

Decision Rule: Reject H0 if p-value is less than significance level. Otherwise, do not reject H0.

Assumption 3: cov (ui, u j) = 0 for i _= j

This assumption states that assumption states that covariance between the error terms over time (or cross-sectionally, for that type of data) is zero. it is assumed that the errors are uncorrelated with one another. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. In this study to test for the existence of autocorrelation, the popular Breusch-Godfrey Serial Correlation LM Test was employed.

H0: There is no autocorrelation problem in the model.

H1: There is autocorrelation problem in the model.

$\alpha = 0.05$ (significance level= 5%)

Decision Rule: Reject H0 if p-value less than significance level. Otherwise, do not reject H0.

Assumption 4 :- Multicollinearity

The study used correlation matrix of independent variables to detect any multicollinearity problem or to test independent variables in regression model. (Dastgeer & Rahman, 2013)indicated correlation coefficient below 0.9 may not cause serious multicollinearity problem. On the other hand, Kennedy (2008) stated that multicollinearity problem exists when the correlation coefficient among the variables is greater than 0.80. The problem of multicollinearity arises when certain independent variables are highly correlated

H0: There is no multicollinearity problem in the model.

H1: There is multicollinearity problem in the model.

$\alpha = 0.08$ (significance level= 80%)

Decision Rule: Reject H0 if all values less than significance level(0.08 or 80%). Otherwise, do not reject H0

Assumption 5: the disturbances are normally distributed

Normality tests are used to determine if a data set is well-modeled by a normal distribution. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. This study used JarqueBera Test (JB test) ,kurtosise,and mainly p-value to find out whether the error term is normally distributed or not. The hypothesis for the normality test was formulated as follow:

H0: Error term is normally distributed

H1: Error term is not normally distributed

$\alpha = 0.05$ (significance level= 5%)

Rule: Reject H0 if p-value is less than significance level. Otherwise, do not reject H0.

Chapter 4

RESULT AND DISCUSSION

The main objective of the study was to determine the relationship between the asset structure and financial performance of commercial banks in Ethiopia. To reach the possible outcome descriptive statistics, correlation analysis and multiple regression analysis models were developed to create a relationship between independent variables and dependent variable

Descriptive Statistics

Descriptive statistics of dependent and independent variables for eight commercial banks of Ethiopia for 10 years with a total of 80 observations are reported in Table 4.1. The distribution of dataset for dependent and independent variables used in the study is explained by descriptive statistics

Table 4.1

	ROA	FINANCIAL_ASSET	FIXED_ASSET	CURRENT_ASSET	CASH	LOAN
Mean	0.037265	35.26305	3.390520	22.41607	17.52831	51.18124
Median	0.037000	21.61037	2.756169	20.96059	16.11403	50.72972
Maximum	0.064300	104.3357	10.24662	55.20976	38.28242	115.1865
Minimum	0.015000	0.068330	0.300543	0.029576	5.557304	0.063319
Std. Dev.	0.009454	31.59412	1.984374	14.07539	6.943712	16.90616
Skewness	0.300100	1.044715	0.992055	0.196903	0.792534	-0.283994
Kurtosis	3.526243	2.630169	3.672658	2.583136	3.449921	6.588942
Jarque-Bera	2.044258	14.44549	14.08189	1.055089	8.710209	42.36000
Probability	0.359828	0.000730	0.000875	0.590052	0.012841	0.000000
Sum	2.869400	2715.255	261.0701	1726.038	1349.680	3940.955
Sum Sq. Dev.	0.006792	75862.30	299.2681	15056.86	3664.351	21722.19

Observations	77	77	77	77	77	77

Table 4.1 descriptive statistics source: -EViews output

The descriptive statistics of dependent and independent variables utilized in the study for the sample banks are shown in this section. The study's dependent variables were ROA, which is a measure of the profitability of a bank's business operations based on Net Interest Income. Financial asset, cash and cash equivalent, loan, and fixed asset were the independent factors. As a result, there were 80 observations overall for each dependent and explanatory variable (panel data of 8 commercial banks for 10 years). The mean, standard deviation, minimum, and maximum values for the dependent and independent variables for sample banks from 2014 to 2023 are shown in table 4.1

The descriptive statistics of the analysis presented in Table 4.1 above shows that the mean of Net Interest Income which means ROA was 3.7265% and This means commercial banks in Ethiopia, under the period of study, earned on average 3.7265% net interest income on total asset employed. This also means that on average, for each one-birr asset of commercial banks there was 0.037265 cent return in the form of net interest income. The maximum net interest income ratio for a bank in a particular year was 0.064300 and in the same way the minimum ratio for a bank in a year was 0.015000. Regarding the standard deviation, the standard deviation is 0.9454%. it means that the value of net interest income ratio deviates from its mean to both sides by 0.00945

Financial assets (FIA) had a mean of 35.26305 which is the second highest total asset of commercial banks of in Ethiopia next to loans and advances. And a standard deviation of 31.59412 with a minimum value of 0.068330 and a maximum value of 104.3357.

The table also shows that cash and cash equivalent (CCE) had a mean of 17.5283 and a standard deviation of 6.94371 with a minimum value of 5.55730 and a maximum value of 38.2824. A higher cash to asset ratio means that the company is more liquid and can more easily fund its debt. Creditors are particularly interested in this ratio because they want to make sure their loans will be repaid. The implication is when low cash to asset ratio the bank has faced high risk in order to settle short term obligation

During the study period, the average loan and advance ratio of the tested banks is 51.18124 percent. It demonstrates that loan and advances account for almost 51 % of commercial banks' total assets in Ethiopia. The greatest loan and advance to total asset ratio for a bank in a given year is 115.1865 while the lowest ratio for a bank in the study years was 0.063319. The loan and

advances to asset ratio might differ from its mean by 16.90616 on both sides. From the summary of statistics, it was

observed that 51 % of the total asset of commercial banks in Ethiopia in the period under study was made up of loan. To sum up, loan to total asset ratio compares a bank's liquidity to its loan and total assets; the higher the ratio, the less liquid the bank. It signifies that banks have given out more loans than they can handle, and they may have trouble meeting their short-term obligations.

Finally fixed asset (FA) had a mean value of 3.3905020 and standard deviation of 1.984374 and a minimum value of 0.300543 and with a maximum value of 10.24662. A higher ratio implies that management is using its fixed assets more effectively. But high fixed asset ratio does not tell anything about a company's ability to generate solid profits or cash flows. Because when we see the mean value relatively lower than another independent variable.

Regression model result

Tests on Assumption of Classical Linear Regression Model (CLRM)

In this study as mentioned in chapter three diagnostic tests is carried out to ensure that the data fits with the basic assumptions of classical linear regression model. Accordingly, the results for the model tests are presented below.

