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Determinants of the Profitability of Private Commercial Banks in Ethiopia

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Abstract
The aim of this study is to examine factors that determine profitability of private commercial banks in Ethiopia. Because the factors that determine bank profitability are broad, the nine variables that were identified from the literature and considered to have an impact on profitability are categorized into three major environmental aspects: macroeconomic variables, industry-specific variables, and bank-specific variables. To verify the independent variables that behave differently with risk adjusted return, risk neutral and risk adjusted performance metrics were also used. In terms of sample, the study looked at balanced panel data of 16 commercial banks from 2014 to 2019. In order to analyze the data, both descriptive and inferential statistics were used. From the total nine independent variables, two of them namely, the bank capital strength and managerial efficiency simultaneously determine banks' profitability measured both in Return on Assets (ROA) and Return on Risk Weighted Assets (RORWA). Whereas, three variables, namely, income diversification, banking industry development and inflation rate had significantly determined banks' profitability measured in ROA. While credit risk had significantly determined banks' profitability measured in RORWA. The remaining three variables, namely: bank size, bank growth and gross domestic product of country do not significantly determine banks profitability measured either on ROA or RORWA. The study suggests commercial banks to enhance capacity to control their operating costs and interest margin, diversify their sources of income, and strict follow-up on their capital adequacy positions.
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1. INTRODUCTION

The profitability of the banking system has been one of the hot issues in financial environment. It is widely believed that the banking sector should be continued to be profitable in order to play a crucial role for economic growth of a country because of their direct impact on the sustainability of the banks in particular and on the productivity of all the other sectors in the economy in general (Menicucci & Paolucci, 2016). Given the relation between the well-being of the banking sector and the growth of the economy, knowledge of the underlying factors that influence the financial sector's profitability is therefore essential not only for the managers of the banks, but also for numerous stakeholders such as the central banks, bankers' associations, governments, and other financial authorities. Knowledge of these factors would be useful in helping the regulatory authorities and bank managers formulate future policies aimed at improving the profitability of the banking sector.

A number of different studies have examined determinants of bank profitability in an effort to isolate the factors that account for differences in profitability among each bank. Some studies have linked bank earnings and various aspects of bank operating performance to profitability of commercial bank (Francis, 2010; Ongore, 2013; Duraj & Moci, 2015; Elshaday, 2017; & Tewodros, 2018). Set of studies focused on the relationship between bank earnings performance and balance sheet structure (Sayilgan, 2009; & Kassem & Sakr, 2018) and others examined the impact of regulatory and macroeconomic (external) factors on overall bank profitability (Menicucci & Paolucci, 2016; & Arto, 2018). The main conclusion emerging from past studies is that both internal and external factors have been affecting the profitability of banks over time.

Internal factors of bank performance or profitability can be defined as factors that are influenced by bank management decisions. Such management effects will definitely affect the operating results of commercial banks (Kassem & Sakr, 2018). External determinants of bank profitability are factors that are beyond the control of a bank's management decision. 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 (Menicucci & Paolucci, 2016).

In Ethiopia, commercial banks play important primary role as financial intermediaries in the economic growth process, channeling funds from savers to borrowers for investment. As financial intermediaries, banks play an important role in the operation of an economy (Tewodros, 2018). The banking sector in Ethiopia also has also undergone with major transformation. Recent data also testifies that mostly, the banking sector has experienced a trend of growing profitability alongside positive trends related to balance sheet expansion (NBE Report 2020/21).

However, the contributing factors, whether internal or external, to the greatest profitability earned by the industry was not well analyzed (Elshaday, 2018). As such, an understanding of determinants of their profitability and the drivers of bank profitability for that matter is essential and crucial to the stability of the economy. This study would give due attention to direct an investigation about the banks determinants of the profitability which is essential for the owner as well as for the management and decision makers to take timely action which improve banks efficiency and profit.

1.2 Statement of the problem

Several empirical studies were conducted by various researchers around the globe on determinants of the profitability of commercial banks. Researchers like (Sayilgan, 2009; Francis, 2010; Ongore, 2013; Duraj & Moci, 2015; Elshaday, 2017; Tewodros, 2018; & Kassem & Sakr, 2018) and other scholars have carried out studies on the factors that determine profitability of commercial banks. Despite the fact that all of these and other researchers studied on this issue, the determinants of profitability have been a source of debate in the corporate finance literature for many years and remain unsolved concerns. Indeed, what makes the profit determinants discussion so fascinating is because profit determinants are dynamic over time and fluctuate depending on the nature of the firm's operations.

Regarding the literature gaps identified, the researcher is able to realize that even if a lot of attention has been given in exploring the determinants of commercial bank performance in Ethiopia (Boru, 2014; Abdissa, 2016; Elshaday, 2017; and Tewodros, 2018), most of the previous studies used a sample technique that concentrated predominantly on long-stayed banks likes, Awash, Dashen, Abyssinia, NIB, United Wegagen, Oromia Bank & Cooperative Bank of Oromia. More so these studies were given little emphasis to the recently established commercial banks (Abay Bank, Addis International Bank, Buna International Banks, Enat Bank, Debub Global Bank, Lion International Bank, Zemen Bank), which are addressed in present study.

On the other hand, the top 5 private banks no longer have nearly as much market share as they did five years ago due to increased competition and a decrease in market concentration in the private banking sector (NBE, 2021). Private banking is now more competitive and less concentrated than ever before. The researcher analyzes four important indicators for industry concentration trends over time (deposits, loans, capital, and earnings) and discovers that there is currently far less concentration than there was five years ago. The market share of the "older six banks" is down 17 percentage points for deposits, 9 percentage points for loans, 9 percentage points for capital, and 11 percentage points for earnings when compared to the "newer ten banks". Taking a measure of concentration that looks at market shares held by the top 5 banks, we find that there is less industry concentration over time: the top five private banks held 82/80/74/82 percent of deposits/loans/capital/profits about a decade ago but now hold just 53/56/53/41 percent market shares respectively. Similar analysis of the top three private banks reveals dropping concentration ratios in their market shares of assets, deposits, and profits—from about 45–48 percent to 38–40 percent—which is suggestive of recent increases in competitive forces within the private banking sector (NBE, 2021). Therefore, an examination of the factors influencing the profitability of commercial banks in Ethiopia that included data from both older and more recent banks in the sample seemed more pertinent.

