ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

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

BY

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A THESIS SUMITTED TO THE DEPARTMENT OF ACCOUNTING & FINANCE IN PARTIAL FULFILLMENT OF THE REQUAIRMENT FOR THE DEGREE OF MASTERS OF SCINCE IN ACCOUNTING AND FINANCE

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JUNE: 2022

ADDIS ABABA, ETHIOPIA

Declaration

I **Habte G/Michael** hereby declare that this thesis entitled "***Impact of Asset Diversification on financial performance of Commercial Banks in Ethiopian"*** has been carried out by me under the guidance and supervision of **Dr. Tekalign Nega**. The thesis is original and has not been submitted for the award of any degree or diploma to any university or institutions.

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Certification

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

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Acknowledgments

First, I would like to thanks the Almighty God giving me strength to accomplish this thesis.

I would like to express my deepest gratitude to my advisor, ***Dr. Tekalign Nega****, for their constant guidance, support and suggestions made me present this research work to produce in the present form.*

My sincere gratitude goes to the staff and management of the National bank of Ethiopia providing all the necessary data including financial statement of all commercial banks.

Finally I would like to thanks my family, friends and classmate for their help and support during the production of this thesis.

Abstract

The Objective of this study is to see how asset diversification affected the financial performance (ROA) of Ethiopian commercial banks. The survey and analysis is conducted by eight commercial banks in Ethiopia with a total of 80 observations were made using financial statements throughout a ten-year period from 2011 to 2020. The data was evaluated utilizing quantitative and secondary financial data using explanatory and regression analysis as a basis. To evaluate the collected data, the researcher employed the fixed effect model. Besides the descriptive interpretation, the researcher used tables and figures to present the findings of the study. The empirical findings of this study suggest that loans and advances had positive relationship with profitability with strongly statistically significant (p-value = 0.0001) at 1% significance level. This is an implication that diversification into loans and advance affects financial performance of commercial banks significantly and positively. Whereas financial asset and cash and cash equivalent negative effect but statistically significant impact on the financial performance on banks. On the other hand fixed asset don‘t have statistically significant effect on profitability as measured by net interest income (ROA). Therefor from the result we can conclude the findings, the majority of the variables have a statistically significant impact on the profitability of the bank.

Keywords: Asset diversification, financial performance

CHAPTER ONE

1.1 Back ground of the study

Financial institutions play a crucial role in the distribution of economic resources. One of the primary goals of financial organizations is to continuously mobilize resources and channel them to investors. This will only be accomplished when these institutions are able to earn enough revenue to pay all of their operating expenses. In short, banks must be profitable and have a long-term financial performance. Asset diversification is important for banks to reach this level of sustainability and profitability.

Nowadays unpredictable economic situation needs well-organized and effective financial structures for specialization (it means an area of activity or study that someone concentrates on) in offering services and production, to win and maintain a friendly relationship with investors' and maintain competitive advantage in the market so as to boost economic transaction (Marcia, Otgontsetseg & Hassan, 2014). Therefore, having a financial system which is efficient and stable is vital.

Due to volatile economic environment, commercial banks are focusing on new ways of enhancing their operations. This is aimed at increasing profitability, reducing risk, increasing share of the market, increasing debt ability, more growth and prolonging the life cycle of business. Nevertheless, Marcia, Otgontsetseg and Hassan (2014) there opinion that banks' target of obtaining better returns/profits has been highly seen as the main motive contributing towards increased progression of financial innovations, loans base widening and increase in asset prices without economic basis.

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, diversified assets can play a role in insuring a firm against market conditions and economic variations. The size of individual class of asset in the portfolio can be varied to obtain maximum returns under the existing economic environment. Perez (2015)

acknowledges that asset diversification is adopted by asset managers to very great extent aimed at reducing risk and increasing returns. He concluded that the higher the earning possessions, the better it turns to be for any bank.

Profitability is a measure of economic gains realized by a firm in relation to the capital invested. This level of economic success can be determined by the amount of reported profits in a financial year. Zopounidis (2001) stated that business environment is characterized by risks and uncertainties. To effectively compete in the market place banks manage their assets diversification taking into consideration the risk level, earnings, liquidity, profit, solvency, the level of loans and deposits to mitigate losses and thus improve 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 diversification which means that one should not concentrate all efforts and resources in one area as one could lose everything and the other "Put all your eggs in one basket and watch that basket" which favors the focusing strategy i.e. confining organizations to specialized areas of business. According to Gupta (2011) putting all your eggs in one basket is a risky decision.

1.2 Statement of the problem

Diversification and its implications for performance is now drawing considerable attention from scholars, policymakers and donors, because of the relevance of the theme to policy and development action. Chakrabarti et al. (2007) put forth an argument that diversification of assets contributes to improving performance in developing institutional environments. Adding to this argument, Ishak and Napier (2006) point out that diversification doesn't lower value of firm, however, the firm value escalations with increased diversification levels. Chakrabarti et al. (2007), however warn that divergence of assets adversely effects performance in those institutions which are more established. Hitt, et al. (1996) acknowledge that numerous businesses' poor financial performance is due to assets that are performing poorly. They conclude that poor performance arising from assets performing poorly is repeatedly linked to strategic errors committed in the acquirement progression.

So many researchers like (Kipleting and Bokongo (2016), Kamwaro (2013) and Maina (2013) etc.…) have empirically explored various factors of banks profitability even though the

definition & measures of profitability varies among the researchers. Regardless of profitability measurements, most banking research have discovered that both the internal and external environments of the company are essential drivers of high profitability. Internal bank performance or profitability drivers are characterized as factors that are influenced by a bank's management decisions, including asset diversification. Banks' operating results will undoubtedly be impacted by such managerial consequences.

Although a quality management leads to a good bank performance, it is difficult, if not impossible, to assess management quality directly. In fact, it is implicitly assumed that such a quality will be reflected in the operating performance. As such, it is not uncommon to examine a bank's performance in terms of those financial variables found in financial statements, such as the balance sheet and income statement (Krakah & Ameyaw, 2010). External determinants of bank profitability are factors that are beyond the control of a bank's management. They represent events outside the influence of the bank. However, the management can anticipate changes in the external environment and try to position the institution to take advantage of anticipated developments. The two major components of the external determinants are macroeconomic factors and financial structure factors (Krakah & Ameyaw, 2010).

There are few studies conducted locally related to this subject is done by Elefachew and Hrushikesava (2016) examined the effect of industrial diversification on financial performance of selected banks in Ethiopian, Eyerusalem (2019) examine the impact of asset structure on the financial performance of selected private commercial banks in Ethiopia and Samuel (2018) examined the Effect of Lending Diversification on the financial Performance of commercial Banks in Ethiopia.

whereas globally so money related study is done for instances some of which was done previously by Turkmen and Yigit (2012) explored diversification in banking and its effect on banks performance using evidence from Turkey, Kipleting and Bokongo (2016) investigated the effect of investment diversification on the financial performance of commercial banks in Kenya, Kamwaro (2013) examined the relationship between investment portfolio choice and profitability of investment companies listed in the Nairobi securities exchange, Maina (2013) investigated the product diversification effect on financial performance of microfinance companies and Mutega (2016)"Effect of asset diversification on financial performance of commercial bank in Kenya".

However, in the context of Ethiopian banking industry, the subject has received a limited research attention. In which case, in order to either prove the above premises or reach into some other assertion regarding the relationship between asset diversification and financial performance of Ethiopian banking sector, empirical investigation is lacking. As far as the knowledge of the researcher is concern, I didn't find any research work done in bank profitability over the asset diversification locally.

Globally more related with my research topic is study by Mutega (2016). Mutega (2016) study did not cover the effect of fixed asset necessity on the aspects of financial performance of the bank. The study focused on asset diversification elements (financial asset, loan, cash and cash equivalent and other investment) has a positive and significant impact on financial performances of commercial banks in Kenya.

Nevertheless this study goes further to include other variables influencing Profitability with relation to asset diversification which is fixed asset in addition to this target factors are financial asset, cash and cash equivalent and loan, their effect on bank performance of commercial banks in Ethiopia. Therefore, this paper is intended to fill this gap.

1.3 Research Questions

- What is the impact of financial asset on the financial performance of commercial banks?
- What is the impact of loan on the financial performance of commercial banks?
- What is the impact of cash and cash equivalent on financial performance of commercial banks?
- What is the impact of fixed asset on the financial performance of commercial banks?

1.4 Objective of the Study

1.4.1 General Objectives of the Study

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

1.4.2 Specific objectives of the study

- ❖ To identify the effect of financial asset on the financial performance of commercial banks in Ethiopia.
- ❖ To identify the effect of loan and advance on the financial performance of commercial banks in Ethiopia.

- To identify the effect of cash and cash equivalent on the financial performance of commercial banks in Ethiopia.
- To identify the effect of fixed asset on the financial performance of commercial banks in Ethiopia

1.5 Hypotheses of the Study

To meet the study's goal, I'll develop some hypotheses on the impact of asset diversity 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. Creditor relationships with debtors are established, and asset owners obtain unconditional claims on the economic resources of other institutional entities.

According to Blume and Friend (1975) state that on private investor portfolio diversification, point out that there a large pool of private investors who still have not diversified portfolios of financial assets that are risky even with the outlooks from the theory of capital asset pricing.

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

- H1: there is a positive 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 lenders; banks do not invest its entire fund in a profitable asset

(Nwankwo, 2000). 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 (McCarthy et al. 2010).

- H2: there is a positive 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 (Yahaya et la., 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 relationship between cash and cash equivalent and financial performance commercial banks in Ethiopia.

Fixed Asset

Investing in fixed assets such as land, buildings, plant and machinery, fixtures, fittings, and motor vehicles can increase a company's productive capacity and ensure long-term success.

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 this variables indicated that there is a significant relationship between them. 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.

- H4: Investment in fixed asset is positive effect on financial performance of commercial banks in Ethiopia.

1.6 Significance of the Study

Companies must carefully and deliberately identify the competitive advantage in today's competitive world, with the rise and expansion of the economy. This study will be crucial to Ethiopia's banking industry and financial systems since it will justify the case for strategic banking adoption. Diversification of assets for better financial success. The study's findings are useful to commercial bank management since it focuses on the impact of asset diversification on Ethiopian banks' financial performance trends. The findings tell managers about the factors to consider when determining the degree of asset diversification. The findings of this study will be useful to policymakers and government entities in Ethiopia that regulate the banking sector. The study will also be help to other researcher so as to builds on the literature on enhancing the financial performance of banks through Asset diversification.