Test for the mean of the error term is zero or E(U) = 0

Decision rule: If there is a constant term in the regression result there will never be violation in this study there is a constant term which is 0.026970 so there is no violation that means the mean of the error term is zero E(U)=0

Test for Heteroscedasticity

The condition of classic linear regression model implies that there should be homoscedasticity between variables. This means that the variance should be constant and same. Variance of residuals should be constant otherwise, the condition for existence of regression, homoscedasticity, would be violated and the data would be heteroskedastic Brooks, (2008). the presence of heteroscedasticity in OLS estimators will still give unbiased (and also consistent) coefficient estimates, but they are no longer best linear unbiased estimators (BLUE) – that is, they no longer have the minimum variance among the class of unbiased estimators Brooks, (2008). To check this, the popular white test was applied. In heteroskedastic white test the null hypothesis is that the variance of error term is constant the result of the test is as follow: -

Heteroskedasticity Test: White

F-statistic	1.469121	Prob. F (20,56)	0.1304
Obs*R-squared	26.49780	Prob. Chi-Square (20)	0.1500
Scaled explained SS	18.30486	Prob. Chi-Square (20)	0.5673

Table 4.2:- Hetroskedasticity test

In this case the F-statistics, versions of the test statistic give the conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values(0.1304) are considerably in excess of

0.05. Therefore, the null hypothesis is failed to reject since the level of significance is more than 5% which means it homoscedasticity error term or the variance of the error term is constant.

Test for Autocorrelation(cov(ui,uj)=0)

Another basic assumption of regression model says that the co-variance between error terms should be zero. This means that error term should be random and it should not exhibit any kind of pattern. If there exists co-variance between the residuals and it is non- zero, this phenomenon is called auto-correlation Brooks, (2008). To check this, we can use different methods.

Durbin–Watson test

Decision rule: -if the Durbin Watson value is close to 2 there is no autocorrelation and if it is close to zero or four there is auto-correlation and there is a violation. From the formal statistical test, the simplest test is Durbin-Watson and used only for first order only Brooks, (2008). As shown in table 4.6, the Durbin-Watson test statistic of this study (1.6518969) is clearly close to 2 and thus the null hypothesis of no autocorrelation is not rejected. But DW is used for only the first order so To mitigate this problem another method is used.

Breusch–Godfrey Serial Correlation LM test

. Breusch–Godfrey tests area joint test for autocorrelation that will allow examination of the relationship between several of its lagged values at the same time. According to Brooks (2008), The Breusch-Godfrey test is a more general test for autocorrelation up to the rth order.

Hypothesis of this test are: - Following the general null hypothesis of Breusch–Godfrey serial correlation LM test, the researcher develops the following hypothesis to check the absence of autocorrelation:

H0 = No autocorrelations errors

H1 = Autocorrelations errors

Table 4.3:-Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.479738	Prob. F (10,61)	0.8968
Obs*R-squared	5.614184	Prob. Chi-Square (10)	0.8466

As can be seen in the above table 4.3 F test result and the P value of F-statistic 0.8968 which is beyond the significance level of 5%. Hence, the null hypothesis of no autocorrelation is failed to reject at 5 percent of significant level. This implies that there is no significant evidence for the presence of autocorrelation in this model.

Test for multicollinearity
using Correlation matrix

Multicollinearity is an implicit assumption that is made when using the OLS estimation method which is that the explanatory variables are not correlated with one another Brooks, (2008). When there is multicollinearity between explanatory variables; R 2 will be high but the individual coefficients will have high standard errors, so that the regression 'looks good' as a whole, but the individual variables are not significant. This arises in the context of very closely related explanatory variables as a consequence of the difficulty in observing the individual contribution of each variable to the overall fit of the regression. Second, the regression becomes very sensitive to small changes in the specification, so that adding or removing an explanatory variable leads to large changes in the coefficient values or significances of the other variables. Finally, near multicollinearity will thus make confidence intervals for the parameters very wide, and significance tests might therefore give inappropriate conclusions Brooks (2008). in order to find out the multicollinearity problem, the bi-variate correlations among the independent variables should be examined and the existence of correlation of about 0.8 or larger indicates a problem of multicollinearity.

Table 4.4 :- Correlation matrix

	FINANCIAL_ASSET	FIXED_ASSET	CURRENT_ASSET	CASH	LOAN
FINANCIAL_ASSET	1.000000	0.003625	-0.514010	-0.393829	0.169286
FIXED_ASSET	0.003625	1.000000	-0.137188	-0.027664	0.325559
CURRENT_ASSET	-0.514010	-0.137188	1.000000	0.437501	-0.155404
CASH	-0.393829	-0.027664	0.437501	1.000000	0.041031
LOAN	0.169286	0.325559	-0.155404	0.041031	1.000000

Correlation matrix between independent variables is presented in table 4.4. When the explanatory variables are very highly correlated with each other, this problem is known as multicollinearity. As shown in the table, there are low correlation coefficients indicated that there is no problem of multicollinearity in this study. Moreover, Kennedy (2008) stated that multicollinearity problem exists when the correlation coefficient among the variables are greater than 80%; however, no correlation coefficient that exceeds 80%. The maximum correlation coefficient in absolute value, among independent variables for this model is 0.514010. Accordingly, in this study there is no problem of multicollinearity which enhances the reliability for regression analysis

Variance inflation factor (VIF)

Table 4.5 :- Variance Inflation Factors

Date: 05/25/24 Time: 23:06

Sample: 1 79

Included observations: 77

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2.03E-05	24.72042	NA
FINANCIAL_ASSET	1.23E-09	3.340478	1.476695
FIXED_ASSET	2.42E-07	4.532698	1.145269
CURRENT_ASSET	6.47E-09	5.489591	1.537848
CASH	2.30E-08	9.919093	1.330324
LOAN	3.45E-09	12.17364	1.183565

In variance inflation factor if there is constant term in our regression analysis we check the centered VIF value and if not we check the uncentered VIF value in our study we have a constant term so we check the centered VIF and see those values are below 10 so all our centered VIF values are below tenso there is no multicollinearity

Test for Normality (Ut ∼N(0, σ2))

In this study, the normality of the data was checked with the popular Bera-Jarque test statistic (Brooks 2008). According to Bera-Jarque test statistic, normally distributed data is not skewed and has a coefficient kurtosis of 3. As shown in figure 4.1, the coefficient kurtosis (2.624992) of the data in this particular study which is much closer to 3, and the Bera- Jarque statistic had a P-value of 0.26 implying that there was no evidence for the presence of abnormality in the data. Thus, the null hypothesis that the data is normally distributed should not be rejected since the p-value (0.77531) was considerably in excess of 0.05.