The three bank profitability measures that are used the most frequently and are regarded as classic methods are return on asset (ROA), return on equity (ROE), and net interest margin (NIM). These metrics were not taken into consideration to demonstrate how the bank's business model and strategy aligned with its risk appetite (Klaassen & Van, 2015). According to Kassem & Sakr (2018), the risk is largely ignored by the established performance indicators used to assess bank performance. In addition to the risk-neutral components, a risk-adjusted measure of bank performance could provide investors, depositors, and stakeholders with a realistic picture of their economic choice. Ahmad et al. (2016) claim that standard performance measures become more stable indicators of bank stability when they are risk adjusted. As a result, in addition to the most often used components of ROA, the current study also included Return on Risk Weighted Asset (RORWA) as a measure of bank profitability to fill this gap in the literature.

In addition, most of the reviewed studies didn't take into account the impact of income diversification into account although income from foreign currency operation is becoming a good source of income for the bank. In this regard, as the country in serious foreign currency crunch, commercial banks operating in Ethiopia are expected to earn significant portion of income from their international banking operations by imposing higher service charges. Thus, additional bank specific independent variable income diversification which is measured in term of ratio non-interest income to total income is considered in order to see the impact of international banking operation on the bank profitability. Also, the present study added some additional bank specific variables like bank growth which is measures in terms the ratio of the difference of asset of current year and asset of previous year to asset of previous year has not been tested in the previous studies. More so, in the present study additional industry specific determinant, banking industry development which is measured in terms of ratio of total asset of the industry to GDP is used as industry specific determinants. The study therefore aims to fill this gap by studying determinants of bank profitability in terms of wider variables and wider sample by including all private commercial banks in

Ethiopia.

1.3. Objectives of study

1.3.1 General objective

The general objective of the study was to find out the effect of selected firm specific, industry specific and macroeconomic variables on the profitability of private commercial banks in Ethiopia.

1.3.2 Specific objectives

The specific objectives of the study were:

- To assess the effect of some selected bank specific variables on profitability of the private commercial banks in Ethiopia.
- To investigate the extent to which banking sector development as an element industry specific variable affect the profitability of commercial banks in Ethiopia.
- To determine the extent to which GDP growth rate and inflation as element macroeconomic variable affect the profitability of commercial banks in Ethiopia.

1.4. Research Hypotheses

Based on the reviewed empirical studies, the study framed the following alternative hypothesis.

- H1: Bank capital strength has significant effect on the profitability of private commercial banks in Ethiopia.
- H2: Bank size has significant effect on the profitability of private commercial banks.
- H3: Bank growth has significant effect on the profitability of private commercial banks.
- H4: Management efficiency has significant effect on the profitability of private commercial banks in Ethiopia.
- H5: Income diversification has significant effect on the profitability of private commercial banks in Ethiopia.
- H6: Credit risk has significant effect on the profitability of the private commercial banks.
- H7: Banking sector development has significant effect on the profitability of private commercial banks profitability in Ethiopia.
- H8: GDP growth has significant effect on the profitability of private commercial banks.
- H9: Inflation has significant effect on the profitability of private commercial banks.

1.5. Scope of the Study

The scope of this study was delimited in terms of subject (concept) and area (geography). Conceptually, the study covers six bank specific factors (capital strength, bank size, bank growth, non-interest income, operating expense to operation income ratio and loan loss provision to total loan ratio), one industry specific factors (banking sector development which measure in terms of the ratio of total asset of the banking industry to GDP) and two macro-economic determinants (GDP growth rate and inflation). Although the study is acknowledged that there are other factors that may impact on profitability of banks that are not included in this study, the selected variables are assumed to consider core operational activities of the private commercial banks. In order to address the sample size limitation of previous studies, this study covers all sixteen private commercial banks in Ethiopia. In terms of time scope, the study covers the period (2014 – 2019). The period 2013 is selected to consider all private commercial banks operating in Ethiopia, as the last two private commercial banks (Enat Bank and Debub Global Bank) joined the industry in the year 2013.

2. RELATED LITERATURE REVIEW

In this chapter the researcher reviews relevant literature on theoretical, empirical and conceptual framework issues which are found to be essential to the research inquiry.

2.1. Review of Theoretical Literature

The theoretical frame work upon which this study is based on structural approaches and the Capital Asset Pricing Model (CAPM) to investigate behavior of the banking market regarding to profitability.

2.1.1. Market Structure Theories

The traditional theory of the firm was assumed that a firm's objective is simply to maximize profits. In practice this theory is not applicable because of most modern industries, involvement in providing a variety of products/services, and faced with much more complex decisions to be taken in a dynamic and uncertain environment (Devinaga, 2010). Due to this most researcher prefer market structure theories rather than the traditional theory to analyze the profitability of the industry in term of industry structure. The literature on the measurement of market structure (structural approach) divided into two mainstreams, called the structure–

conduct–performance (SCP) paradigm and the efficiency structure hypothesis (ESH).