1.7 Scope and Limitations of the Study

To achieve the objectives, the scope of the study has selected eight commercial bank in Ethiopian and also the study covered impact of asset diversification with respect to financial performance of commercial bank in Ethiopia for the period 2011-2020. It is concerned with the effect of financial assets, loans, cash and cash equivalents, and fixed assets on the financial performance of a selected commercial bank in Ethiopia over the reference period. The researcher relied on secondary data on financial performance and related performance drivers that had already been published. The study was carried out in Ethiopia.

This study is limited by sample size or total number of banks used for the analysis, and it is also constrained by the number of years covered.

CHAPTER TWO

2. LITERATURES REVIEW

2.1. Introduction

This chapter reviews the theoretical and empirical literatures on impact of Asset diversification in banks. We start on section 2.2 with the theoretical reviews of Asset diversification. Under this section we will see factors that affect bank performance and related theories. In section 2.3 we will review of empirical studies related to the impact of diversification on profitability of banks. Section 2.4 provides conclusions on literature review. Finally in section 2.5 we will provide the conceptual framework of the study.

2.2 Theoretical Review

This section will be conducted by four theories; Modern Portfolio Theory, Arbitrage Pricing Theory, Agency Theory and Capital Market Theory. The research will be use for the theories in developing the conceptual framework. These theories acknowledge that diversification as important for risk mitigation and increasing returns.

2.2.1 Modern Portfolio Theory

The Modern Portfolio Theory (MPT) is a theory of portfolio choice developed by Harry Markowitz (1952). The MPT is a sophisticated investment decision approach that aids in classifying, estimating and controlling both the kind and amount expected risk and return (Khan & Hildreth, 2002).

There are several government operations and projects that can be organized into portfolios, each with its own budget in accordance with the MPT, which is utilized in financial decision-making and asset management in risky and unpredictable situations. This means that MPT aims to rebalance the returns of listed commercial banks by mixing multiple investment options whose returns are not totally positively correlated. MPT aims to lower the total variance of a portfolio's return while assuming rational investors and efficient markets. The MPT mathematically expresses the concept of diversity in investing, with the goal of picking investments that have a lower overall risk than any one product (Khan & Hildreth, 2002).

The MPT assists listed banks in explaining investment options in terms of inherent risks and projected returns, allocating resources among investment classes, reconciling risks and returns, and monitoring performance based on portfolio diversifications. The primary assumption of MPT is that by combining assets from diverse asset classes that are not highly correlated, the portfolio's volatility can be reduced and risk-adjusted performance can be improved.

To put it another way, combining assets that are not correlated will result in the most efficient portfolio, the one that generates the highest return for a given amount of risk. When one asset in the portfolio depreciates in value, the assumption is that another asset in the portfolio will increase in value over the same time period by combining asset classes that are not completely correlated. Even if all asset classes are very volatile on their own, when they are integrated in one portfolio, the volatility is decreased (Taleb, 2007). For these considerations, the Modern Portfolio theory predicts a positive relationship between diversification and profitability.

2.2.2 Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT) was advanced by Ross (1976). According to APT, the anticipated returns on a financial asset are heavily dependent on its beta. This beta is a measure of the present relationship between components in a company that have an impact on the company's financial success as well as the broader market in which it operates.

According to APT, an asset's expected returns are positively related to and covariant with other random factors. The covariance found measures the risk that investors face as a result of diversification, which is unavoidable. The slope's gradient denotes a linear relationship between predicted profits, whereas the covariance denotes a risk premium.

The basic attribute here is the combination of an efficient portfolio's return rate and an individual asset's return rate. According to APT, a significant correlation between the return rate of a portfolio and the return rate of an asset can indicate that it is worthwhile to claim a high risk premium on that asset (Sciubba, 2006). APT can be used to design multiple investment strategies based on an investor's long- and short-term objectives. The Arbitrage Pricing Theory (APT) was used in this research because it supports the link between asset diversification and company performance. Arbitrage Pricing Theory promotes diversification as an investment strategy for

businesses that can result in higher profits. However, the Arbitrage Pricing Theory points out that diversity is linked to risk, hence asset diversification must be done with caution.

2.2.3 Agency Theory

The Agency Theory came about through the works of Jensen and Meckling in (1976). The theory holds that in every business situation, managers may have conflicting interests from those of the shareholders (Jensen and Meckling, 1976). This arises from the fact that the managers make most managerial decisions in such a way that they benefit the most at the expense of the business. Agency problems are thus likely to occur and should be anticipated by putting in place mechanisms to monitor and regulate these managerial actions (Jensen and Meckling, 1976).

Important managerial decisions, according to this notion, should not be made simply by the in-charge manager, but rather by a selected board. This will ensure that the techniques implemented are not motivated by personal interests. The hypothesis assumes that matching managers' and stakeholders' interests will lead to increased performance. However, the Agency Theory has been criticized since it may be difficult to apply because each partner constantly wants to get the most for themselves first(Gleason, 2011).

In this study, agency theories propose that the creation of bank diversification plans is solely the duty of the managers involved. In this regard, if the managers' interests are well matched with those of the stakeholders, the strategies will have a favorable impact on the organization. They should aim to maximize the use of the available resources to gain competitive advantage and increased returns. This is by ensuring proper implementation and evaluation of the diversification strategies.

2.2.4 Capital Market Theory

Capital market theories are concerned with explaining and predicting the relationship between expected return and risk on investments in capital markets, the effect of investor's efficiently diversified portfolios on the market pricing mechanism and whether the market is able to ensure that security prices fully and correctly reflect all available information (Fama, 1976)

Capital market theory derived from modern portfolio theory by Markowitz, as researchers explored the implications of introducing a risk-free asset. Sharpe is generally credited with

developing the CAPM, but Lintner and Mossin derived similar models independently in the mid1960s. Assumptions made regarding Capital Market Theory include:

- All investors are Markowitz efficient investors who choose investments on the basis of expected return and risk.
- Investors can borrow or lend any amount at a risk-free rate of interest.
- All investors have homogeneous expectations for returns.
- All investments are infinitely divisible.
- No transactions costs or taxes, no inflation or any change in interest rates and capital markets are in equilibrium

2.3 Empirical review

This section present past empirical research on the impact of asset diversification on financial performance in various nations and industries.

According to Kahloul and Hallara (2010), there was a link between diversification risk and performance. They converse this study focused on 69 significant companies in France, with a study period spanning 1995 to 2005. Both univariate and multivariate analyses were used in the methodology. All 69 non-financial firms were included in the sample, which were chosen based on their size, total period, and industrial activity. Because the data was cross-sectional and time-series, regression analysis was used to analyze the panel data. The findings obliterated the link between diversification and performance. As a result of this discovery, total risk was found to be linearly unrelated to diversification. However, ownership structure has the potential to influence the relationship between performance and diversification, as well as the relationship between diversification and risk. The nature of ownership may play a role in having a thorough understanding of diversity, risk, and performance links.

Turkmen and Yigit (2012) used evidence from Turkey to investigate banking diversification and its impact on bank performance. The study looked at data from 40 commercial banks. Return on Assets and Return on Equity were used to examine financial performance, while the Herfindahl Index was used to assess location diversification (HI). The Herfindahl Index was used to determine geographic diversification, which involved squaring market share and adding market share for each bank in each market. The study also discovered that diversifying credit portfolios

affected banks' risk levels, with losses in one sector or one location being offset by gains in other sectors. Therefore the research finding confirms whether a geographical diversification produces, in terms of performance, negative effect for a sample of Turkish banks in the period 2007-2011.

Maina (2013) looked into the impact of product diversity on microfinance companies' financial performance. The primary goal of this research was to determine the different types of diversification available in the Kenyan microfinance industry and how they relate to performance. The study used a descriptive survey approach with secondary data from microfinance institution financial records and the Kenyan Central Bank. From 2008 to 2012, major research findings revealed that the diversification indicator, ROA indicator, and ROE indicator were all increasing. 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. The finding of the study state that diversification of products diversification was an appropriate strategy to increase the financial performance of microfinance companies.

Kamwaro (2013) looked at the link between investment portfolio selection and investment company profitability on the Nairobi stock exchange. A descriptive research design was used in this study. A census of all investment businesses listed on the Nairobi Securities Exchange was carried out as part of the research. In Nairobi Securities Exchange, there are five investment businesses listed. From 2012 to 2014, the research was conducted across a three-year period. The analysis relied on secondary data from the companies' books of account as well as the NSE or CMA offices. To determine the effect of portfolio composition on financial performance of investment businesses registered on the Nairobi Securities Exchange, the researchers employed the multiple linear regression equation and the Ordinary Least Squares (OLS) estimation method. The study discovered that bond investments have a positive impact on the financial performance of NSE-listed investment companies. The study also discovered that investment businesses' investments in real estate and equities had a good impact on their financial success, and that the size of the company had a positive impact on investment companies' financial performance. As a result of the research, it was discovered that the portfolio composition of investment businesses registered on the Nairobi Securities Exchange had a considerable impact on their financial success.

Kipleting and Bokongo (2016) looked into the impact of investment diversification on commercial banks' financial performance in Kenya. An exploratory research design was adopted in this study. The study's target demographic comprised of 40 commercial banks. The primary data was obtained using data collection sheets as the primary data collection technique, and the secondary data was acquired using an interview schedule as the primary data. Data was collected using data collection sheets that were directed by the study's objectives. Explanatory and inferential statistics, as well as multiple regression, were used to analyze the data. According to the findings, a majority of Kenyan banks have used insurance investments to boost their financial performance throughout the years.

According to Mutega (2016) looked into the impact of asset diversification on commercial banks' financial performance in Kenya. The population of this study was 43 commercial banks in Kenya, and the study used a descriptive research methodology. Annual reports from commercial banks provided secondary data on financial performance and asset diversity. The study was limited to a five-year period, beginning in 2011 and ending in 2015. The quantitative data was evaluated descriptively and inferential statistics were utilized to make inferences. As independent factors, financial assets, loans, cash and cash equivalents, and other investments are employed, and the study's findings demonstrate that all independent variables have a positive and significant impact on commercial banks' financial performance in Kenya.

Review of previous studies in Ethiopia

With the knowledge of researcher there are few studies have been conducted to examine the impact of asset diversification on financial performance related to my topic in our country. It would have been difficult to generalize the findings of the investigations if there had not been an adequate number of empirical studies available on the subject of this research. Let us see few research related with my topic:

Eyerusalem (2019) examine the impact of asset structure on the financial performance of selected private commercial banks in Ethiopia. The study adopted explanatory research design to understand cause and effect relation between components of asset and its financial performance. In the meantime, quantitative approach was used to construct empirical model. Secondary data was collected from thirteen private commercial banks for the period of 2011-2017. Out of

sixteen, thirteen private commercial banks and seven years period were purposely selected in order to create constant panel and the availability of complete data for those banks with specific period. Pooled panel regression model was applied to analyze the data. The result indicated that cash holding has a positive but marginally insignificant effect on financial performance, fixed asset and foreign banks deposit have positive and significant effect on financial performance and NBE Bills has negative and significant effect on banks financial performance. Therefore the investigation result show that Asset structure has a significant effect on the financial performance in the banking sector.