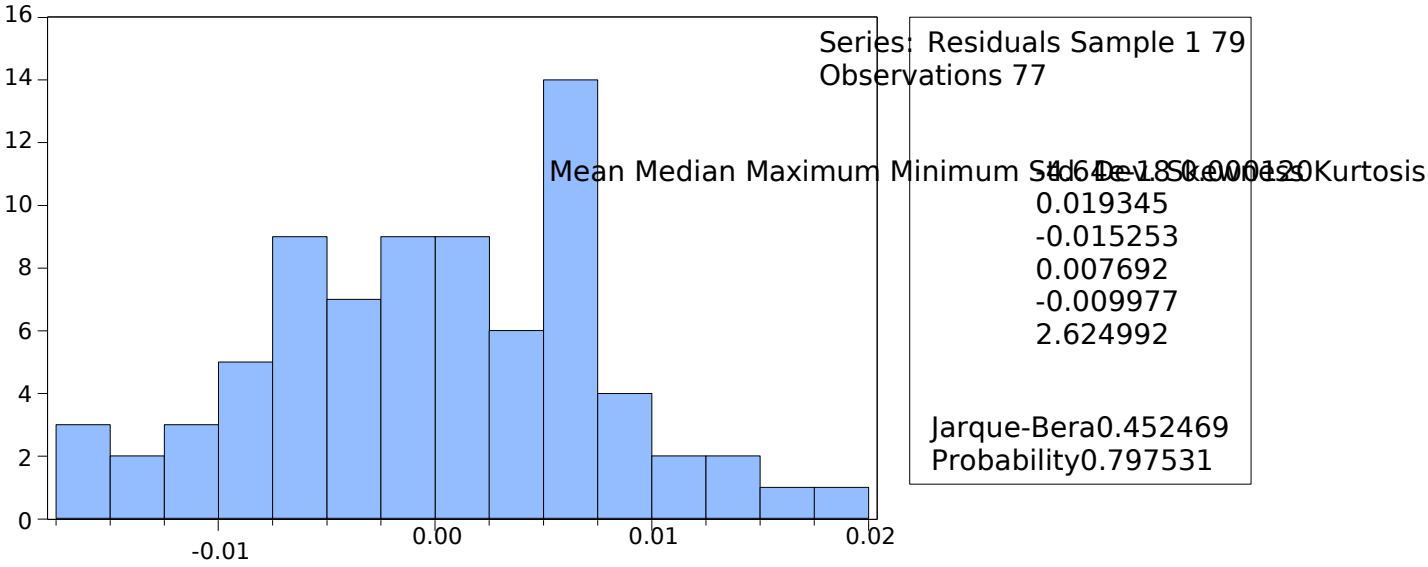


Figure 4.1 *HISTOGRAM NORMALITY TEST RESULT*

4..6 Random effect Vs fixed effect model

The results so far indicate that all CRLM assumptions are not violated, so the ordinary least square regression can be safely applied. However, since this study uses a panel data, there are two types

of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM) Brooks, (2008). The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both cross-sectionally and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally Brooks, (2008). To examine whether individual effects are fixed or random, a Hausman specification test was conducted providing evidence in favor of the REM model Baltagi (2005). The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ Fixed Effects method Brooks, (2008).

The Hausman test hypothesis is:-

H0= Random effect model is

appropriate

H1= Fixed effect model is appropriate

Table 4.6: Hausman test

Table 4.6 Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.596585	5	0.0275

For the random effect Table above shows Hausman specification test, the P-value of a model is 0.0275, which are less than 5% significance levels. The null hypothesis is that of random effect model is appropriate and alternate hypothesis is that of fixed effect model is appropriate. Since the p-value is less than 5%, level of significance we reject the null. Therefore, fixed effect model is

appropriate than random effect model to estimate the effect of different selected independent variable on asset diversification of commercial banks in Ethiopia.

Regression analysis results

EViews regression output is divided into three panels. The top panel summarizes the input to the regression, the middle panel gives information about each regression coefficient, and the bottom panel provides summary statistics about the whole regression equation. The two most important numbers, "R-squared "and adjusted R-squared (the one who answered how much percent of the variance in the dependent variable in the regression accounted for) and "S.E. of regression." and the one that shows how far is the estimated standard deviation of the error term

Table 4.7 **Fixed effect model regression result**

Period random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/28/24 Time: 08:56
Sample: 2014 2023
Periods included: 10
Cross-sections included: 8
Total panel (unbalanced) observations: 77

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023856	0.004474	5.332121	0.0000
FINANCIAL_ASSET	2.23E-05	3.46E-05	0.643144	0.5225
FIXED_ASSET	-0.001408	0.000489	-2.882524	0.0054
CURRENT_ASSET	-2.04E-05	8.03E-05	-0.254470	0.8000
CASH	0.000632	0.000159	3.983606	0.0002
LOAN	0.000133	6.10E-05	2.173949	0.0335

Effects Specification

Period fixed (dummy variables)

R-squared	0.462862	Mean dependent var	0.037265
Adjusted R-squared	0.341573	S.D. dependent var	0.009454
S.E. of regression	0.007671	Akaike info criterion	-6.729800
Sum squared resid	0.003648	Schwarz criterion	-6.273215
Log likelihood	274.0973	Hannan-Quinn criter.	-6.547170
F-statistic	3.816191	Durbin-Watson stat	1.599641
Prob(F-statistic)	0.000124		

The operational panel regression model used to find the significant factors of financial performance of commercial banks in Ethiopia measured by Return on Asset (ROA) is:

ROA = β0+ β1 (FINA.ASSETS) + β1 (LOAN) + β3 (C & C EQ) + β4 (FIX.ASSET) + β5 (CURR.ASSET + E)

ROA = 0.023856 + 2.23E-05 (FINA.ASSETS) + 0.000133 (LOAN) +0.000632 (C & C EQ) + -0.001408 (FIX.ASSET) + -2.04E-05 (CURR.ASSET + E)

Interpretations on regression results

This section discusses in detail the analysis of the results for each explanatory variable and their importance in determining financial performance. Furthermore, the discussion analyzes the statistical findings of the study in relation to the previous empirical evidences. Hence, the following discussions present the interpretation on the fixed effects model regression results and relationship between explanatory variables and ROA.

As shown from the above table the R-square and Adjusted R-squared values of the model is 0.462862 and 0.341573 respectively the result indicates that about 46.2 % of the variability in the dependent variable (Return on Asset) is explained by the independent variables used in the model. That is financial asset, fixed asset, current asset, loan, and cash and cash equivalent collectively explain 46.2% of the change in ROA. The remaining 53.8% of the variability in the dependent variable is left unexplained by the explanatory variables used in the study. This means that the remaining 53.8% of the changes was explained by other variables which are not included in the model

In this study ROA was used as a main financial performance measure. The reason for using ROA as the measurement of bank performance was because the ROA reflects the ability of a bank's management to generate profits from the bank's assets and also indicates how effectively the bank's assets are managed to generate revenues. Moreover, performance is best measured by ROA (Tan et al., 2012)

Furthermore, the probability of not rejecting the null hypothesis that there is no statistically significant relationship existing between the dependent variable (ROA) and the independent variables, which is the probability(F-statistic) is 0.015990 indicates that the overall model is

significant at 5% and that all the independent variables are jointly significant in causing variation in return on asset.