The Structure Conduct Performance (SCP) model is one of the earliest frameworks used to examine the factors that determine the profitability of Banks (Grygorenko, 2009). The relationship between performance and market structure on the banking industry is based on the development of the theory in the industry organization (Brahmana, 2018). The structure of an industry refers to the factors such as technology, concentration, and market conditions. Conduct refers to how individual firms behave in the market; it involves pricing decisions (such as interest rate, commission and fees), advertising decisions, and decisions to invest in research and development, among other factors. Performance refers to the resulting profits and social welfare that arise in the market. The Structure Conduct Performance (SCP) paradigm views these three aspects of the industry as being integrally related and asserts that the market structure causes firms to behave in a certain way. In turn, this behavior causes resources to be allocated in certain ways leading to either an efficient or inefficient market (Devinga, 2010). SCP, in general, provides two main benefits to studies, which investigate the banks profit behavior. First, it shows the way to the banks' profits are operating. Thus, it explains different forces that restrict or expand the scope of banks' operations in the market. Especially with profitability studies, SCP helps to interpret different sources of productivity and efficiency gains or losses. Second, SCP provides a rational basis for analyzing the market behavior (Devinga, 2010).

A theoretical attempt to offer an alternative explanation on the market Structure Conduct Performance (SCP) relationship is the efficiency hypothesis which states that banks earn more profit because they are more efficient than others. In other words, profitability of bank is determined not by the market concentration but by bank efficiency (Grygorenko, 2009). According to the 'efficiency' hypothesis, a positive concentration– profitability relationship may reflect a positive relationship between size and efficiency. It states that efficient banks in the market lead to increase in the firms' size and market share due to the aggressive behavior. This behavior of the efficient banks allowed such firms to concentrate and earn higher profits with further enhancing their market share. Those firms can maximize profits either by maintaining the present level of product price or service charge and firms' size or by reducing the service charge and expanding the firm size (Sayilgan, 2009).

2.1.2. Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) describes the relationship between risk and expected (required) return. In this model, the expected return on a firm's stock is defined as a function of risk-free rate and a premium based on the systematic risk. The greater the systematic risk, the greater the return the investors will expect from the security. The underlying logic behind this model and its relevance in this study is based on the fact CAPM views the total portfolio risk as a function of systematic risk and unsystematic risk. The systematic risk is attributable to factors that affect the market as a whole such as government policies, changes in the economy and the political climate. The unsystematic risk is specific to a particular company such as industrial relations, quality of firm's management or a new competitor in the industry. Systematic risks cannot be avoided through diversification. However unsystematic risk can be avoided through diversification. It asserts that in market equilibrium, a security is expected to provide return commensurate with its systematic risk. Investors should not be compensated for unsystematic risks as it assumes investors are rational and risk-averse enough to diversify unsystematic risks (Menicucci & Paolucci, 2016).

2.2. Measure of Profitability

Commercial bank's ultimate goal is profit making. The term profit can take either its economic meaning or accounting concept, which shows the excess of income over expenditure incurred during a specified period. Ongore, (2013) argued that profitability is the most important and reliable indicator as it gives a broad view of the ability of an institution to raise its income level (Kiran, 2017). There are different ways to measure profitability such as return on asset and return on equity.

Return on asset is one of the major ratios that indicate bank's performance that is its profitability. As keeping (Kassem & Sakr, 2018), we can express ROA is a ratio of net income to its total asset. One of the major criteria to measure how much the bank managements are operational to generate income by utilizing company's asset and maximize the optimum profit at their disposal is by return on asset. In other words, it shows the management uses the resources of the company to generate the income efficiently. Besides as (Kassem & Sakr, 2018), it indicates that in producing maximum income from all the resources of the organization, the efficiency of an organization's management is so crucial and not compromised. That is the higher the efficiency, the more the profited of the firm is (Amel, et al., 2004).

Return on Risk Weighted Asset, which includes off-balance sheet items like guarantees, loans, advances, and other commitments, measures the bank's overall level of risk. The risk weighted assets of a bank are determined in accordance with NBE Directive No SSB/9/95 based on the weight of the risk imposed by the regulatory body to each item. Francis (2010) asserts that the RORWA ratio has certain advantages over the ROA. The asset risk profile element may be unfairly favored by banks that take larger risks to raise earnings and penalized by banks that take lower risks to produce stable earnings because it is not taken into account in the denominator of total

assets.

2.3. Determinants of Bank Profitability

The review of literatures on bank profitability determinants are organized in two parts namely internal and external determinants. The internal determinants include variables driven from financial statement and variables internal by their very nature but not displayed on financial statements. External determinants comprise review of industry-specific determinants which has impact on the banking sector profitability alone and macroeconomic determinants which affect all business activities of a given country.

2.3.1. Internal Determinants of Bank Profitability

According to previous studies, the internal determinants of bank performance can be defined as the factors that are influenced by the decision of the banks' top management or board. Flamini, et al; (2009), noted that these managements induced determinants on the commercial banks' performance can be analyzed through comprehensive analysis of statement of financial position and through statement of comprehensive income. In this regard various studies have been conducted by considering different variables as internal factor.

i. Capital Adequacy Ratio

Capital adequacy is one of the internal factors influencing banks' profitability. it is measured by the ratio of equity capital to total asset. Bank equity capital can be seen in two ways. Narrowly, as stated by Sayilgan (2009), it can be seen as the amount contributed by the owners of a bank (paid-up share capital) that gives them the right to enjoy all the future earnings. More comprehensively, it can be seen as the number of owners' funds available to support a bank's business. The later definition includes reserves, and is also termed as total shareholders' funds. No matter the definition adopted, a bank's capital is widely used as one of the determinants of bank profitability since it indicates the financial strength of the bank.