Samuel (2018) used data from 15 chosen banks from 2012 to 2016 to investigate the impact of lending diversification on the financial performance of commercial banks in Ethiopia. For the bank performance metrics, the study used a quantitative research technique, with secondary financial data evaluated using linear regressions models. Using the key roles of bank performance determinants, the empirical results reveal that the effect of lending diversification has a strong and moderate strong influence.

Elefachew and Hrushikesava (2016) looked at how industrial diversification affected the financial performance of a few Ethiopian banks. 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. 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.

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. The rationale behind this technique is that a portfolio constructed of different kinds of assets will, on average, yield higher long-term returns and lower the risk of any individual holding or security.

Factors Affecting Banks Performance

Different studies undertaken on the performance of banks suggest that banks performance is affected by both internal and external factors (Nassreddine *et at.* 2013; Okoth *et at.* 2013; Ezra, 2013) and these factors affect the performance of banks positively or negatively. Nassreddine et al. (2013) 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 et al. (2012), because the 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

Components of Asset Diversification

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. Laurie (2013) 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).

According to Blume and Friend (1975) in private investor portfolio diversification, even with the outlooks from capital asset pricing theory, there is a substantial pool of private investors that still do not have diversified portfolios of hazardous financial assets.

Douglas (2014) holds similar views, arguing that a lack of diversification in enterprises is due to investor variability in risk and revenue expectations, as well as investors' inability to effectively sum up individual asset risks as well as portfolio hazards. Which means the expectation of investors unless properly manage the diversified asset there is high risk on the portfolio.

Loan

For most banks, their loan portfolio is their most valuable asset and source of revenue. However, the most profitable and liquid asset for a bank to maintain its maximum liquidity requirement to its depositors or lenders is loans and advances; banks do not invest their whole cash in a profitable asset (Nwankwo, 2000). Most banks accept deposits from customers and use the funds to diversify loans to borrowers or invest in other assets that would offer a higher return than the depositor's deposit (McCarthy et al. 2010).

The principal activity of commercial banks is making loans to its customers. The basic goal of bank management when allocating funds is to generate profit while meeting the credit demands of the community. Lending is the lifeblood of the banking business. Loans are the most valuable asset, accounting for fifty percent to seventy-five percent of a bank's total assets. Loans account for the majority of operating income in most banks, and they also represent the banks' greatest risk exposure (Mac Donald and Koch, 2006).

A loan portfolio is a credit risk mitigation strategy employed by commercial banks. Some banks spread out their lending portfolios, while others concentrate their loan portfolios. This is viewed as a large loan portfolio management technique that captures the risk of individual loan

interrelationships as a portfolio. Traditional banking theory suggests that diversified institutions can reduce risk by lowering monitoring costs. By resolving the agency problem between bank owners and bank debtors, monitoring expenses can be minimized. Increases bank performance by minimizing credit risk by strengthening monitoring incentives, according to Portfolio theory.

Tah et al. (2016) suggest that diversifying a company's loan portfolio lowers the risk of bankruptcy and improves its financial performance. Loan portfolios, according to Maina (2013), help to improve financial performance and are used as a technique to catch up with higher performance levels. Diversifying the loan portfolio, according to Dionne and David (2005), helps to reduce portfolio risk. According to Kashian and Tao (2014), a more concentrated loan portfolio can lower return while increasing credit risk. Meanwhile, according to Lefcaditis, Tsamis, and Leventides (2014), concentration risk increases bank credit loss due to the likelihood of specialized sector payments defaulting. Increased diversification, according to Aarflot and Arnegrd (2017), enhances performance. Furthermore, according to Freitakas (2013), the provision for bad loans in Lithuanian banks has increased as a result of concentrated lending.

Only under moderate risk levels, according to Hayden et al. (2007), does loan portfolio diversification increase bank performance. When enhancing the industrial, sector-wise, or geographical loan portfolio diversification, banks should assess the riskiness of their decisions. Banks with diverse loan portfolios can pool their domestically generated money and distribute them appropriately depending on financial sector analyses.

According to Avila et al. (2013), concentrated loans produce credit portfolio losses since a single portfolio causes concentration risk, despite the fact that concentrated loans help to assess capital adequacy to some extent. Those who provide loan portfolios do so as a more effective approach of lowering credit risk. According to Beck and De Jonghe (2013), loan concentration is strongly linked to systemic risk. Because the purpose is to decrease the correlation between assets in the portfolio, the benefit of a loan portfolio gains through the least associated asset.

Cash and cash equivalent

Cash and cash equivalent constitute the amount of cash available to the bank for daily operations. 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).

These among others includes bank drafts, demand deposits, cheques, Treasury bill and cash balances including cash and restricted and non-restricted deposits with the central bank. Cash and cash equivalents are the most liquid current assets found on a business's balance sheet. Cash equivalents are short-term commitments with temporarily idle cash and easily convertible into a known cash amount

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. Even investing cash for a short period of time can add to the profits of the business (Watson and Head, 2007).

According to Wayne and Megan (2003), the pressure of disciplining managers and administrators is inversely proportional to the level of cash holdings, and seductive managers have a tendency to spend available cash in various assets, even when they are not lucrative. Wayne and Megan (2003) go on to say that companies with a lot of cash have the advantage of being able to fund capital expenditures without depleting their reserves. The benefit is that relying on internal funding is less expensive than relying on external funding.

One of the company's crucial health indicators is its ability to generate cash and cash equivalents. So, a company with relatively high net assets and significantly less cash and cash equivalents can mostly be considered an indication of non-liquidity. For investors and company’s cash and cash equivalents are generally counted to be low risk and low return investments and sometimes analysts can estimate company's ability to pay its bills in a short period of time by comparing CCE and current liabilities. Nevertheless, this can happen only if there are receivables that can be converted into cash immediately www.accountingtools.com (Cash and Cash equivalent, 2015).

Fixed Asset

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).

Fixed assets constitute an essential part of the overall resources that are available for organizational use. Fixed asset investment plays vital roles in carrying out corporate activities and also enhances the capacity of an organization in providing goods and services. No organization can be sustained without some investment in fixed asset. High fixed assets turnover ratio indicates efficient utilization of fixed assets in generating sales, while a low ratio indicates inefficient management and utilization of fixed assets.

Banks have the opportunity to invest in fixed asset that relate to their objective to generate profit. Banks can invest on fixed asset such as building to expand its business, information communication technology in order to facilitate their service in advanced and reliable way, and invest on machines like automated teller machine (ATM) is electronic telecommunications device that enables customers to perform financial transaction at any time and increase market share which contribute to increase the banks' profitability (Eskedar, 2016).

Pandey, (1999) used fixed asset turnover ratio to evaluate utilization of fixed assets investment and he also identified which firm is utilizing its investment in fixed assets efficiently or not. High fixed assets turnover ratio indicates efficient utilization of fixed assets in generating sales, while a low ratio indicates inefficient management on utilization of fixed assets. Likewise, Ibam (2007) also stated that fixed asset turnover ratio show asset turnover trend of the firm and used as comparison of the competitors in the industry. This gives the investor an idea of how effectively a company's management is using fixed asset. It is a rough measure of the productivity of a company's fixed assets with respect to generating sales.

2.4 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 aims to maximize portfolio 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, while assuming that investors are rational and markets are efficient. The theory's proposition to this study is that the banks may reduce the risk facing the investments by distributing the investment amounts among all those securities which give a maximum expected return. This theory indicates that where the investment diversification is well implemented as a performance improvement strategy, it may enable banks attain competitive advantage. Arbitrage Pricing Theory promotes diversification as an investment strategy for businesses that can result in higher profits. APT, on the other hand, points out that diversification is linked to risk, therefore it's important to make sure that asset diversification is done with caution.

The proposal of Agency Theory to this study, on the other hand, is that the creation of diversification plans in banks is solely the responsibility of the managers involved. In this regard, if the managers' interests are aligned with those of the stakeholders, the strategies will have a favorable impact on the organization. All of the above hypotheses are related to asset diversification and bank financial performance.

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.

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.

2.5 Conceptual framework of the study

The relationship between asset diversification and financial performance of Ethiopian commercial banks is depicted in the conceptual framework. The study consider asset diversification of the commercial banks as independent variables, to determine how they affect the dependent variable, which in this case is financial performance. The component of asset diversification form independent variables namely financial asset, Loan, Cash and cash equivalent and fixed asset. All independent variable are chose from internal factor of bank performance but the study was not use external factor because they have the same impact on all commercial banks financial performance. These independent variables are measure by getting the ratio of each independent variable to the total asset. On the other hand, dependent variable, financial performance is measured by various indicators such as ROA, ROE and NET PROFIT MARGIN; however, the study use one dependent variable ROA as a measurement of financial performance.

Although it may be skewed owing to off-balance sheet activities, return on asset (ROA) shows the ability of a bank's management to make profits from the bank's assets. The return on equity (ROE) is the amount of money returned to shareholders.