The panel fixed effect estimation regression result in the above table 4.6 shows that, coefficient intercept (α) is 0.023856. This means, when all explanatory variables have a value of zero, the average value ROA would be 0.023856 unit and statistically significant at 5% level of significance

That means when financial asset, fixed asset, current asset, loan, and cash and cash equivalent is zero the return on asset will be 0.023856

Financial asset and financial performance (ROA)

Hypothesis testing of the relationship between financial asset and financial performance of commercial banks in Ethiopia:

- H1: there is a positive and significant relationship between financial asset and financial performance of commercial banks in Ethiopia.

Conclusion: Reject the formulated hypothesis. Because there is a positive relationship between financial asset and ROA, but the relationship becomes insignificant. According to table 4.6 showed the influence of financial performance on ROA is positive but not statistically significant.so reject the formulated hypothesis which assumes there is a positive and significant relationship between financial asset and financial performance since the regression coefficient show on table 4.6 of financial asset is 0.000023 and its P- value is 0.5225(52.25%) which is greater than 5% so it is insignificant at 5% significance level so we take this variable as insignificant to affect profitability as measured by return on asset. This leads to reject the hypothesis which stated that financial asset has a positive and significant relation to financial performance of banks, that means there is no sufficient evidence to support the positive and significant relationship between financial asset and profitability in my research finding

The study result is not consistence with(Rao, 2016)) the regression was estimated using a fixed effects model, and industry diversification was found to have a negative and significant impact on both asset and equity returns.

fixed asset and financial performance (ROA)

Hypothesis testing of the relationship between fixed asset and financial performance of commercial banks in Ethiopia:

- H2: fixed asset has negative and significant effect on financial performance of commercial banks in Ethiopia.

Conclusion: fail to Reject the formulated hypotheses which is fixed asset has negative and significant effect on financial performance since there is a negative and significant relationship between fixed asset and financial performance of commercial banks in Ethiopia. The E-views results of the effects of fixed asset on the profitability of commercial banks also indicated in table 4.6 According to the result showed that other explanatory variables remain constant fixed asset have a negative influence on banks' profitability and statistically significant. The regression coefficient is -0.001408 and its P- value is 0.0054(0.54%) which less than 5% so it is significant at 5%significance level. This mean as fixed asset increase by 1 profitability (ROA) would decrease by 0.001408 and statically significant at 1%.

According to (Adegbite & Tajudeen, 2018) the study findings have indicated that investment in fixed assets have positive and significant effect to the performance of the selected banks: the higher the level of investment in fixed assets, the higher the profit of banks. finding of Eyerusalem (2019) on fixed asset and foreign banks deposit have only positive relationship on financial performance of sample bank in Ethiopia. Investment in fixed assets is beneficial in a highly inflationary country like Ethiopia .The result of this study is not consistent with the study of Eyerusalem (2019) and (Adegbite & Tajudeen, 2018)because this study indicated that fixed assets have negative and significant effect to the performance of the selected banks

Current asset and financial performance (ROA)

Hypothesis testing of the relationship between fixed asset and financial performance of commercial banks in Ethiopia:

- H3: there is a positive relationship between current asset and financial performance of commercial banks in Ethiopia.

Conclusion: Reject the formulated hypothesis that assumes there is a positive relationship between current asset and financial performance . Because there is a negative relationship between financial asset and ROA, the relationship becomes insignificant. According to table 4.6 showed the influence of financial performance on ROA is negative and statistically insignificant and our assumption is there is a positive relationship between current asset and financial performance of commercial banks in Ethiopia .so reject the formulated hypothesis since the regression coefficient show on table 4.6 of financial asset is -0.0000204 and its P- value is 0.8000 which is greater than 5% so it is insignificant at 5% significance level so we take this variable as insignificant to affect profitability as measured by return on asset . This leads to reject the hypothesis which stated that current asset has a positive and significant relation to financial performance of banks, that means there is no sufficient evidence to support the positive and significant relationship between current asset and profitability in my research finding

cash and cash equivalent and financial performance (ROA)

Hypothesis testing of the relationship between fixed asset and financial performance of commercial banks in Ethiopia:

- H4: there is a positive relationship between cash and cash equivalent and financial performance of commercial banks in Ethiopia.

Conclusion: Failed to reject the formulated hypothesis which is there is a positive relationship between cash and cash equivalent and financial performance since there is a positive and significant relationship between cash and cash equivalent and financial performance of commercial banks in Ethiopia. A new cash and cash equivalent has a positive and significance effect in financial performance of commercial banks in Ethiopia. From fixed regression result presented in table 4.6 shows that the coefficient cash and cash equivalent is 0.000632 and the P-value is 0.0002. Holding other independent variables constant at their average value, when cash and cash equivalent increased by one percent, return on asset (ROA) would be increase by 28 percent and statistically significant at 1% level of significant.

. according to (Temam, 2018) banks have to possess enough funds to meet its financial obligations and also by lending this amount increases the interest income of the bank.. The same result find by Yahaya et la., 2015, in the study cash and bank balances have a positive impact on the financial performance of deposit money banks in Nigeria. Whereas according to Eyerusalem (2019) the study result indicated that cash holding has a positive but marginally insignificant effect on financial performance of asset structure on selected private commercial banks in Ethiopia

loan and advances and financial performance (ROA)

Hypothesis testing of the relationship between fixed asset and financial performance of commercial banks in Ethiopia:

- H5: there is a positive relationship between loan and financial performance of commercial banks in Ethiopia

Conclusion: Failed to reject the formulated hypothesis that assumes there is a positive relationship between loan and financial performance since there is a positive and significant relationship between loan and advances and financial performance of commercial banks in Ethiopia. From fixed regression result presented in table 4.6 shows that the coefficient loan and advances is 0.000133 and the P- value is 0.0335. Holding other independent variables constant at their average value, when loan and advances increased by one, return on asset (ROA) would be increase by 0.000133 and statistically significant at 5% level of significant

Commercial banks rely heavily on interest revenues from loans and advances to fund their operations. Because interest rates on loans are much greater than interest expenses on deposits, the more deposits that are converted into loans, the higher the profitability of banks. As a result, during the analyzed period, the sample banks loans to total asset ratio had a positive and highly significant impact on bank profitability. It is indicated that Loans and advances had positive relationship with profitability with strongly statistically significant (p-value = 0.0335) at 0.05 significance level. This is an implication that diversification into loans and advance affects financial performance of commercial banks positively. The findings concur with Perez (2015) who acknowledges that loans rank as the key and the most valuable types of assets that is held by banks because it's from them that banks receive income. This also implies that every 1-birr change (increase or decrease) in bank 's loans & advances ratio keeping the other thing constant has a resultant change of 0.000133 cents (Coeff. = 0.000133 on the return on asset in the same direction. This result also shows that an increase in amount of loan and advances to customers from deposit has a positive impact on profitability of Ethiopian banking industry. The possible reason could be that the interest income associated with loan and advances was greater than the costs or interest paid to depositors. The result was failed to reject the hypothesis which stated that loan and advance has a positive and significant impact on the financial performance of commercial banks in Ethiopia. The finding was also consistent with (Rop & Bokongo, 2016), (kamwaro, 2017) and Mutega