Theoretically, banks with good capital adequacy ratio have a good profitability. Since higher capital reduces banks' risk and creates a buffer against losses, it makes funding with non-insured debt and less information sensitive (Aderaw, & Manjit, 2016). Thus, capital adequacy can enhance bank performance.

ii. Bank Size

In most literatures the effect of size on banks profitability are represented by total asset. Artor (2017) indicated that size is used to capture the fact that larger banks are better placed than smaller banks in harnessing economies of scale in transactions and enjoy a higher level of profits. According to Kassem & Sakr (2018), market share or size of banks is normally used to capture potential economies or diseconomies of scale in the banking sector. Secondly, the size of banks as a variable control for cost differences and product and risk diversification. They argue that the first factor (economies or diseconomies of scale) is expected to lead to a positive relationship between bank size and profitability if there are significant economies of scale. Menicucci & Paolucci, (2016) noted that large bank has more opportunities of a growth in profitability as a result of economies of scale. These economies of scale lead to market power. Having huge amounts of assets generally control a large portion of the market. Moreover, larger banks are able to take advantage of higher production and loan diversification opportunities. In this regards, Elsahday (2018) and Tewodros (2019) states that there is positive relationship between bank size and profitability because of the bigger banks have more economies of scale

iii. Bank Growth

As trade off theory, the growth opportunities are considered as the indicator of the firm success, and these firms are stronger to resist the financial suffering than others companies. Obviously, bank with a good growth opportunity have a good appreciation in getting funds from different lenders or institutions; they can have easier access to the financial markets, and it shows or reflects in the better performance for the successful banks. In the eyes of the agency theory perspective, bank with high well-intentioned growth opportunities have lower agency costs and the other way around. The persisting literature about growth considers growth opportunities available to a company as an important determinant or factors of firm's performance. Banks with good growth condition are able to generate profit from investment, and therefore it is expected that growth influences the profitability of the firm as the argument of (Tan, 2015).

iv. Management Efficiency

Management Efficiency is one of the key internal factors that determine the bank profitability. But, measuring the management efficiency through financial ratio becomes a complex subject, Ongore (2013). The quality of the management will determine the success of a bank or financial institution. However, Klaassen, (2015), states that quantifying the quality of management is difficult since management is a qualitative problem, such as the willingness to take risks. As a result, various researchers used various financial ratios to measure the management efficiency. Among which, total operating revenue to total profit (Ongore, 2013), the ratio of non-interest expense to total expense (Tewodros, 2019), the ratio of operating expense to total assets (Ongore, 2013 and Tan, 2015). According to Menicucci & Paolucci (2016), the ratio of operating cost to operating income is an indicator of how much revenue is generated from operating expenses. This ratio was used by various researchers as a proxy of measurement of management efficiency.

v. Income diversification

The importance of fee-based services of banks and their product diversification is captured by the non-interest income to gross income ratio. In recent years banks have increasingly been generating income from "off-balance sheet" business and fee income general. Non-interest income consists of commission, service charges, and fees, guarantee fees, and foreign exchange profit (Amel, et al, 2012). The high degree of diversification of income structure will reduce the volatility of bank profits, thereby reducing the bank's operating risks, prompting banks to retain less capital buffers to resist liquidity and bankruptcy risks. Having more resource with good production efficiency should lead bank to better performance. Meanwhile, in risk reduction hypothesis perspective, diversification leads to less risk with manageable income (Ahmad, et al, 2012).

vi. Credit Risk

It is measured by the ratio of loan loss provisions over total loans and advances. The loan loss provisions are reported on a bank's profit and loss account and it is a measure of capital risk, as well as credit quality of the bank. According to Chinoda (2014), if banks operate in more risky environments and lack the expertise to control their lending operations, it will probably result in a higher loan-loss provision ratio. On the other hand, literatures suggest that increased exposure to credit risk is normally associated with decreased firm profitability. Therefore, as indicated by Devinga (2010), banks would increase profitability by improving screening and monitoring of credit risk and such policies. A negative effect of the loan loss provision relative to total loans on banks profitability are witnessed in all literatures reviewed by this study such as Chinoda (2014), Frederick (2014), and Duraj & Moci, (2015).

2.3.2. External Determinants of Bank Profitability

As defined by Abdissa (2016), the external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and performance of financial institutions. The external determinants of commercial bank profitability include industry-specific determinants and macroeconomic variables.

Banking sector development which is measured in terms of total asset of the banking industry to GDP is one of important determinant of bank profitability measure. a total asset of the industry to GDP ratio indicates that financial development plays an important role in the economy. When the market becomes more competitive, banks need to adapt different strategies in order to retain profitability (Artor, 2017).

In addition to banks influence on economic activities, macroeconomic factors also affect the performance of commercial banks in a given country. The positive relationship between economic growth and Bank performance is supported by most of previous literatures. According to Delis 2005, the trend of GDP affects the demand for banks asset. During boom period the demand for credit is expected to be high compared to recession. Therefore, revenues could grow faster than costs leading to increased profits, while the opposite may hold true during economic slowdowns. According to Flamini, (2009), when GDP growth slows down, and, in particular, during recessions, credit quality deteriorates, and defaults increase, thus reducing bank returns.

The effect of inflation is another important determinant of bank performance considered in this study. Inflation is a continuous increasing the price of goods and services. The impact of inflation could be reflected on the saving culture of depositors, loan repayment capacity of the borrowers, and banks resource mobilization activities. According to Ongore (2013), inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country. Moreover, according to Klaassen & Van (2015), inflation affects bank profitability depends on whether future movements in inflation are properly anticipated, which is highly depends on the firm forecasting ability about the future movements and correction measures to overcome its impact.

2.4. Review of Empirical Literature

There are different empirical evidences that identify determinants of bank profitability. In Turkish context, Sayilgan (2009), conducted a study by using with 6 years data of Turkish banking sectors, from 2002-2007, to study the micro and macro variables impact on the banks performance. The study identified that profitability of the banking sector increased along with declining inflation rate. On the micro independent variables, profitability seems to have been positively affected by capital adequacy in broad terms and negatively by growing off-balance sheet assets.