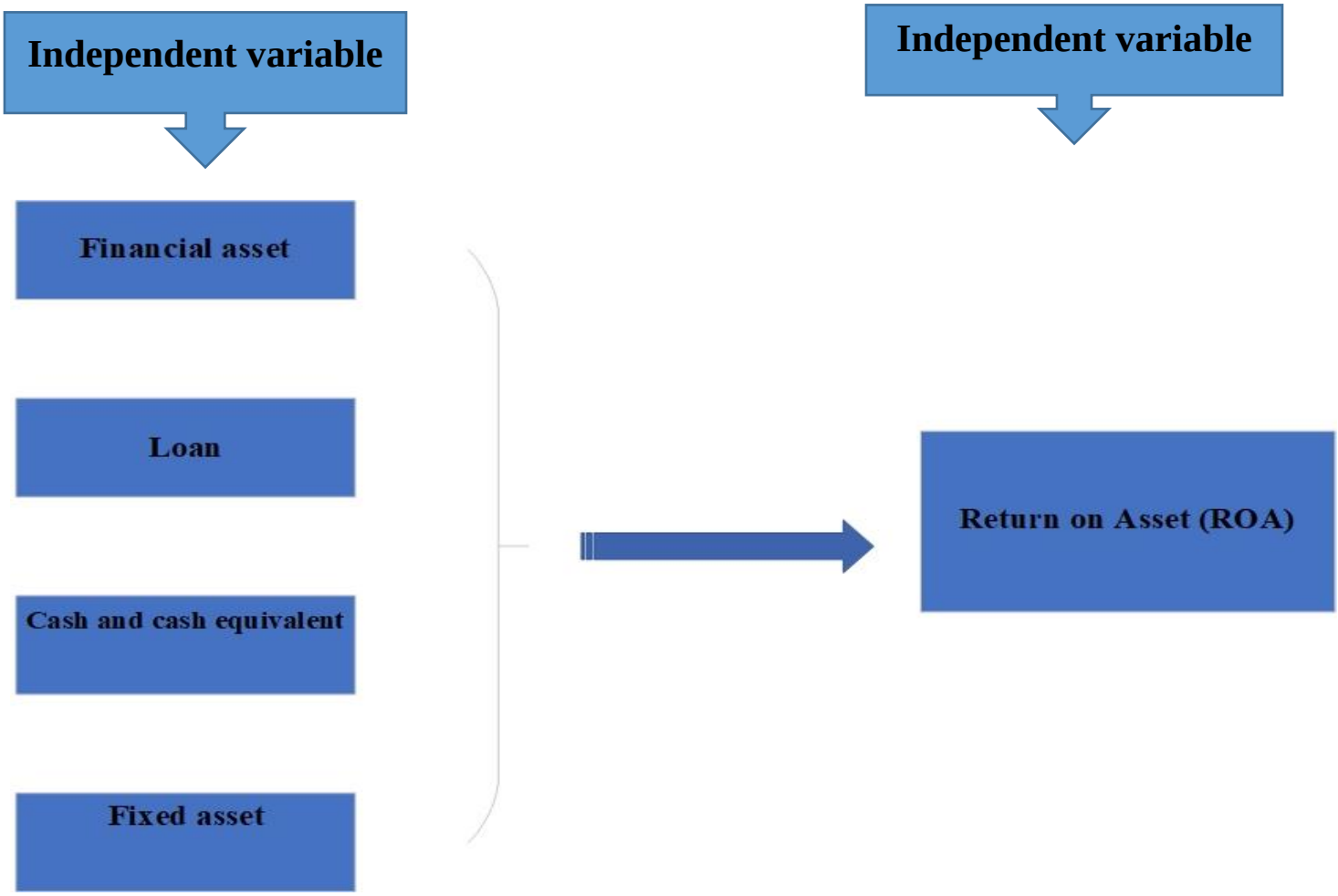
As per Sinkey, (1992) posits that return on asset (ROA) is a comprehensive measure of total bank performance from an accounting standpoint. It is a primary indicator of managerial efficiency since it shows how capable a bank's management has been in converting the bank's assets into net earnings. Rose and Hudgins (2006) however maintain that from the standpoint of shareholders, ROE is a solid indicator of accounting profitability. It approximates the net benefit gained by stockholders as a result of their capital investment.

Ahmed and Khababa, (1999) in their assessment of bank performance in Saudi Arabia employed three ratios as measures of performance that is return on equity (ROE), Return on Assets (ROA) and percentage change in earnings per share.

According to Athanasoglou et al. (2008) and Sufian, (2011) suggest that ROA is the most important metric for assessing bank profitability since it is unaffected by high equity multipliers, whereas ROE ignores the dangers associated with high leverage and financial leverage. In this regard, it is uncommon to discover a study that uses ROE as a single metric of profitability.

Other papers utilize ROE for checking the consistency with ROA While a bulk of studies employ ROA as profitability measure in most of the previous studies on banking industry, return on assets (ROA) is being used as a proxy of profitability (Tamiru 2013) ;(Thuku 2015) .Not only the above reasons are chose ROA as profitability measure but also unlike other profitability ratios, such as return on equity, ROA measurements include all of a Company's assets – including those which arise from liabilities to creditors as well as those which arise from contributions by owners. Hence, ROA gives an idea about the efficiency of management in using the Company's assets to generate profit. Thus, this Research objectively to measure profitability by using ROA like most of the aforementioned studies, ROA is measured as net interest income divided by total assets. ROA=Net interest income /Total Asset.

Figure 2: Conceptual framework of the study



CHAPTER THREE

3. RESEARCH METHODOLOGY

The purpose of this chapter is to discuss the methods to be adopted throughout the study to accomplish the research objectives. The research design, research approach, data collection method, Population and sample size, and data analysis method the study were all covered in this chapter.

3.1 Research Design

Rajendra (2008) defines research design as the linkage and organization of situations for gathering and exploration of gathered data in a manner that intents at achieving the study goals.

Rajendra (2008) also argues that research plan focuses on the arrangement of an investigation, which leads to the lowering of the chance of drawing the wrong casual inferences from the data. Thus, explanatory research design is use in this research because the study identifies the cause and effect of loan diversification on the financial performance which is appropriate for the objective of the study

3.2 Research Approach

A quantitative study design will be used to generalize about the impact of asset diversification on bank financial performance in order to fulfill the main research objectives. The goal of employing this method is to collect data that will aid the researcher in investigating cause-and-effect linkages. A quantitative strategy is one in which the investigator largely relies on postpositive statements, such as cause and effect relationships between known variables of interest, to develop knowledge (Cresswell 2003).

According to Cresswell (2003), a quantitative research strategy includes inquiry strategies such as experiments and surveys, as well as data collection on specified instruments that provide statistics. Quantitative research uses a survey of the existing literature to deductively construct theories and hypotheses to be tested, i.e., the research topic is translated into particular variables and hypotheses in this approach.

In this particular case, the effect is the company's profitability and the research is target at identifying significant causes, i.e. determinants on financial performance related to Asset

diversification. A brief explanation about the data collection and analyzing method adopt is given below.

3.3 Method of Data Collection

This study is relying on secondary data. To gather data on Asset diversification component and profitability, it is apparent to use survey of structured documentary review. As a result, audited financial statements, particularly the balance sheet and income statement, will be used to achieve its goal. Secondary data will be derived from annual audited reports of Ethiopian commercial banks. To achieve the goal, the paper relies heavily on panel data gathered from secondary sources.

3.4 Population and Sample size

A sample is a portion of the population that inferences are to be made about the population. However, it is important that the sample be representative of the population from which it will select. There are 19 commercial banks which are licensed and operating in Ethiopia as of June 2020.

The survey and analysis will be conducted by eight commercial banks in Ethiopia. It will be engaged in order to infer from a sample to population. The sampling technique select for this research is purposive sampling. Specifically the researcher adopts criterion sampling which is above 15 years of establishment of date and one government and the others are privet bank.

- **The justifications for Banks in the sample**

Researchers usually draw conclusions about large groups by taking a sample. The sample should ideally be representative, allowing the researcher to generate reliable estimates of the greater population's thoughts and behavior (Leedy and Ormrod, 2005).

Eight Banks are chose from the nineteen existing commercial Banks. Data are source from the Annual Reports of the Banks. However some of recently established commercial banks that less than fifteen years which are operating in Ethiopian financial market are not include in the sample because of three reason the first one is they have no full data in the sample period the researcher needs, the second one is they may not be able to significantly influence the criteria use in the

sample and the last but not the least one is select based on capital, asset size, market share and deposits.

I chose the commercial bank of Ethiopia from among the governmental institutions because its goals are comparable to those of other private banks. The other state bank, Development Bank of Ethiopia, is not included in the sample because its mission is different from that of a commercial bank.

The time period select to this study by considering the availability of data, research time and cost. Therefore the duration of the research will basically from 2011-2020. This study employs annual data on the impact of asset diversification on financial performance of selected commercial Banks in Ethiopia.

According to Baltagi (2005), panel data has the advantage of controlling for individual variability, reducing co linearity across variables, and tracking trends in the data, which simple time series and cross sectional data cannot provide. I'll use statistical tools to infer the research outcome in quantitative notation from the data.

3.5 Data Analysis method

To investigate the association between asset diversification and financial performance of the listed commercial banks, the data will be analyzed using descriptive and inferential statistics. Fixed effect model will be used to examine the data collected by the researcher. The study findings will be 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.

- **Model Specification**

The econometric model used in the study (which is in line with the literature) is given as:

$$Y = \beta_0 + \beta_n X + \varepsilon$$

Where,

Y is the dependent variable.

β_0 = Constant term,

β_n =Coefficient of explanatory variable,

X= Explanatory variable and

ε=Error term

The regression function determines the relation of **X** to **Y**. β_0 is the constant term and β_n is the coefficient of the function, it is the value for the regression equation to predict the variances in dependent variable from the independent variables. This means that if β_n coefficient is negative, the predictor or independent variable affects dependent variable negatively: one unit increase in independent variable will decrease the dependent variable by the coefficient amount.

In the same way, if the β_n coefficient is positive, the dependent variable increases by the coefficient amount. β_0 is the constant value which dependent variable predicted to have when independent variables equal to zero Finally, **ε** is the disturbance or error term, which expresses the effect of all other variables except for the independent variables on the dependent variable.

Therefore based on the above basic econometric model the following regression model will be used to establish the relationship among the study variables.

$$Y = \beta_0 + \beta_1 (FINA.ASSETS) + \beta_1 (LOAN) + \beta_3 (C \& C EQ) + \beta_4 (FIX.ASSET) + \varepsilon$$

Whereby;

Y = Financial performance of banks measured by Return on Asset

FINA.ASSETS = Financial Assets as measured by Total Asset

LOAN AND ADVANCE = Loan Portfolio as measured by Total Asset

C & C EQ = Cash and Cash Equivalent as measured by Total Asset

FIX.ASSET = Fixed Asset as measured by Total Asset

β0 = regression constant

β1, β2, β3 and **β4** = coefficients associated with predictor variables

ε = Residual (error) term

Variable definition and measurement

Dependent Variable

As per Sinkey, (1992) posits that return on asset (ROA) is a comprehensive measure of total bank performance from an accounting standpoint. It is a primary indicator of managerial efficiency since it shows how capable a bank's management has been in converting the bank's assets into net earnings. ROA is measured as net interest income divided by total assets. ROA=Net interest income /Total Asset.

Independent Variable

The component of asset diversification form independent variables namely financial asset, Loan and advance, Cash and cash equivalent and fixed asset. These independent variables are measure by getting the ratio of each independent variable to the total asset.

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.

Cash and cash equivalent

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.

Loan and Advance

For most banks, their loan portfolio is their most valuable asset and source of revenue. However, the most profitable and liquid asset for a bank to maintain its maximum liquidity requirement to its depositors or lenders is loans and advances; banks do not invest their whole cash in a profitable asset (Nwankwo, 2000).

Fixed Asset

Investing in fixed assets such as land, buildings, plant and machinery, fixtures, fittings, and motor vehicles can increase a company's productive capacity and ensure long-term success.