Omitted Variables Test

Table 4.8 Omitted Variables Test

Equation: UNTITLED

Specification: ROA C FIXED_ASSET CASH LOAN

Omitted Variables: FINANCIAL_ASSET CURRENT_ASSET

	Value	Df	Probability
F-statistic	0.362198	(2, 62)	0.6976
Likelihood ratio	0.894437	2	0.6394

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	4.26E-05	2	2.13E-05
Restricted SSR	0.003691	64	5.77E-05
Unrestricted SSR	0.003648	62	5.88E-05
Unrestricted SSR	0.003648	62	5.88E-05

LR test summary:

	Value	Df
Restricted LogL	273.6501	64
Unrestricted LogL	274.0973	62

Omitted variable test enables to add a set of variables to an existing equation and to check whether the set makes a significant contribution to explaining the variation in the dependent variable

The null hypothesis **Ho**: additional set of the regressor are not jointly significant

Interpretation:- the p-value of F-statistic of the result is 0.6976 which is more than 0.05 at 5% significance level so we fail to reject the null hypothesis which means that the two series do not belong to the equation or the additional set of the regressor are not jointly significant

Stability test: chow test

Chow Breakpoint Test: 10 20 30 40 50 60 70

Null Hypothesis: No breaks at specified breakpoints

Varying regressors: All equation variables

Equation Sample: 1 79

F-statistic	1.684674	Prob. F (42,30)	0.0690
Log likelihood ratio	94.49759	Prob. Chi-Square (42)	0.0000
Wald Statistic	70.75632	Prob. Chi-Square (42)	0.0036

Table 4.9 Stability test: chow test

HO: there is no break point in the data generating process (DGP)

H1: there is break point in the data generating process (DGP)

Interpretation:

If there is a break point, there will be a p- value that is less than 0.05 but in this study the p-value of chow test result is 0.069 which is greater than 0.05 at 5% significance level so the result is insignificant which we fail to reject the null hypothesis that is there is no break point in the data generating process

CHAPTER 5.

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The major objective of this research was to look at the impact of asset diversification on the financial performance of Ethiopian commercial banks. The study uses quantitative techniques and panel data analysis methodology to achieve its goals. Over the period 2014-2023, the panel data were gathered from audited financial statements, specifically balance sheets and income statements, of a sample of eighty observations in eight banks. The collected data were analyzed by employing a fixed effect model using EViews.

This chapter discussed also the results of the data analysis and the discussion of these results using the appropriate method. Accordingly, the chapter discussed the descriptive statistics, the tests for the Classical Linear Regression Model (CLRM) assumptions, and the regression analyses; they illustrate the relationship between dependent and independent variables as well as the impact of

In order to conduct the empirical analysis, one dependent variable and four independent variables were selected and used by taking in to account the nature of banks operation. Return on asset was taken as dependent variable, while the independent variables were financial asset, cash and cash equivalent, loans & advances, current asset and fixed asset. asset diversification on the financial performance of commercial banks in Ethiopia. To maintain the data validity and robustness of the regressed result of the research, the most critical regression diagnostic tests consisting of Normality, Multicollinearity, Heteroscedasticity and Autocorrelation and Hausman test are conducted

Descriptive statics shows that during 2014 to 2023 the average profit level; ROA of Ethiopian banks are 3.7 percent. And the volatility of ROA of commercial banks in Ethiopia varies from the mean by 0.9% as indicated in Table 4.1.

The popular white test was conducted to test the presence of heteroscedasticity and the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05. According to table 4.6, the Durbin-Watson test statistic of this study (1.59) was clearly close to two. But Durbin-Watson used only for first

order Therefore, Breusch–Godfrey serial correlation LM test was conducted and F test result and the P

value of F-statistic is0.8968 0 which is beyond the significance level of 5%. Hence, there is no for autocorrelation.

Bera- Jarque test was used to check normality and gives P-value of 0.452469 implying that there was no evidence for the presence of abnormality in the data. The graph of normality test also indicated that normal distribution of the residual of the regression is fairly distributed around the mean. Since the histogram is bell shaped, the normality assumption is not violated.

Multicollinearity is used to test independent variables are highly correlated with each other or not. so Correlation matrices of explanatory variables shows there is no problem of multicollinearity since no correlation between variables shows more than 80%. the P-value of Hausman specification test, shows 0.0275, which is less than 5% level of significance which implying that, fixed effect model is more appropriate for this model therefore the regression is conducted on fixed effect model.

Study results indicated that the independent variables (financial asset, fixed asset, current asset, loan, cash and cash equivalent) explain and can therefore predict financial performance of commercial banks. These variables could explain 46.28% of the variation in profits in the banking sector (r-squared = 0.4628). The rest 53.72.3% of variation in profitability in the banking sector is not explained by this model. The p- value of F statics is 0.000124 indicates that the overall model is less than 0.05 which is significant at 5% and that all the independent variables are jointly significant in causing variation in return on asset.

The panel fixed effect estimation regression result in table 4.6 shows that; coefficient intercept (α) is 0.023856. This means, when all explanatory variables took a value of zero, the average value ROA would be taken 00.023856 and statistically significant at 5% level of significance.

The finding of the regression result in table 4.6 shows financial asset is insignificantly affects ROA because the p value (52.25%) is greater than 5% so it is insignificant at 5% level of significance .and Fixed asset has negative and significant relationship for ROA since the regression coefficient is – 0.001408 and its P- value is 0.0054. This mean as fixed asset increase by 1 profitability would decrease by 0.001408 and statically significant at 1%.

. cash and cash equivalent have positive and significant relationship with ROA. According to table 4.6 the coefficient cash and cash equivalent is 0.000632 and the P- value is 0.0002. which means.

when cash and cash equivalent increase by 1 commercial banks profit (ROA) increase by 0.000632.

Current asset has negative and insignificant relationship with ROA since the regression coefficient is – 0.0000204 and its P- value is 0.8000. This mean there is no evidence that current asset affects financial performance of commercial banks in Ethiopia

. loan and advances have positive and significant relationship with ROA. According to table 4.6 the coefficient. of loan and advances is 0.000133 and the P- value is 0.0335. which means. when. loan and advances increase by 1 commercial banks profit (ROA) increase by 0.000133

conclusion

To cope with the changes in the environment, banks have been forced to effectively manage their asset diversification to mitigate various risks that arise due to choosing the best combination of asset diversification,

The aim of the study is to identify the main components of asset that have impact on commercial banks financial performance in Ethiopia and find out to what extent these determinants affect the banks' profitability. Five variables including financial asset, fixed asset, current asset cash and cash equivalent and loan and advances are used as independent variables and return on asset used as dependent variable which was a measurement of banks financial performance. Multiple correlation and regression model is applied ten years (2014to 2023) of data collected from eight commercial banks in Ethiopia. The choice of this ten years period and eight banks are based the availability of complete data for those banks with specific period.