In Ghana context, Krakah & Ameyaw (2010) employed regression analysis to estimate and examine the determinants of the profitability of commercial banks, by examining the drivers of the bank's profitability using the Ghana Commercial Bank Ltd and Merchant Bank Ltd as case studies. The study revealed that non-interest income, non-interest expense, bank's capital strength, natural log of total assets, growth of money supply, and annual rate of inflation are significant key drivers of banks' profitability in Ghana. However, the size of the Ghanaian economy and loan loss provision or provisions for bad debt did not have any significant impact on the bank's profitability.

In Nigerian context, Marshal (2013), was conducted a study on 20 banks in Nigeria between 2006 and 2012 by employing econometric model of fixed effect regression model on a panel data (comprising cross-sectional and

time-series data). The result revealed that bank capital, expenses management, interest rate and the economic situation of the country have statistically significant effect on profitability. Banks' capital and GDP were identified with positive and significant effect on profitability contrary to the expenses management and bank size variables, which has statistically significant negative effect on banks profitability.

Several studies were appearing on the determinants of commercial bank profitability in Ethiopia by taking different internal and external variables taken into account. Melaku (2016) investigated the determinants of bank profitability in Ethiopian private banks using secondary data. The study employed audited financial statements of six sampled private commercial banks for the period of 2004 to 2011.The study used return on assets (ROA) as dependent profitability variable. The major findings of the study showed that bank specific determinants were very important in explaining profitability than external variables. The Asset size, capitalization, labor productivity, liquidity and non-interest income were positively and significantly related to bank's profitability, whereas credit risk and overhead efficiency have a negative impact on profitability of bank specific drivers.

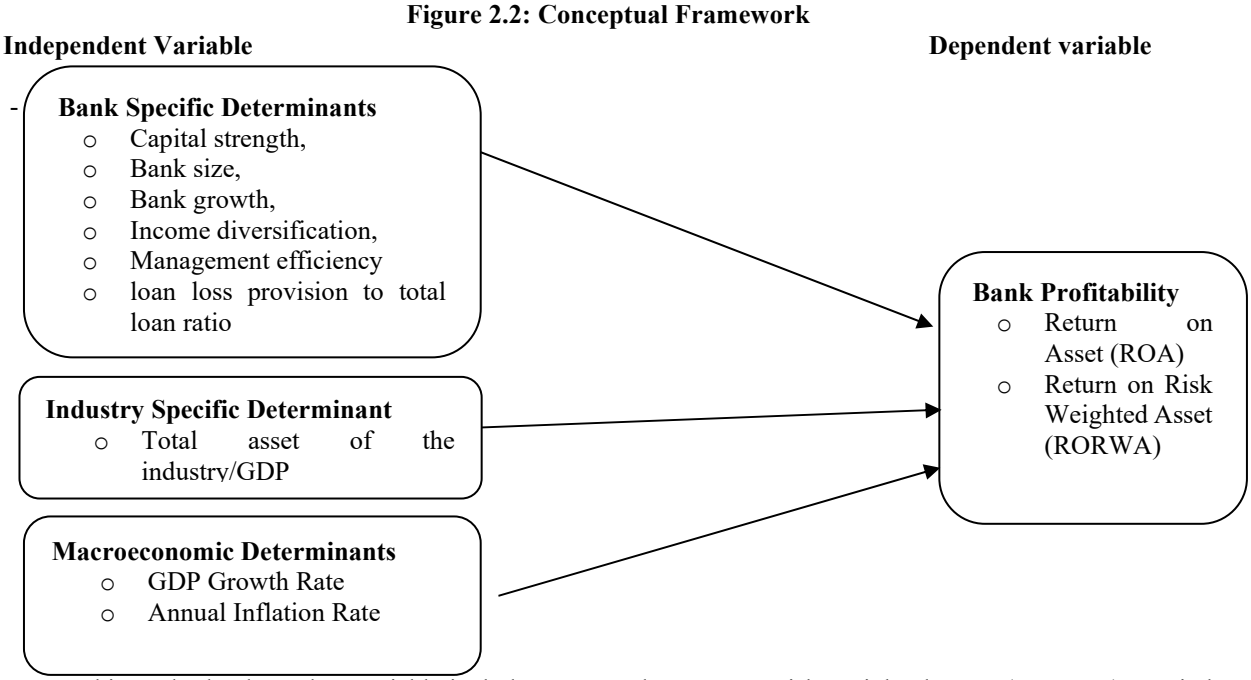
On the study of Million (2015), seven commercial banks operating in Ethiopia for the period covering from 2005-2014 was considered in order to assess the impact of bank specific and macro-economic factors on the profitability of Ethiopian private commercial banks. The researcher used return on asset (ROA) and return on equity (ROE) as dependent variables Random effect panel data analysis was used for the econometric analysis. The researcher identified that interest rate spread and loan to deposit ratio negatively affects the return on asset and return on equity. Bank size positively and significantly affects the profitability. Loan concentration has positive and significant effect on the return on equity of private banks, while insignificant effect on banks return on asset.

In more recent time Elshaday (2018), conducted a study on ten private commercial banks in Ethiopia for a period covering from 2007 to 2016. The study noted that bank size, leverage ratio and credit interest income have positive and statistically significant impact on the financial performance measured by return on equity. Loan loss provision and NPL has statistically significant negative effect on return on assets. Ratio of debt to asset, a measure of leverage, negatively correlated with the profitability measured by ROA.

2.5. Conceptual Framework of the study

A conceptual framework is developed based on the literature and theoretical model reviewed. The framework attempts to consider determinants of bank profitability.

Figure 2.2: Conceptual Framework



In this study the dependent variable includes ROA and Return on Risk Weighted Asset (RORWA). Capital strength, bank size, bank growth, non-interest income, operating expense to operation income ratio and loan loss provision to total loan ratio are considered as bank specific independent variables, while banking sector development (the ratio of Banks total Asset to GDP) is considered as industry specific independent variable. The other two independent variables, GDP growth rate and inflation are considered as macro-economic determinants.