CHAPTER FOUR

4. DATA ANALYSIS AND PRESENTATION

This chapter deals with the analysis and presentation of the results of the study. STATA was used to conduct the analysis. There was a discussion on descriptive statistics and correlation analysis. The diagnostic test is then performed to ensure that the classical linear regression model's assumptions are met. Then there was an econometric analysis and explanation of the study's major finding. Finally, utilizing a commercial bank's yearly financial report, the regression analysis' findings were reviewed (which is Secondary data).

4.1. Descriptive statistics

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 2011 to 2020 are shown in table 4.1.

Descriptive Test

Table 4.1: Descriptive Statistics of the significance of components of assets diversification on return on assets of selected banks in Ethiopia

Table 4.1 Descriptive statistics results

```
. summarize roanetinterestincome financialassettototalassetratio cashandcashequivalenttototalasse loa
> nandadvancetototalassetratio fixedassettototalassetratio

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
roanetinte~e |        80     .043625    .0109364        .02        .06
financiala~o |        80      .27425    .1123261        .12        .59
cashandcas~e |        80        .223    .1046199        .06        .51
loanandadv~o |        80     .47175    .0909969        .28        .65
fixedasset~o |        80        .028    .0173862          0        .07
```

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

The descriptive statistics of the analysis presented in Table 4.1 above shows that the mean of Net Interest Income which means ROA was 4.36% and standard deviation of 1.09%. This means commercial banks in Ethiopia, under the period of study, earned on average 4.36% net interest income on total asset employed. This also means that on average, for each one birr asset of commercial banks there was 0.043625 cent return in the form of net interest income. The highest net interest income ratio for a bank in a particular year was 0.06 and in the same way the minimum ratio for a bank in a year was 0.02. Regarding the standard deviation, it means that the value of net interest income ratio deviates from its mean to both sides by 0.0109. This descriptive statistics support by empirical study. According to Mutega (2016) the finding shows that average financial performance of commercial banks was 0.0257, according to the statistics. Over the research period, this represents an average Return on Asset (ROA) of 0.0257. The descriptive statistics finding of (Samuel, 2009) shows that the average value of return of asset (ROA) was 0.0314 which shows that both research result were lower return generate when we compare to in my descriptive statistics result.

Financial assets (FIA) had a mean of 0.27425 which is the second highest total asset of commercial bank of in Ethiopia cover next to loan and advance. Standard deviation of 0.1123261 with a minimum value of 0.12 and a maximum value of 0.59. According to Mutega (2016) between 2011 and 2015, the mean of financial assets was 24.0218 units, with a standard deviation of 1.2697.

The table also shows that cash and cash equivalent (CCE) had a mean of 0.223 and a standard deviation of 0.1046199 with a minimum value of 0.06 and a maximum value of 0.51. 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 was 47.08 percent. It demonstrates that loan and advances account for almost 47% of commercial banks' total assets in Ethiopia. The greatest loan and advance to total asset ratio for a bank in a given year was 65 percent for Bank of Abyssinia in 2020, while the lowest ratio for a bank in the study years was 28 percent for Commercial Bank of Ethiopia in 2020. The loan and advances to asset ratio might differ from its mean by 9.09 percent on both sides. From the summary of statistics it was observed that 47% of the total asset of commercial banks in Ethiopia in the period under study was made up of loan. To sum up the 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. This support by in the literature review loans are the most valuable asset, accounting for fifty percent to seventy-five percent of a bank's total assets. Loans account for the majority of operating income in most banks, and they also represent the banks' greatest risk exposure to meet short term obligations (Mac Donald and Koch, 2006).

Finally fixed asset (FA) had a mean value of 0.028 and standard deviation of 0.0173862 and a minimum value of 0.0 and with a maximum value of 0.07. 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 other independent variable.

4.2 Correlation Analysis

The outputs and explanations of the correlation analysis are presented in this section of the study. To show the relationship between ROA of commercial banks in Ethiopia and financial asset,

cash and cash equivalent, loan, and fixed asset of correlation coefficients were used. The correlation coefficient's values were consistently between -1 and +1. A correlation value of -1 shows a perfect negative association between the two variables, whilst a correlation coefficient of 0 implies no linear relationship between the two variables. Furthermore, a correlation coefficient of +1 indicates that the two variables are perfectly positive in their relationship (Gujarati, 2004).

According to (Wajahat, 2010), it is useful to check the correlation test between the dependent and independent variables before conducting regression analysis. However, the fundamental goal of correlation analysis is to determine the strength or degree of linear relationship between variables. Furthermore, in correlation analysis, there is no separation between dependent and independent variables. This means that the researcher cannot make cause-and-effect inferences about the link between the specified variables using correlation analysis.

A correlation matrix is used to guarantee that variables are related. According to Cooper & Schindler (2009), a correlation coefficient of more than 0.8 between explanatory variables should be corrected because it indicates an issue with multicollinearity. According to Mashotra (2007), the correlation coefficient can be as high as 0.75. Finally, Hair et al. (2006) claimed that a correlation coefficient of less than 0.9 does not necessarily indicate a major multicollinearity problem. As a result, if one explanatory variable has a correlation coefficient of more than 0.8 with other variations, it is eliminated from the regression model to prevent multicollinearity. The correlation matrix between dependent and independent variables are depicted in the following table.

Table 4.2 Correlation Matrix: Among each Variable

	ROA	FIN	CASH	LOAN & ADV	FIXED AS
ROA	1.0000				
Financial Asset	-0.1054	1.0000			
Cash and cash Eq	-0.5849	-0.5824	1.0000		
Loan	0.7389	-0.5051	-0.3920	1.0000	
Fixed asset	0.2237	-0.2237	-0.3370	0.4823	1.0000

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

4.2.1 Correlation Analysis between the Dependent Variables on ROA and Explanatory

The ROA reflects the ability of a bank's management to generate profits from the bank's assets and this financial performance measure is correlated with other explanatory variables either positively or negatively. Return on Asset (ROA), the net interest income per birr of total Asset, which is more concerned about how much the bank is earning on their Asset diversification. In table 4.2 above, the correlation analysis was undertaken between performance measures; return on asset and explanatory variables. As it can be seen from the table above, there was a positive correlation between return on asset and loan and advance & fixed asset. Whereas, there is a negative correlation between commercial banks performance measure; return on asset with cash and cash equivalent and financial asset. That means the greater the loan and advance and fixed-asset-to-total-asset ratios, the higher the net interest income (ROA) of Ethiopian commercial

banks. Since commercial banks are more concerned with increasing their loan and advancing their net interest revenue per birr of total asset, their net interest income per birr of total asset has increased. As a result, all correlation findings are less than 0.80, indicating that multicollinearity is not a concern for this study. The correlation result of both financial asset and cash and cash equivalent negative which is contradict to the null hypothesis result there is a positive relationship between financial asset and cash with the financial performance of commercial banks in Ethiopia. When we see the empirical study cash and bank balances have a positive impact on the financial performance of deposit money banks in Nigeria (Yahaya et la., 2015). According to Laurie (2013) concludes by saying that financial asset increases a company's worth because financial assets are easily liquidized compared to other tangible assets.

The positive association between loan and advance in the above table indicates that an increase in the amount of loan to customers from deposits has a beneficial impact on the profitability of Ethiopian banking. The interest income linked with loans and advances could have been more than the costs or interest paid to depositors. Customer deposits are accepted by banks, who then utilize the funds to diversify loans to borrowers or invest in other assets that would produce a higher return than the amount paid to the depositor (McCarthy et al. 2010). It has similar to the null hypothesis there is a positive relationship between loan and financial performance of commercial banks in Ethiopia. Which means the higher loan and advance increase the net interest income of the bank industry.

The correlation result for fixed assets is positive, which is consistent with the hypothesis that fixed asset investment has a favorable impact on commercial banks' financial performance in Ethiopia. A study by Olatunji and Adegbite (2014) selected banks in Nigeria the finding 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.

4.3 Regression Analysis Results and Discussions

In this section regression analysis for banks performance measures by return on asset and explanatory variables. To assure that the estimation technique, ordinary least squares (OLS), had a number of desirable properties, and so that the hypothesis tests regarding the coefficient

estimates could validly be conducted. Five assumptions were made relating to the classical linear regression model (CLRM), (Brooks 2008). That is, the error has zero mean, hetroskedasticity, normality autocorrelation and multicollinearity.

4.3.1 Diagnosis tests

In this research, five assumption are used for diagnostic tests were carried out to ensure that the data fits the basic assumptions of the model; which are presented as follows:

4.3.1.1 Assumption one: the errors have zero mean (E (ε) = 0)

A constant term is add in the regression model employ in this investigation. As per Chris brooks (2008), the first assumption required that the average value of the errors is zero (E (**ε**) = 0*)*. This assumption will not be violated if a constant term is included in the regression equation. As a result, in the study, this assumption was not violated.

4.3.1.2 Assumption Two: Test for Heteroscedasticity

This test verifies one of the CLRM's assumptions: that the error terms in the population regression function are homoscedastic, meaning that they all have the same variance. If the errors do not have a constant variance, they are said to be heteroscedastic. Heteroskedasticity refers to a systematic pattern in which the error variances are not constant. The hypothesis for Heteroskedasticity is presented as follows:

Ho: There is no heteroskedasticity problem in the model (Constant variance)

Ha: There is heteroscedasticity problem in the model

Even if the estimators are still linear and unbiased the presence of heteroscedasticity does not make the regression estimates BLUE (Best Liner unbiased Estimator) (Brooks, 2008). Furthermore; heteroscedasticity makes the regression estimates not efficient which means that there is some other linear estimator, which has a low variance. Finally, the existence of heteroscedasticity makes to have incorrect standard error, this ultimately results in incorrect values of t-test, and F-test leads to wrong conclusion. The Whites test and Breusch -pagan is the most popular method to detect the presence of Heteroscedasticity. According to Brooks (2008)

the P-value should be bigger than 0.05 not reject the null hypothesis of homoscedasticity at the 5% significance level but if it is below 0.05 then there is sufficient evidence to say that heteroscedasticity is present. In this study, both whites test and Breusch -pagan test was used to detect the existence of heteroscedasticity and the result is presented as follows:

Table 4.3 Heteroskedasticity Test: White

```
. estat imtest, white

White's test for Ho: homoskedasticity
         against Ha: unrestricted heteroskedasticity

         chi2(14)     =     11.52
         Prob > chi2  =    0.6450

Cameron & Trivedi's decomposition of IM-test
```

Source	chi2	df	p
Heteroskedasticity	11.52	14	0.6450
Skewness	5.53	4	0.2372
Kurtosis	0.02	1	0.8938
Total	17.06	19	0.5856

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

The test for heteroscedasticity demonstrates that the data is homoscedastic, as seen in the table above. The null hypothesis in this test is that the data is homoscedastic because the P-value is greater than 0.05, as the result we fail to reject the null hypothesis. Therefore, we can conclude that heteroscedasticity does not exist.