According to the study's findings, cash and cash equivalent and loans and advances have the greatest impact on commercial banks' profitability in Ethiopia, as well as a favorable effect. This leads us to generalize that the spreads realized from loans and advance and cash and cash equivalent in the Ethiopian commercial banking market is attractive. fixed asset has a negative coefficient but a statistically significant impact on a bank's profitability because the p-value strongly explains the dependent variable, current asset, on the other hand, current asset has a negative coefficient and also statically insignificant so this asset is not that much attractive. However, financial asset has negative and insignificant effect on a bank's profitability. To conclude

the findings, the majority of the variables have a statistically significant impact on the profitability of the bank.

recommendation

The study established that even though fixed asset assets, loans and advances, and cash and cash equivalents have significant impacts on the financial performance of banks, there was insignificant impact on the bank's performance by financial asset and current asset in the study. From these findings, it is recommended that policymakers and decision-makers at commercial banks should give high concern and set direction in order to set the optimum arrangement of asset diversifications so as to maximize the bank's profit

Based on the study findings, this study recommends that: -

- Income from loans and advances are the major source of revenue for commercial banks. The more the deposit that are transformed in to loans, the higher the profitability of banks due to interest rate on loans are much higher than interest expense on deposits. Therefore, the loans to total asset ratio of the sample banks during the studied period shows positive and highly significant impact on bank profitability. Therefore from the above study result the researcher recommend to bank manger as well as bank policy makers should be more focuses on diversification their asset on loan and advance because of the study result show positive and highly significant impact on bank profitability and most of bank income generate form this asset.
- Fixed asset has negative and significant effect on the banks' financial performance. When the volume of fixed asset increase, banks profitability decreases. Thus, banks should decrease investment on fixed asset so as to increase the banks' profitability through the income derived from rent services. Banks should consider the level of fixed asset investments in terms of building and investing in other companies. All banks increase their operation through new branches opening. Most of the time banks are leasing offices for branches which increase operational expenses and this causes decrease in the return on asset. The higher the level of investment on fixed assets leads the banks having lower profit. In order to improve the bank profitability, there should be investment and efficient management of fixed assets. Because most of the banks held the buildings as collateral when the banks extend the loan; and if the banks will be highly invested on fixed asset

may lead the liquidity problem. In the bank side, in order to improve banks' profitability, there should be able to manage fixed assets efficiently.

- Cash holding has positive and statically significant effect on the bank's financial performance. When cash holding increase, profitability increases or vice versa. If cash holding increases highly and kept idle, there will be excess fund which leads to undue expense or cost of fund. In contrary, if cash holding decreases (decrease in the volume of banks liquidity), there will be working capital deficit or shortage of liquid asset to run the day-to-day operation including unexpected gaps in discharging customers need for deposit withdrawal. Hence, managers of banking industry should increase their allocation of cash holding through cash budgeting (estimated projection of cash position in the future) to maintain optimum cash position level in order to improve their financial performance. Moreover, the treasurers have to also plan to invest the idle cash in the short-term investments including treasury bills and interbank lending which in turn increase profitability and.
- Further, study is valuable to the policy makers and the government institutions that regulate the banking sector in Ethiopia. Since two of the independent variables that is financial asset and current asset is insignificant impact on the financial performance of bank Thus, the researcher recommends to other researcher should also focus on those insignificant one and on the remaining 53.828 variation explain the financial performance of banking industry.

Areas for further study

The result of this study indicates that only 46.28% of the variation in financial performance of private commercial banks can be explained by the asset structure. This indicates that53.82% of their financial performance cannot be explained by the model. The researcher recommends further studies on the banking industry to explain the unexplained part of the variations, based on the result of this study. On top of that, the researcher recommends further studies on asset structure by increasing a period of review to raise the number of observations that maximize the degree of freedom for hypothesis testing.

In addition, the researcher also recommends that further studies require for components of asset such as financial asset, and current asset. Because there are inconsistent with the findings of this

study with the prior studies result. The result of this research indicated that financial asset, and current asset do not have significant effect on financial performance of commercial banks in Ethiopia

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Appendix

Appendix A: sample selected commercial banks

NO	Commercial banks	Establishment year
1	Commercial bank of Ethiopia	1963
2	Abyssinia bank	1996
3	Dashen bank	1995
4	Awash bank	1994
5	Abay bank	2010
6	Berhan bank	2009
7	Adiss international bank	2011
8	Oromia bank	2008
9	Nib international bank	1999
10	Lon international bank	2006

Appendix B: descriptive statistics

	ROA	FINANCIAL_ASSET	FIXED_ASSET	CURRENT_ASSET	CASH	LOAN
Mean	0.037265	35.26305	3.390520	22.41607	17.52831	51.18124
Median	0.037000	21.61037	2.756169	20.96059	16.11403	50.72972
Maximum	0.064300	104.3357	10.24662	55.20976	38.28242	115.1865
Minimum	0.015000	0.068330	0.300543	0.029576	5.557304	0.063319
Std. Dev.	0.009454	31.59412	1.984374	14.07539	6.943712	16.90616
Skewness	0.300100	1.044715	0.992055	0.196903	0.792534	-0.283994
Kurtosis	3.526243	2.630169	3.672658	2.583136	3.449921	6.588942
Jarque-Bera	2.044258	14.44549	14.08189	1.055089	8.710209	42.36000
Probability	0.359828	0.000730	0.000875	0.590052	0.012841	0.000000
Sum	2.869400	2715.255	261.0701	1726.038	1349.680	3940.955
Sum Sq. Dev.	0.006792	75862.30	299.2681	15056.86	3664.351	21722.19
Observations	77	77	77	77	77	77

Table 4.1 descriptive statistics *source :- eviews output*

Appendix c: heteroskedasticity test: white test

Heteroskedasticity Test: White

F-statistic	1.469121	Prob. F(20,56)	0.1304
Obs*R-squared	26.49780	Prob. Chi-Square(20)	0.1500
Scaled explained SS	18.30486	Prob. Chi-Square(20)	0.5673

Appendix D: Breusch-Godfrey Serial Correlation LM Test:

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.479738	Prob. F(10,61)	0.8968
Obs*R-squared	5.614184	Prob. Chi-Square(10)	0.8466

Appendix E: multicolinarity test(correlation matrix):