3. RESEARCH DESIGN AND METHODS

3.1. Research Design and Approach

The study used quantitative approach. Quantitative approach was select mainly because the fact that it allows research used to generate data from audited financial statement in quantitative form so that it can be used for analysis. To address the objective, the study was used the explanatory research design. Explanatory research design was selected as it helps to understand the nature of relationship between the independent and dependent variables. Because the cause-and-effect research design explain the variables in detail about determinants of profitability.

3.2 Data Sources and Types

The study takes a quantitative research approach by using secondary data gathered from selected commercial banks and published annual reports of commercial banks from company official website. This study was used panel data covering a period of 6 years (2014 to 2019). The Panel data involves the pooling of observations on a cross section of units over several time periods and provides results that are simply not detectable in pure cross sections or pure time series studies (Brooks, 2008). Hence, by combining cross-sectional data and time series data, the researcher can increase the number of degrees of freedom, and thus the power of test, by employing information on the dynamic behavior of a large number of entities at same time.

3.3. Population and Sampling Techniques

Target population is the population to which a researcher wants to generalize the results of the study (Kothari, 2004). The target population is 16 private commercial banks of Ethiopia, namely: Abay bank, Addis International Bank, Awash International bank, Bank of Abyssinia, Berhan International bank, Buna International bank, Cooperative bank of Oromia, Dashen Bank, Debub global Bank, Enat Bank, Lion International Bank, Nib international Bank, Oromia Bank, United Bank, Wegagen Bank, Zemen Bank and Zamzam Bank. Banks that have organized financial innovation service report to NBE since 2014 are considered as a sample. The period 2014 is selected to consider all private commercial banks operating in Ethiopia, as the last two private commercial banks (Enat Bank and Debub Global Bank) joined the industry in the year 2013. In order to see the full picture, this study covers sixteen private commercial banks in Ethiopia.

3.4. Method of Data Analysis

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

3.5. Model specification with variables

Multivariate regression analysis is used for the study as it is valuable for quantifying the impact of various simultaneous influences upon a single dependent variable. According to Brooks, (2008), the general multivariate regression model with K independent variables can be written as follows: -

$$Yi = \beta_0 + \beta_1 X_1 i + \beta_2 X_2 i + \ldots + \beta_k X_k i + \varepsilon i \ (i\ 1, 2, 3\ldots, n)$$

Where Yi is the i^{th} observation of the dependent variable, $X_1 i \ldots X_k i$ are the i^{th} observation of the independent variables, $\beta 0,\ldots,\beta k$ are the regression coefficients, εi is the i^{th} observation of the stochastic error term, and n is the number of observations. Hence, based on the above equation, the general model that include all the variables are presented as follow: -

$$\mathbf{Yit = \beta_0 + \beta_1\ CARit + \beta_2 SIZEit + \beta_3\ GROTHit + \beta 4 MGEit + \beta 5 IDIV_{it} + \beta_6 CRit + \beta_7 BSDt + \beta_8 GDPt + \beta_9 INFt + \varepsilon}$$

Where: - Y_{it} is ROA, and RORWA of i^{th} bank at year t.

CAPit – represent the capital strength which is measured by the ratio of total equity to total asset of i^{th} bank at year t.

SIZEit – is bank size which is measured by log form of asset size of i^{th} bank at year t.

GROWTHit – represent the bank growth which is measured by ratio of asset of current year and asset of previous year to asset of previous year of i^{th} bank at year t.

MGEit - is managerial efficiency which is measured by the ratio of operating cost to operating income of i^{th} bank at year t.

$IDIV_{it}$ – represent income diversification which is measured by the ratio of non-interest income to total

income of i^{th} bank at year t.

CRit represent credit risk (nonperforming loan ratio) of i^{th} bank at year t.

BSDit represent banking industry development which is measured by the ratio of total asset of the industry to GDP at year t.

GDPt is the gross domestic product of country at year t.

INFt is the inflation rate of country at year t.

β_0= Constant term $\beta 1, 2, 3 \ldots 9$ are parameters to be estimated.

Є = is the error component for company i at time t assumed to have mean zero E [Є it] =0 i = commercial banks i = 1. . . 16; and t = the index of time periods and t = 1- 6

3.6. Operationalization of study variables

Table 1. List of Variables and their Respective Characteristics

		Variables	Notation	Measurement	Expected sign	
					ROA	RORWA
Dependent variable		Profitability	ROA	Net income / total assets	NA	NA
			RORWA	Net income / risk weighted assets	NA	NA
Independent variable	Internal/bank specific Determinant	Capital Strength	CAP	Total Equity /total Asset	-	-
		Bank Size	SIZE	Log of Total Asset	+	+
		Bank Growth	Growth	(Asset of current year-Asset of previous year)/Asset of previous year	+	+
		Management Efficiency	MGE	Operating Expense/ Operation Income	-	-
		Income diversification	IDIV	Non-interest income/Total Income	+	+
		Credit Risk	CR	Loan loss provision / Total loan	_	-
	Industry Specific Determinant	Banking Sector Development	BSD	Total asset of the industry/GDP	+	+
	Macroeconomic Variables	Rate of Real GDP	GDP	Real GDP growth (in %)	+	+
		Inflation	INF	Inflation rate	+	+

4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Descriptive statistics

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for sixteen commercial banks in Ethiopia for six years from 2014 to 2019 with a total of 96 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable (Return on Asset and Return on Risk Weighted Assets) and independent variables (Capital Strength, bank size, bank growth, managerial efficiency, income diversification, credit risk, banking sector development. rate of real GDP and inflation rate).