Table 4.4 Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

---

Ho: Constant variance

Variables: fitted values of roa

---

chi2 (1) = 0.10

Prob > chi2 = 0.7520

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

As the result in table 4.4 shows, the P-values are 0.7520 and this versions of the test statistic gives the same conclusion that supports the absence of heteroscedasticity since the P-values is greater than 0.05. This indicates that the assumptions of homoscedasticity or errors have a constant variances is not violated

4.3.1.3 Assumption Three: Test for normality

The purpose of this test is to confirm CLRM's assumption that the disturbance terms are normally distributed. The Shapiro-Wilk test is one of the most widely used normality tests. Shapiro Wilk uses the feature of a normally distributed random variable that the first two moments, the mean and variance, define the entire distribution (Brooks 2008). According to the same source, the data is normal if the residuals are normally distributed and the Shapiro-Wilk Test Significant value is greater than 0.05. If it is less than 0.05, the data significantly deviate from a normal distribution. This means if the p-value is greater than 0.05 the null hypothesis of normality should not be rejected at 5% level. The hypothesis for the normality test is established as follows:

Ho: Error term is normally distributed

Ha: Error term is not normally distributed

Decision rule: Reject Ho if P-value of Shapiro wilk test is less than 0.05 at 5% significant level. Otherwise, do not reject Ho.

In case of this study, as shown in Table 4.5 below, the p- value of Shapiro-Wilk test is more than 0.05 as a result we fail to reject the null hypothesis for residual normality.

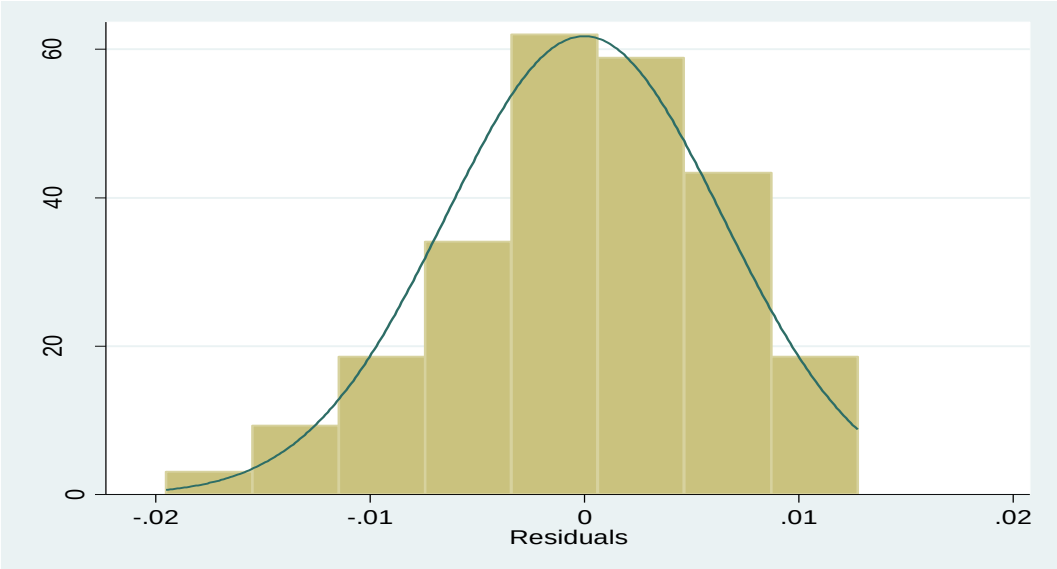
Table 4.5 Shapiro-Wilk W test for normal data

```
. predict u, residuals

. swilk u

                    Shapiro-Wilk W test for normal data

    Variable |   Obs        W           V         z       Prob>z
-------------+--------------------------------------------------
           u |    80    0.97414       1.775     1.257    0.10439
```

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

In addition to the shapiro-Wilk W test analysis for testing normality the following histogram shows the absence of normality problem. Because if the histogram is bell shaped the normality assumption is not violated.

Figure 2: Histogram for normality test



Source: Stata 12. Output from Annual financial Report of Commercial Banks.

4.3.1.4 Assumption Four: Test for Autocorrelation

The CLRM assumes that the disturbance term associated with one observation is unaffected by the disturbance term associated with another. In other words, the errors are assumed to be unrelated to one another. If the errors are not uncorrelated with one another, it would be stated that they are autocorrelated. According to the rules, the null hypothesis is rejected and the existence of autocorrelation presumed if the P-value in Wooldridge test (XTserial) for autocorrelation is less than 0.05 values; the null hypothesis is not rejected and no significant residual autocorrelation is presumed if the P-value in Wooldridge test for autocorrelation is greater than 0.05 values. So based on ours result below in the test having a P-value of 0.1816 we fail to reject the null hypothesis which states that there is no first order auto correlation between the error terms since the P-value is higher than 0.05 and confirm the absence of autocorrelation problem in our model.

Table 4.6 Autocorrelation test using -Wooldridge test

```
. Xtserial  roanetinterestincome financialassettotalassetratio cashandcasequivalenttotalasset
 > loanandadvancetotalassetratio fixedassettotalassetraio

Wooldridge test for autocorrelation in panel data
Ho: no first-order autocorrelation

           F( 1,       4) =    12.491

                 Prob > F =    0.1816
```

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

4.3.1.5 Assumption five: Multicollinearity test

The CLRM further assumes that no multicollinearity exists among the regressors included in the regression model. Multicollinearity is a problem that occurs when the explanatory variables are highly correlated with one another. This assumption reflects the fact that the explanatory variables do not have a perfect relationship. The best regression models are those in which the

predictor variables all have a strong correlation with the dependent variable but have a minor correlation with each other (Gujarati, 2004).

According to Hair et.al (2006) the correlation coefficient below 0.9 may not cause serious multicollinearity problem. Additionally Cooper & Schindler (2009) suggested that a correlation above 0.8 should be considered as a problem of multicollinearity. Furthermore Malhotra (2007) argues that the problem of multicollinearity exists where the correlation coefficient among explanatory variables should be greater than 0.75.

Due to the presence of multicollinearity, regression coefficient estimations have a large variance and standard error, resulting in low t-statistics and insignificant coefficients. Furthermore, multicollinearity among explanatory variables leads to a misleading sign of the regression coefficient as well as a significant F-test with insignificant individual coefficients. Pearson correlation matrix detects the presence of multicollinearity among independent variables.

In this study to check the existence of multicollinearity the following Pearson Correlation matrix between independent variables is calculated by using Stata. Table 4.7 shows that in this study there is no correlation coefficient that exceeds or even close to 0.90. Accordingly, in this study there is no problem of multicollinearity.

Table 4.7 Results of Multicolleneourity test using Pearson correlation matrix

```
. pwcorr financialassettototalassetratio cashandcashequivalenttototalasse loanandadvancetototalassetratio fixedassettotot
> alassetratio
```

	financ~o	cashan~e	loanan~o	fixeda~o
financiala~o	1.0000			
cashandcas~e	-0.5824	1.0000		
loanandadv~o	-0.5051	-0.3920	1.0000	
fixedasset~o	-0.2237	-0.3370	0.4823	1.0000

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

4.4 Choosing between Random effects (RE) and Fixed effects (FE) model

While this study makes use of panel data to examine the impact of a specified independent variable on the ROA ratio of Ethiopian commercial banks, there are two types of panel data models that are commonly employed. The random effect (RE) model and the fixed effect (FE) model are the two types of panel data models.

Therefore, there is a need to choose one model that gives consistent estimates for this study to show the cause and effect relationship between independent and dependent variables. To do so, the Hausman specification test or Lagrange Multiplier test for random effect method is applied and the hypothesis is developed as follows:

Ho: Random effect model is appropriate.

Ha: Fixed effect model is appropriate.

Table 4.8 Result of model selection test: Hausman specification test

```
. hausman fe re

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
financiala~o |   -.0216193     .0181742       -.0397936        .0461896
cashandcas~e |    -.057282    -.0020164       -.0552657          .04854
loanandadv~o |    .0530567     .1123548       -.0592981        .0475062
fixedasset~o |    .0106078     .1266524       -.1160447        .0539047
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        22.07
                Prob>chi2 =      0.0035
                (V_b-V_B is not positive definite)
```

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

Table 4.9 Result of model selection test: Lagrange multiplier test for random effect

```
. xttest0

 Breusch and Pagan Lagrangian multiplier test for random effects

      roanetinterestincome[bankname1,t] = Xb + u[bankname1] + e[bankname1,t]

      Estimated results:
                       |       Var     sd = sqrt(Var)
              ---------+-----------------------------
             roaneti~e |   .0001196       .0109364
                     e |   .0000189       .0043487
                     u |   1.20e-06        .001094

      Test:   Var(u) = 0
                           chibar2(01) =    75.86
                         Prob > chibar2 =   0.0000
```

Source: Stata 12. Output from Annual financial Report of Commercial Banks.

For the random effect p-value of a model, the Hausman specification and Lagrange Multiplier test show 0.0035 and 0.0000, respectively, 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.

4.5 Regression Result Analysis between Return on Asset and Explanatory Variables

Table 4.10 Regression result of the model.

```
. *(5 variables, 80 observations pasted into data editor)

. reg nii financialassettototalassetratio cashandcashequivalenttototalasse loanandadvancetototal
> assetratio fixedassettototalassetratio
```

Source	SS	df	MS		
Model	.006153679	4	.00153842	Number of obs =	80
Residual	.003295071	75	.000043934	F(4, 75) =	35.02
				Prob > F =	0.0410
Total	.00944875	79	.000119604	R-squared =	0.6513
				Adj R-squared =	0.6327
				Root MSE =	.00663

nii	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
financialassettototalassetr~o	-.055972	.0803901	-0.70	0.030	-.2161173	.1041734
cashandcashequivalenttotota~e	-.0934513	.0823411	-1.13	0.018	-.2574832	.0705805
loanandadvancetototalassetr~o	.0167531	.0801413	0.21	0.014	-.1428965	.1764027
fixedassettototalassetratio	-.053892	.0956012	-0.56	0.114	-.2443394	.1365555
_cons	.0734207	.0803036	0.91	0.011	-.0865524	.2333937

Source: Stata 12. Output from Commercial banks financial statements

From the data in the above table the established regression equation is

$$Y = 0.0734 - 0.0559\ X1 - 0.9345\ X2 + 0.016X3 - 0.0538\ X4$$

4.6 Analysis of the regression model

This section presents the empirical findings from econometric studies on the relationship between asset diversification and bank profitability in Ethiopia. This section also discusses the empirical regression model used in this study, as well as the regression analysis results.