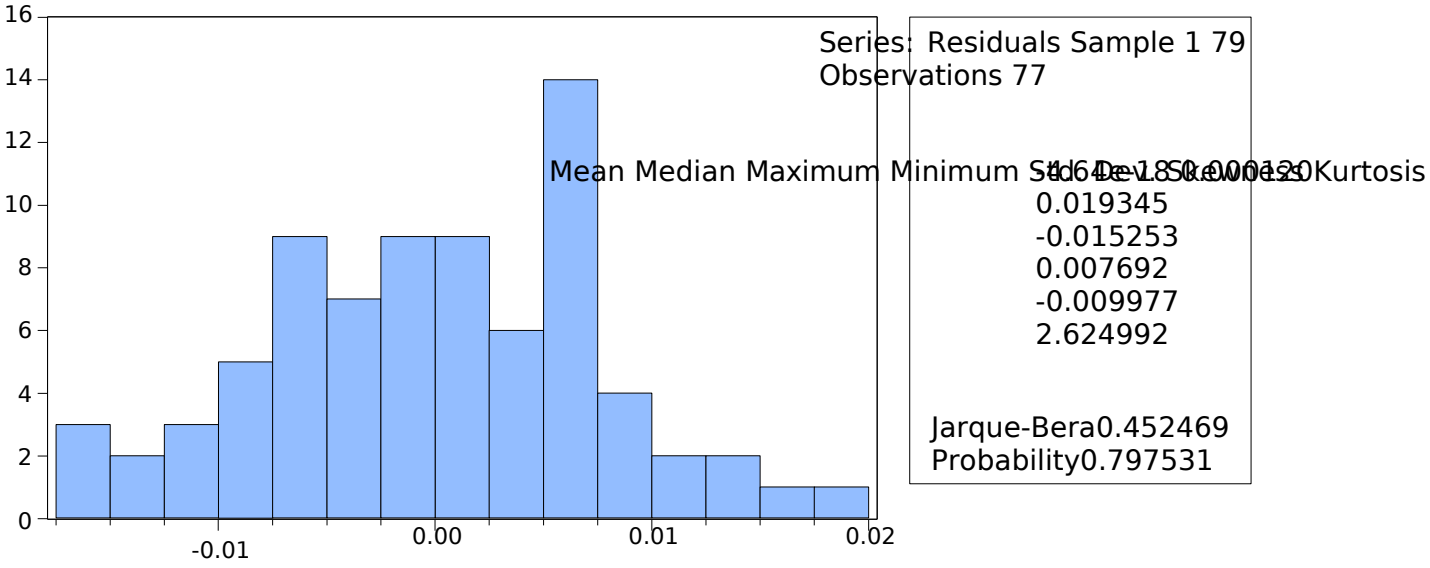
	FINANCIAL_ASSET	FIXED_ASSET	CURRENT_ASSET	CASH	LOAN
FINANCIAL_ASSET	1.000000	0.003625	-0.514010	-0.393829	0.169286
FIXED_ASSET	0.003625	1.000000	-0.137188	-0.027664	0.325559
CURRENT_ASSET	-0.514010	-0.137188	1.000000	0.437501	-0.155404
CASH	-0.393829	-0.027664	0.437501	1.000000	0.041031
LOAN	0.169286	0.325559	-0.155404	0.041031	1.000000

Appendix F: multicolinarity test(variance inflation factor (VIF)):

Variance Inflation
Factors
Date: 05/25/24 Time: 23:06
Sample: 1 79

Included observations: 77			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2.03E-05	24.72042	NA
FINANCIAL_ASSET	1.23E-09	3.340478	1.476695
FIXED_ASSET	2.42E-07	4.532698	1.145269
CURRENT_ASSET	6.47E-09	5.489591	1.537848
CASH	2.30E-08	9.919093	1.330324
LOAN	3.45E-09	12.17364	1.183565

Appendix G: Histogram normality test



Appendix H: hausman test

Correlated Random Effects - Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.596585	5	0.0275

Appendix I: Fixed effect model regression result

Period random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/28/24 Time: 08:56
Sample: 2014 2023
Periods included: 10
Cross-sections included: 8
Total panel (unbalanced) observations: 77

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023856	0.004474	5.332121	0.0000
FINANCIAL_ASSET	2.23E-05	3.46E-05	0.643144	0.5225
FIXED_ASSET	-0.001408	0.000489	-2.882524	0.0054
CURRENT_ASSET	-2.04E-05	8.03E-05	-0.254470	0.8000
CASH	0.000632	0.000159	3.983606	0.0002
LOAN	0.000133	6.10E-05	2.173949	0.0335

Effects Specification			
Period fixed (dummy variables)			
R-squared	0.462862	Mean dependent var	0.037265
Adjusted R-squared	0.341573	S.D. dependent var	0.009454
S.E. of regression	0.007671	Akaike info criterion	-6.729800
Sum squared resid	0.003648	Schwarz criterion	-6.273215
Log likelihood	274.0973	Hannan-Quinn criter.	-6.547170
F-statistic	3.816191	Durbin-Watson stat	1.599641
Prob(F-statistic)	0.000124		

Appendix I: Omitted variable test

Omitted Variables Test
Equation: UNTITLED
Specification: ROA C FIXED_ASSET CASH LOAN
Omitted Variables: FINANCIAL_ASSET CURRENT_ASSET

	Value	df	Probability
F-statistic	0.362198	(2, 62)	0.6976
Likelihood ratio	0.894437	2	0.6394

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	4.26E-05	2	2.13E-05
Restricted SSR	0.003691	64	5.77E-05
Unrestricted SSR	0.003648	62	5.88E-05
Unrestricted SSR	0.003648	62	5.88E-05

LR test summary:

	Value	df
Restricted LogL	273.6501	64
Unrestricted LogL	274.0973	62

Unrestricted Test Equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/31/24 Time: 19:33
Sample: 2014 2023
Periods included: 10
Cross-sections included: 8
Total panel (unbalanced) observations: 77

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023856	0.004474	5.332121	0.0000
FIXED_ASSET	-0.001408	0.000489	-2.882524	0.0054
CASH	0.000632	0.000159	3.983606	0.0002
LOAN	0.000133	6.10E-05	2.173949	0.0335

Effects Specification

Period fixed (dummy variables)

R-squared	0.462862	Mean dependent var	0.037265
Adjusted R-squared	0.341573	S.D. dependent var	0.009454
S.E. of regression	0.007671	Akaike info criterion	-6.729800
Sum squared resid	0.003648	Schwarz criterion	-6.273215
Log likelihood	274.0973	Hannan-Quinn criter.	-6.547170
F-statistic	3.816191	Durbin-Watson stat	1.599641
Prob(F-statistic)	0.000124		

Appendix k : stability test :chow test

Chow Breakpoint Test: 10 20 30 40 50 60 70
Null Hypothesis: No breaks at specified breakpoints
Varying regressors: All equation variables
Equation Sample: 1 79

F-statistic	1.684674	Prob. F(42,30)	0.0690
Log likelihood ratio	94.49759	Prob. Chi-Square(42)	0.0000
Wald Statistic	70.75632	Prob. Chi-Square(42)	0.0036