Table 2: Summary of Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std.
Return on Asset (ROA)	96	.010	.048	.02785	.006056
Return on Risk Weighted Assets (RORWA)	96	.005	.043	.03086	.007994
Capital Strength (CAR)	96	.084	.371	.19079	.053359
Bank Size	96	6.777	11.320	9.27184	.980637
Bank Growth	96	.090	.324	.17052	.052918
Management Efficiency	96	.386	.776	.56160	.078466
Income diversification	96	.144	.650	.35981	.107859
Credit Risk	96	.005	.055	.02655	.010149
Banking Sector Development	96	.028	.042	.03241	.004812
Rate of Real GDP	96	.073	.104	.09017	.012221
Inflation	96	.072	.137	.09750	.024124
Valid N (listwise)	96				

Source: (Research findings, 2022)

Table 2 shows the summary data for the variables used in the analysis. The data are average values across years and reported showing the trend of the key variables over the period 2014 to 2019. The data shows that during 2014 to 2019 the average return on assets and average return on risk weighted assets for commercial banks in Ethiopia are 0.028 and 0.031. This demonstrates that private commercial banks in Ethiopia produced an average return of 2.8 percent and 3.1 percent profit from every 1 Birr investment on asset and risk weighted assets.

The ratio of total equity to total risk-weighted assets, which measures capital strength had an average value of 0.1907 with standard deviation of 0.054. The result shows that every commercial bank complied with the regulatory body's minimum capital requirement of 8% during the reviewed period, but some hold higher levels of tied capital, which could have a negative impact on profitability due to holding idle resources above the recommended level.

Bank size, which is represented by the natural logarithm of the value of commercial banks total assets, registered mean value of 9.27. Moreover, the bank size showed a minimum value of 6.77 and maximum value of 11.32. The other bank specific variable that the study considered is bank growth which is measured with the ratio of the difference of asset of current year and asset of previous year to asset of previous year had a mean value of 0.1705 and a minimum and maximum value of 0.090 and 0.324, respectively. Banks with good growth condition are able to generate profit from investment, and therefore it is expected that growth influences the profitability of the firm.

The other variable that was considered is management efficiency. Management efficiency which is measured with ratio of operating expense to operation income had a mean value of 0.5616 and a minimum and maximum value of 0.386 and 0.776, respectively. The greater ratio is a sign that a substantial amount of operational income is controlled primarily by operational costs, which are inversely related to the bank's performance. The ratio of non-interest revenue to total income, which measures the contribution of income diversification, had an average value of 0.359, showing that non-intermediary business activities accounted for 35.9% of the total income of commercial banks during the period. The credit risk which is measured by the ratio of non-performing loan to total loan and advances is other the internal factors that the study considered. As indicated in table 2, the credit risk had an average value of 0.027, which is below by half from the regulatory body 0.05(5%) shows the existence of insignificant negative relationship with profitability.

Banking sector development which is measured in terms of total asset of the banking industry to GDP is also another important determinant of bank profitability measure. A total asset of the industry to GDP ratio indicates that financial development plays an important role in the economy. As indicated in table 2, the banking sector development had an average value of .0324, which is an indication that the banking industry development had shared 3.2% of GDP on average during 2014 – 2019.

The GDP Growth Rate was one of the macroeconomic factors assumed to have an effect on the profitability of commercial banks. According to table 2, Ethiopia's GDP grew by an average of 9 percent between 2014 and 2019, with a maximum growth rate of 10.4 percent and a minimum growth rate of 7.2 percent. Another important macroeconomic condition which may affect both the costs and revenues of banks is the inflation rate. Inflation which is a measure of continuous rise of the price of goods and services, registered a mean value of 9.75 percent with the maximum value of 13.7 percent and minimum values of 7.2 percent, which was registered in the year of 2019 and 2017, respectively. Additionally, the standard deviation of 0.024 shows that there has been some

variation in the inflation figures between 2014 and 2019.

4.2. Choosing among Pooled Regression, Fixed Effect & Random Effect Model

Before conducting the ordinary least square regression, the study tested the assumption of Classical Linear Regression Model (CRLM). There are different CLRM assumptions that need to be satisfied, which are: errors equal zero mean test, normality, homoscedasticity, autocorrelation multicollinearity and model specification. The study tested all these assumption and diagnostic tests result confirmed authenticity, acceptability and usability of the data collected.

After ensuring that all CRLM assumptions are not violated, the study then safely applied ordinary least square regression to identify factors that significantly affecting profitability of commercials banks. However, since this study uses a panel data, there are three types of panel estimator approaches that can be employed, namely: Constant Coefficient (Pooled Regression) Model, Fixed Effects Models (FEM) and Random Effects Models (REM) (Brooks, 2008). Constant Coefficient (Pooled Regression) Model assumes that there is neither significant cross sectional nor significant temporal effect and hence the model pools all of the data and run an ordinary least squares (OLS) regression model. On other hand, the simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not over time, while all of the slope estimates are fixed both cross-sectionally and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally (Brooks, 2008). So, it is important to select one of three models to make best estimation for the data.

There are different test methods that are used to select among these three panel estimator approaches. To examine whether pooled regression model or fixed effects model, a poolability test was conducted providing evidence in favor of the fixed effects model for both dependent variables (ROA and ROE). Poolability test is an F test of the null hypothesis that all fixed effects are jointly 0; it is obtained by comparing fixed-effects estimates to those from pooled regression. A figure from STATA below shows a poolability test for dependent variables (ROA and RORWA), the P- value for models is less than 5% level of significance. Hence the F-test does reject the null of zero company heterogeneity. Hence between the pooled regression model or fixed effects model, we select the latter for both dependent variables.