The significance of the model is determined, and table 4.10 of linear regression reveals that the regression model significantly predicts the outcome variable with a p-value of (0.0410),

indicating that the overall model utilized was considerably good enough in predicting the outcome variable.

It demonstrates that the independent factors explain 65.13 percent of the dependent variable (Net Interest Income), which is a good result. Because only less than 34.87% fluctuation of the dependent variable can be explain by other independent variable those are not mention in the above variable. That is way the above selected independent variable jointly are significantly explain the dependent variable. To conclude, the regression model utilized in this study explained the overall model, indicating that the study did not lose highly essential variables that influence the study's outcome.

From the above regression equation it was revealed that holding financial asset, Cash and cash equivalent, loan and advance and fixed asset of asset diversification to a constant zero, financial performance of banks would stand at 0.073.

Financial asset; the result show that a negative but Significant impact on regression equation conducted for commercial bank at 5% significant level in terms of ROA. Which means even if the coefficient is negative but it is significantly explain the dependent variable because of the P value is below 5%. For every 1% change (increase or decrease) in bank‘s financial asset with asset ratio keeping the other thing constant has a resultant change of 0.055% (Coeff. = 0.055972) on the net interest income in the opposite direction. This result also shows that an increase in amount of financial asset has a negative impact on profitability of Ethiopian banking industry. But since we are considering a 95% confidence level we take this variable as insignificant to affect profitability as measured by net interest income. This leads to reject the hypothesis which stated that financial asset has a positive relation to financial performance of bank that means there is no sufficient evidence to support the positive relationship between financial asset and profitability in my research finding. On the other way it fail to reject the hypothesis significant effect on the financial performance of commercial banks in Ethiopia because of the p-value has below 5%. The result is consistence with Elefachew and Hrushikesava (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.

Cash and cash equivalent unit increase in diversification of Cash and cash equivalent would lead to decreases in financial performance (ROA) of diversification of banks by a factor of -

0.093. Even if the coefficient is negative but it is significantly explain the dependent variable because of the P value is below 5%. This means banks have to possess enough funds to meet its financial obligations and also by lending this amount increases the interest income of the bank. While implication of 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. 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. But in my research result is negative effect but it is significant effect.

Loan and advance; 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 = 0.0001) at 1% 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 ranks as the key and the most valuable types of asset 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 1.6 cents (Coeff. = 0.01675 on the net interest income 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 fail 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 Kipleting and Bokongo (2016),Kamwaro (2013) and Mutega (2016).

Fixed Asset; Holding all other independent variables constant, a unit change (increase or decrease) in fixed asset diversification would result in a factor of 0.0538 opposite direction in financial performance (ROA) of bank diversification. This is not consistent with the expected sign and opposes the assumption which states there is a positive relationship between asset diversification proxy by fixed asset with other banks to asset ratio and profitability as measured by net interest income. But since we are considering a 95% confidence level we take this variable as marginally insignificant effect on financial performance as measured by net interest income because the p-value is 0.114 which is above 5%. According to Olatunji and Adegbite (2014) 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. The result of this study is consistent with the 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, but it had a marginally inconsequential influence on financial performance as assessed by net interest income because the p-value is 0.114, which is over 5%. Because financial entities are restricted from investing in fixed assets. The National Bank of Ethiopia has issued a directive on fixed asset investment, stating that no bank may invest more than 10% of its paid-up capital in real estate acquisition and development outside of its own premises without NBE approval.

Brooks (2008) claims that the standard error of the estimate is sometimes employed as a general measure of the regressions fit. It's a measure for how convinced you are about the coefficient estimate you got in the first stage. When the standard error is minimal, the test statistic's value is high compared to when the standard error is large.

Large standard error is undesirable; everything else being equal, the smaller this quantity is the closer is the fit of the line to the actual data. In this study, Financial asset, Cash and cash equivalent, loan and advance and fixed asset their corresponding standard error amount were (0.0803), (0.0823), (0.0801) & (0.0956) respectively.

Furthermore, as seen in the table above, the R-Square value, also known as the Coefficient of Determination, is a widely used statistic to assess model fit. The square of a correlation coefficient is specified as R-squared; it must be between 0 and 1. If this correlation is high, the

model fits the data well; if the correlation is low (around 0), the model does not match the data well. The adjusted R-squared compares the explanatory power of regression models that contain different numbers of predictors and it could control the extremes and the lateness of the model. The value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). The model's R-squared statistics and adjusted R-squared statistics were respectively 65.1 percent and 63.2 percent. Changes in the independent variables explain 63.2 percent of the changes in the dependent variable, according to the results of this estimation, notably the adjusted R-Squared. This suggests that the independent variables (financial asset, cash and cash equivalents, loan, and fixed asset) account for 63.2 percent of the variation in profitability. As a result, the variables are good explanatory factors for determining the influence of asset diversification on Ethiopian bank profitability. However, other factors not included in the model accounted for the remaining 34.9 percent of changes. The result of the study is consistence with the empirical finding of (Kipleting and Bokongo, 2016).

F-statistic and Probability of (F-statistic) are also used together to test the hypothesis that none of the explanatory variables truly explain the dependent variable. To put it another way, the F-statistic calculates the standard F-test of the joint hypothesis that all coefficients, except the intercept, are equal to zero. The p-value corresponding to the reported F-statistic is displayed in Probability (F-statistic), therefore the F-statistic in the above table was 35.02 and the Probability (F-statistic) value (0.0410), which indicates strong statistical significance, substantially strengthened the model's overall reliability and validity. The overall model is highly significant at 1%, and all of the independent variables are jointly significant. According to Eyerusalem (2019) and Samuel (2018) empirical results suggest that Asset diversification has strong and significant effect on bank performance factors of commercial banks in Ethiopia.

Table 4.10 above shows that three explanatory variables had significant impact on Profitability of Ethiopian commercial banks. The significant variables are financial asset, cash and cash equivalent, and loan and advance were significant at below 5% significant level since the p-value for those variables were (0.030), (0.018), & (0.014), respectively. Only one variable had insignificant impact which is fixed asset is (0.114) therefore above 5% of the variables is significant in this study.

CHAPTER FIVE

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 2011-2020, 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 statistical package STATA 12.

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 asset diversification on the profitability of banks in Ethiopia.

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. Net interest income was taken as dependent variable, while the independent variables were financial asset, cash and cash equivalent, loans & advances and fixed asset.

5.2 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, Risk is inherent to any business, but it can be controlled to mitigate its impact on profitability.

In the above result of regression analyses show that the independent factors explain 65.13 % of the dependent variable (Net interest income) which is only less than 34.87% fluctuation of the dependent variable can be explain by other independent variable those are not mention in the above variable this indicate that the above independent variables are good to explained the dependent variable.

According to the study's findings, 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 in the Ethiopian commercial banking market is attractive. Financial assets, cash, and cash equivalent, on the other hand, have a negative coefficient so this asset is not that much attractive the main reason for this effect is NBE is enforce all Privet commercial bank in order to buy bone with 5% interest rate but a statistically significant impact on a bank's profitability because the p-value strongly explains the dependent variable. However, fixed 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.

5.3 Recommendation

The study established that even though financial assets, loans, and cash and cash equivalents have significant impacts on the financial performance of banks, there was insignificant impact on the bank's performance by fixed assets 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.

- 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 there on asset in loan and advance because of most of bank income generate form this asset.

- The impact of financial asset in financial performance of banks have negative coefficient even though it’s significant impact on financial performance at significance level, this indicated that they may have good investment in financial asset like bond and other security

of asset, thus the result will assist to bank managers should focus how diversify their financial asset in order to invest at minimum or risk free government security and bond, it means financial asset increases a company's worth because financial assets are easily liquidized compared to other tangible assets.

- When we see the impact of cash and cash equivalent in financial performance banks have negative coefficient but it's significant at 5% significance level, this indicated that banks have to possess enough funds to meet its financial obligations and also by lending this amount increases the interest income of the bank, thus the bank managers should focus how diversify their cash and cash equivalent by using ROA at relatively low risk investment of those idle money. For the reason that the impact of keeping excessive amount of cash for unexpected circumstances as this idle money could leads to incur loss because of cost of interest paid to the depositor.

The study is valuable to commercial bank managers as its focus is on the impact of asset diversification on the financial performance of commercial banks in Ethiopia. The findings would inform the managers on necessary considerations to make while selecting the degree of asset diversification.

Further, study is valuable to the policy makers and the government institutions that regulate the banking sector in Ethiopia. Since one of the independent variable that is fixed asset is insignificant impact on the financial performance of bank because national bank directive all financial entities are restricted from investing in fixed asset not more than 10% of their paid up capital. Hence, the researcher recommends for further research into the fixed asset diversification in banks in addition to NBE directive in order to have a detailed conclusions of causes behind such trends.

Thus, the researcher recommends to other researcher should also focus the remaining 34.87% variation explain the financial performance of banking industry.

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Appendixes

Appendix I: List of the sample commercial Banks of Ethiopia

No.	Bank Name	Year of establishment
1	Commercial bank of Ethiopia	1943
2	Awash International Bank	1994
3	Dashen Bank	1995
4	Bank of Abyssinia	1996
5	Wegagen Bank	1997
6	United Bank	1998
7	Nib International Bank	1999
8	Cooperative Bank of Oromia	2005

Sources: National Bank of Ethiopia

Appendix II: Descriptive statistics results

```
. summarize roanetinterestincome financialassettototalassetratio cashandcashequivalenttototalasse loa
> nandadvancetototalassetratio fixedassettototalassetratio

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
roanetinte~e |        80     .043625    .0109364        .02        .06
financiala~o |        80      .27425    .1123261        .12        .59
cashandcas~e |        80        .223    .1046199        .06        .51
loanandadv~o |        80     .47175    .0909969        .28        .65
fixedasset~o |        80        .028    .0173862          0        .07
```

Appendix III: Correlation Matrix

	ROA	FIN	CASH	LOAN & ADV	FIXED AS
ROA	1.0000				
Financial Asset	-0.1054	1.0000			
Cash and cash Eq	-0.5849	-0.5824	1.0000		
Loan	0.7389	-0.5051	-0.3920	1.0000	
Fixed asset	0.2237	-0.2237	-0.3370	0.4823	1.0000