Panel Data					
ROA	**financial asset**	**fixed asset**	**cash**	**loan**	**current asset**
4.00%	**17.79437**	**1.848531**	**30.30735**	**41.49469**	**38.36365**
3.90%	**20.90646**	**2.133784**	**17.56571**	**49.36181**	**27.68667**
4.10%	**21.64603**	**4.631487**	**19.04206**	**45.78919**	**37.45542**
2.75%	**21.35332**	**3.111885**	**20.37275**	**43.21994**	**29.44316**
4.70%	**20.38**	**2.552422**	**18.01388**	**48.95749**	**27.68181**
3.60%	**22.56826**	**2.435811**	**16.11403**	**48.21953**	**55.20976**
3.20%	**20.28218**	**2.409038**	**15.72269**	**50.72972**	**25.29206**
3%	**17.36884**	**2.184474**	**16.93662**	**52.671**	**29.22236**

3.20%	2.461119	2.7584	18.82935	52.29407	27.24156
2.80%	11.36752	4.100163	17.68045	59.69766	12.39621
4.50%	16.22842	2.727162	29.79126	42.93571	30.98286
4.10%	13.07828	2.756169	22.33055	45.76457	35.12372
3.50%	13.97071	2.797678	24.04302	43.66765	23.57297
3.10%	104.3357	2.404056	15.17624	51.17022	24.16689
2.80%	89.34573	7.985811	15.50027	50.75915	16.5851
2.50%	72.37173	3.452467	10.83264	57.5722	12.22086
2.80%	92.14847	1.149813	8.883255	61.6272	19.55172
2.90%	93.4054	5.212224	12.37752	65.10259	20.69936
3.50%	93.89589	4.71391	5.557304	63.91078	23.043
2.20%	93.22558	5.231585	16.07905	65.71156	1.63755
4.20%	25.60634	2.037641	17.82764	50.31727	21.23645
3.70%	28.47371	2.302537	13.56117	52.00649	28.33693
3.20%	26.33197	2.485878	18.81188	47.45314	29.64025
3.70%	24.24214	2.476866	15.61352	50.95838	23.46226
2.80%	23.4324	7.318909	14.55655	50.57773	19.42803
3.10%	20.42938	6.952778	11.65873	57.09354	19.75793
3.40%	17.42382	6.55517	12.56743	60.2195	20.58644
3.40%	16.48461	6.771064	13.6997	63.13436	31.42874
3.05%	2.410184	6.478303	24.36296	0.063319	19.62207
2.80%	8.65985	5.383854	#VALUE!	69.16454	0.675842
5.10%	14.70685	3.773733	34.15573	40.02806	44.94596
6.43%	19.30969	3.043785	28.54199	44.45291	51.29697
6.20%	19.27015	2.363937	31.16586	42.63642	46.11901
4%	19.18407	1.82827	27.04223	45.73235	36.2162
3.80%	19.86494	2.408757	24.62541	48.348	38.69109
4.20%	0.931914	1.884345	24.04844	48.02496	35.13632
4.50%	14.28818	1.684915	22.84199	53.15421	48.64327
4.80%	10.45603	1.39244	20.91301	50.63513	39.30923
4.80%	9.146961	1.859764	20.71418	55.85775	31.63439
2.60%	10.12749	0.300543	17.14696	59.22792	0.058029
3.80%	0.06833	2.154492	15.47825	41.50909	6.296582
3.60%	0.077589	3.605501	15.44148	49.64996	0.052276
3.50%	77.80917	3.735013	18.59609	49.60511	0.049632
3.70%	81.90033	2.984261	17.4894	56.57681	0.054174
4.10%	93.86696	4.384628	21.0471	56.64037	0.045504
5.10%	95.12289	3.413097	15.23494	63.32418	0.038096
4.30%	94.92406	3.332685	16.17047	64.15099	0.042576
4.40%	95.76799	2.638208	13.6245	68.02051	0.038777
4.70%	95.28602	2.481036	17.47584	70.47456	0.029576
4.70%	94.11265	3.407554	15.56812	72.29225	0.472917

4.80%	**19.90993**	**1.045335**	**34.87985**	**41.40849**	**49.86721**
4.30%	**19.96464**	**1.44183**	**29.79945**	**44.93073**	**44.05483**
5.90%	**22.05118**	**0.835879**	**21.62822**	**42.68375**	**32.51938**
5.30%	**20.95845**	**1.631537**	**22.88023**	**50.09352**	**30.28747**
3.30%	**1.425862**	**1.554395**	**19.02701**	**72.08674**	**25.98122**
3.40%	**22.31575**	**1.923917**	**15.94814**	**52.70245**	**16.82234**
3.40%	**17.90424**	**4.271542**	**13.09015**	**0.226783**	**16.86953**
2.40%	**14.20105**	**4.670037**	**11.20911**	**0.37327**	**15.75442**
1.90%	**101.942**	**5.454843**	**9.50694**	**65.97299**	**15.15449**
1.50%	**8.657698**	**5.101278**	**8.286615**	**68.9662**	**49.49368**
4.50%	**45.86791**	**0.720019**	**6.208455**	**37.21108**	**14.327**
4.60%	**50.51224**	**0.755711**	**7.030678**	**37.2004**	**15.08081**
3.90%	**49.28006**	**1.489441**	**6.076221**	**37.24352**	**15.27633**
4.40%	**53.98132**	**1.941125**	**10.89318**	**30.65904**	**12.32159**
1.80%	**56.04054**	**2.140352**	**9.061563**	**30.14399**	**16.30001**
2.40%	**55.87669**	**1.716564**	**11.98984**	**27.75653**	**14.9293**
3.60%	**54.83961**	**1.773323**	**11.90365**	**28.45031**	**15.25308**
2.10%	**56.13584**	**1.424177**	**11.81939**	**28.16541**	**13.05284**
4.40%	**7.181778**	**4.07841**	**21.75518**	**65.90292**	**1.987808**
3.60%	**7.31971**	**10.24662**	**38.28242**	**115.1865**	**13.74254**
3.40%	**3.94313**	**6.096747**	**24.33094**	**62.8048**	**30.50868**
3.10%	**3.815054**	**6.290876**	**18.44385**	**47.60861**	**24.88515**
3.80%	**26.81956**	**4.813401**	**13.58403**	**54.99446**	**23.04044**
3.30%	**29.87834**	**5.915692**	**14.04364**	**55.59498**	**18.36678**
3.11%	**29.51564**	**5.224952**	**11.38126**	**59.6045**	**20.67896**
3.50%	**28.29821**	**7.118684**	**11.17283**	**64.68214**	**27.20777**
3.90%	**22.98214**	**3.844293**	**11.62038**	**72.51488**	**20.96059**
3.70%	**21.61037**	**5.44045**	**12.36208**	**74.65939**	**18.61107**
4.10%	**25.20681**	**2.908108**	**11.15925**	**75.87696**	**14.67689**