Appendix IV: Hausman test

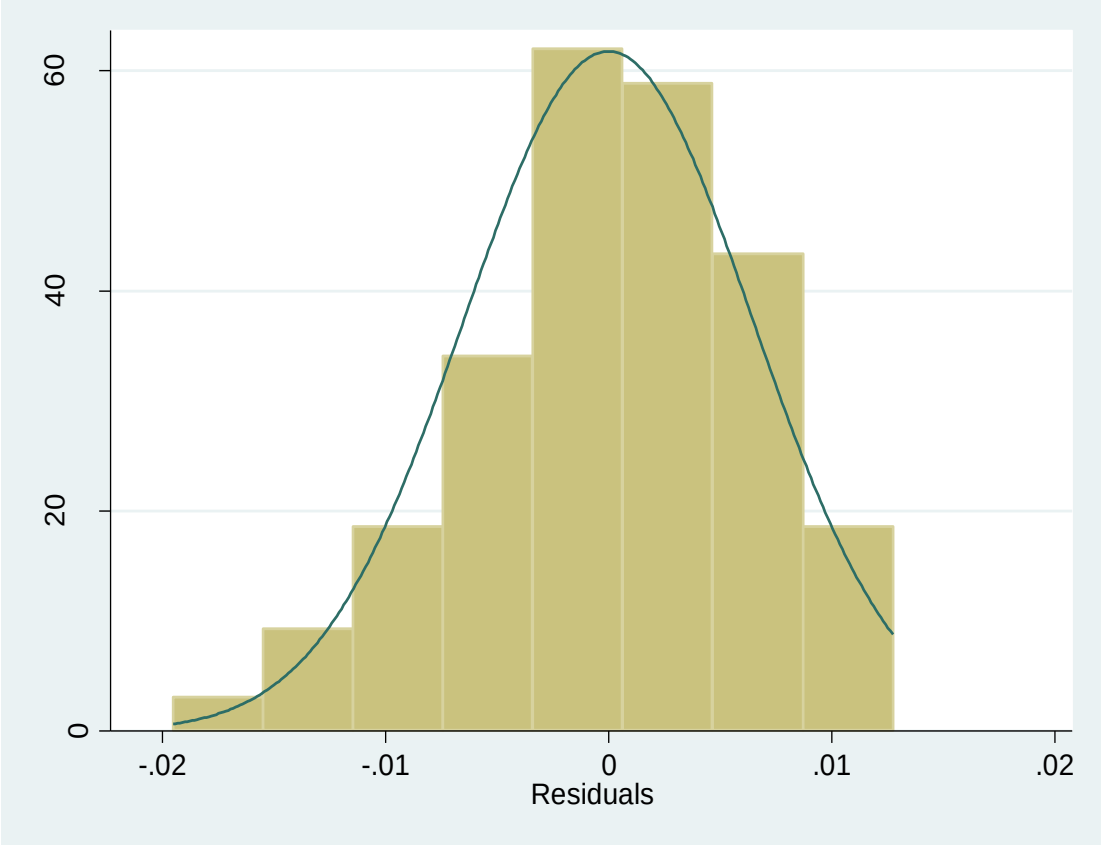
```
. hausman fe re

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re        Difference          S.E.
-------------+----------------------------------------------------------------
financiala~o |   -.0216193     .0181742       -.0397936        .0461896
cashandcas~e |    -.057282    -.0020164       -.0552657          .04854
loanandadv~o |    .0530567     .1123548       -.0592981        .0475062
fixedasset~o |    .0106078     .1266524       -.1160447        .0539047
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        22.07
                Prob>chi2 =      0.0035
                (V_b-V_B is not positive definite)
```

Appendix V: Histogram for normality test



Appendix VI: Panel Data

ROA(NET INTEREST INCOME)	Financial Asset to Total Asset Ratio	Cash and cash equivalent to Total Asset Ratio	Loan and Advance to Total Asset Ratio	Fixed Asset to Total Asset Ratio
0.031459826	0.421331488	0.264834985	0.307174406	0.00665912
0.036817528	0.452497496	0.158049405	0.383719933	0.00573317
0.040250633	0.461059795	0.180099523	0.353491995	0.00534869
0.0387956	0.558604466	0.062084543	0.372110804	0.00720019
0.043281382	0.549935486	0.070306969	0.371950425	0.00780712
0.043621849	0.535760447	0.083510491	0.358193366	0.0225357

0.03839127	**0.56087982**	**0.109339937**	**0.306590425**	**0.02318982**
0.042441748	**0.586985849**	**0.090615627**	**0.301439949**	**0.02095857**
0.039818014	**0.582516751**	**0.120046433**	**0.277565261**	**0.01987156**
0.03797209	**0.575188689**	**0.119036472**	**0.284503101**	**0.02127174**
0.020612536	**0.14639014**	**0.424681537**	**0.415686184**	**0.01324214**
0.03029842	**0.201711549**	**0.329600598**	**0.453730237**	**0.01495762**
0.028490838	**0.238215996**	**0.306926597**	**0.43870841**	**0.016149**
0.027219927	**0.245458583**	**0.297912622**	**0.429357207**	**0.02727159**
0.031970498	**0.291487106**	**0.223305426**	**0.457645795**	**0.02756167**
0.029277068	**0.294916549**	**0.240430147**	**0.436676544**	**0.02797676**
0.03331971	**0.312494785**	**0.151762373**	**0.511702302**	**0.02404054**
0.045249383	**0.275466855**	**0.155002739**	**0.507591483**	**0.06193892**
0.046704765	**0.262220397**	**0.108326423**	**0.575721971**	**0.05373121**
0.05406721	**0.190866876**	**0.135996628**	**0.616272043**	**0.05686445**
0.020512653	**0.194617123**	**0.400176655**	**0.37975816**	**0.02544806**
0.034804007	**0.259160489**	**0.245912726**	**0.448677328**	**0.0274**
0.039374967	**0.220651692**	**0.230275403**	**0.506924742**	**0.03205315**
0.035171572	**0.267802039**	**0.252653743**	**0.447760616**	**0.0317836**
0.037479502	**0.285560647**	**0.162633079**	**0.513832338**	**0.03797394**
0.042662596	**0.251231264**	**0.195622717**	**0.513855319**	**0.0392907**
0.048787253	**0.219252551**	**0.179544016**	**0.570567339**	**0.03063609**
0.057765065	**0.183893416**	**0.210470606**	**0.561789786**	**0.04384619**
0.060957459	**0.185731642**	**0.152359487**	**0.627778506**	**0.03413037**
0.063652943	**0.174660815**	**0.161695969**	**0.630319579**	**0.03332364**
0.030737389	**0.149807934**	**0.397900977**	**0.440399293**	**0.0118918**
0.037252985	**0.2213161**	**0.306221038**	**0.460865447**	**0.01159741**
0.031470186	**0.350385103**	**0.194603139**	**0.454967531**	**4.4228E-05**
0.039063512	**0.26445075**	**0.24353554**	**0.448814767**	**0.04319894**
0.038698223	**0.292902846**	**0.211064691**	**0.432061667**	**0.0639708**
0.042307134	**0.275294294**	**0.184438448**	**0.476086197**	**0.06418106**

0.046991435	**0.265259809**	**0.1358075**	**0.549944444**	**0.04898825**
0.058112324	**0.244458664**	**0.140436422**	**0.555949865**	**0.05915505**
0.056028091	**0.237892805**	**0.113812634**	**0.596045037**	**0.05224952**
0.063182833	**0.170263396**	**0.111728347**	**0.646821419**	**0.07118684**
0.03110315	**0.127294786**	**0.513715653**	**0.344604825**	**0.01438474**
0.036784304	**0.211834843**	**0.311639699**	**0.416785779**	**0.03702977**
0.044082193	**0.257156937**	**0.246844248**	**0.441138691**	**0.03470224**
0.039704157	**0.372772897**	**0.159153991**	**0.471814869**	**0.00309707**
0.045078181	**0.331967337**	**0.178442865**	**0.442838339**	**0.04675146**
0.045590712	**0.299287079**	**0.191317747**	**0.463656797**	**0.04573838**
0.047303827	**0.27963694**	**0.186384402**	**0.488570514**	**0.04540814**
0.056419122	**0.263143249**	**0.147817491**	**0.539779188**	**0.04926007**
0.052201292	**0.267610872**	**0.143804631**	**0.540674412**	**0.04791008**
0.059206568	**0.161967719**	**0.166762422**	**0.609260105**	**0.06200975**
0.028489241	**0.119286426**	**0.460707529**	**0.412419982**	**0.00758606**
0.038757737	**0.208950733**	**0.325788769**	**0.45410372**	**0.01115678**
0.037760828	**0.316558507**	**0.206668912**	**0.463354317**	**0.01341826**
0.040074524	**0.27531008**	**0.284963792**	**0.420715682**	**0.01901045**
0.042857568	**0.313507651**	**0.189641323**	**0.471852467**	**0.02499856**
0.044271747	**0.314965736**	**0.169005798**	**0.487749733**	**0.02827873**
0.046667199	**0.280217796**	**0.145482841**	**0.540929099**	**0.03337026**
0.049568438	**0.263527652**	**0.16149439**	**0.530481842**	**0.04449612**
0.052575849	**0.244235525**	**0.10716643**	**0.604754735**	**0.04384331**
0.060786283	**0.177801596**	**0.123746801**	**0.634546641**	**0.06390496**
0.03066669	**0.115492484**	**0.504772113**	**0.36863209**	**0.01110331**
0.035391036	**0.181034815**	**0.42187323**	**0.387985688**	**0.00910627**
0.041873233	**0.213742116**	**0.303671219**	**0.442137091**	**0.0098626**
0.041232125	**0.247355281**	**0.312704088**	**0.426521995**	**0.01341864**
0.046505073	**0.243702633**	**0.262048683**	**0.483084995**	**0.01116369**
0.05116299	**0.232797531**	**0.225860294**	**0.530024225**	**0.01131795**

0.054767907	**0.246322814**	**0.243365558**	**0.499801152**	**0.01051048**
0.059211444	**0.263797838**	**0.210812203**	**0.514961454**	**0.01042851**
0.061222958	**0.243044134**	**0.176970479**	**0.569960931**	**0.01002446**
0.064654215	**0.141647468**	**0.216882599**	**0.600385817**	**0.04108412**
0.02431065	**0.173703667**	**0.486723144**	**0.314260383**	**0.02531281**
0.036557482	**0.268196313**	**0.295965063**	**0.371464573**	**0.02360402**
0.033502122	**0.124982317**	**0.477695854**	**0.318062244**	**0.03729906**
0.046268034	**0.235036046**	**0.25130973**	**0.495721611**	**0.01793261**
0.059983016	**0.197346638**	**0.212608816**	**0.572849907**	**0.01719464**
0.053854501	**0.225285888**	**0.200812031**	**0.550682201**	**0.02321988**
0.055051493	**0.230890087**	**0.196735059**	**0.546122167**	**0.02625269**
0.051653065	**0.229446046**	**0.256851262**	**0.492221184**	**0.02148151**
0.0496171	**0.295131077**	**0.171560447**	**0.512182058**	**0.02112642**
0.055470847	**0.290025332**	**0.129999201**	**0.558855158**	**0.02112031**