Poolability test for between the pooled regression model or fixed effects model for ROA

```
F test that all u_i=0:     F(15, 71) =     2.99                 Prob > F = 0.0010
```

Poolability test for between the pooled regression model or fixed effects model for RORWA

```
F test that all u_i=0:     F(15, 71) =     2.31                 Prob > F = 0.0098
```

Based on the above result from pooled regression model and fixed effect model, fixed effect model is selected and thus reject pooled regression model. Now the concern is to select between fixed effect model and random effect model. As explained by Gujarati (2004), in order to get a formal answer for selection of the method, the study has employed the Hausman test. The fixed effect model was the alternate hypothesis, while the random effect model was the null hypothesis for this test. If the prob-value is statistically significant at the 5% level, reject the null hypothesis based on the test results and apply the fixed effect model. Use the random effect estimator if not. P-Value measures the strength of the evidence against the null hypothesis.

Hausman test for ROA

```
    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        7.13
                Prob>chi2 =      0.6231
                (V_b-V_B is not positive definite)
```

Hausman test for RORWA

```
    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       19.35
                Prob>chi2 =      0.0224
                (V_b-V_B is not positive definite)
```

As shown on the above, Hausman specification test p-values of the model for ROA is 0.6231, which is significantly more than 5% of the significance level. As a result, the null hypothesis of the model could not be rejected. This implying that random effect model is the more suitable model than fixed effect model when we take Return on Asset (ROA) as dependent variable. On other hand, Hausman specification test p-values of the model

for RORWA is 0.0224, which is significant as it is less than the cut point value of 5% of the significance level. As a result, the null hypothesis of the model was rejected. This implying that fixed effect model is the more suitable model than random effect model when we take Return on Risk weighted Asset (RORWA) as dependent variable.

4.3. Regression analysis results

4.3.1. Random effect Regression analysis of AROA

Among the two measures of profitability that this study considered, in this section the regression result for Return on Asset (ROA) is presented. As the Hausman specification test results for ROA suggest the use of the random effect model, the random effect regression model is employed. Accordingly based on random effect regression for ROA, the operational panel regression models used to determine the private commercial banks profitability were provided as follows:

ROA = 0.0403 - 0.0204 CAR + 0.0012 SIZE + 0.0044 GROWTH - 0.058 MGE + 0.021 INDV - 0.064 CR + 0.144 BSD + 0.017 GDP + 0.058 INF

Where: ROA is the Return on asset, CAR is the capital strength which is measured by the ratio of total equity to total asset, SIZE is bank size which is measured by log form of asset size, GROWTH is the bank growth which is measured by ratio of asset of current year and asset of previous year to asset of previous year, MGE is managerial efficiency which is measured by the ratio of operating cost to operating income ratio, IDIV is income diversification which is measured by the ratio of non-interest income to total income ratio, CR is credit risk which is measured by the ratio of nonperforming loan ratio, BSD is banking industry development which is measured by the ratio of total asset of the industry to GDP, GDP is the gross domestic product of country and INF is the inflation rate of country.

Table 3 Random effect model regression result

```
Random-effects GLS regression                   Number of obs      =        96
Group variable: No                              Number of groups   =        16

R-sq:  within  = 0.7847                         Obs per group: min =         6
       between = 0.5654                                        avg =       6.0
       overall = 0.7290                                        max =         6

                                                Wald chi2(9)       =    282.29
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

AROA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CAR	-.0204363	.0096444	-2.12	0.034	-.039339	-.0015337
SIZE	.0001202	.0007581	0.16	0.874	-.0013658	.0016061
GROWTH	.0044349	.0076822	0.58	0.564	-.010622	.0194918
MGE	-.0586637	.0046227	-12.69	0.000	-.067724	-.0496033
INDV	.0213328	.006169	3.46	0.001	.0092419	.0334237
CR	-.0645788	.0378937	-1.70	0.088	-.1388492	.0096916
BSD	.1444968	.0663844	2.18	0.030	.0143857	.2746078
GDP	.0166271	.0364612	0.46	0.648	-.0548355	.0880897
INF	.0582056	.0212827	2.73	0.006	.0164923	.0999189
_cons	.0403145	.0107202	3.76	0.000	.0193033	.0613257
sigma_u	.00189171					
sigma_e	.00279146					
rho	.31471471	(fraction of variance due to u_i)				

Source: (STATA Otpute, 2022)

The top left side the table 3 show the value for Coefficient of determination (R^2). Coefficient of determination explains the percentage of variation in the dependent variable (profitability of commercial banks which is measured in ROA) that is explained by all the nine independent variables. The model summary revealed the overall adjusted coefficient of determination (R^2) of 0.729 (72.9%). This meant that a change in profitability of commercial banks which is measured in terms of return on asset could be explained by 72.9% change in the explanatory variables used in this study. More so, the top right side of Table 3 above show the test for the joint significant which is given by wald chi2 is 282.29 and it is statistically significant at 0.00 percent. This imply that the independent variables considered were jointly relevant in explaining the profitability of commercial banks in Ethiopia measured in ROA.

The findings in table 3 also show the coefficients of the regression. The value at the middle of random effect model regression table illustrates coefficient and significant value for each of regressors (independent variables).

According to the findings, among the considered nine bank specific, industry and macroeconomic independent variables, five variables had statistically significant impact and considered to be as the major determinants of private commercial banks profitability, as measured by ROA. The variables are CAR (the capital strength) which is measured by the ratio of total equity to total asset, MGE (managerial efficiency) which is measured by the ratio of operating cost to operating income ratio, IDIV (income diversification) which is measured by the ratio of non-interest income to total income ratio, BSD (banking industry development) which is measured by the ratio of total asset of the industry to GDP and the inflation rate of country which were statistically significant at 5%. Credit risk which is measured by non-performing loan ratio had significant at 10%. The remaining three variables that are: bank size which is measured by log form of asset size, the bank growth which is measured by ratio of asset of current year and asset of previous year to asset of previous year, and the gross domestic product of country did not have significant determine the profitability of private commercial banks in Ethiopia, as measured by ROA.

The coefficients sign of the capital strength (the ratio of total equity to total asset operating cost to operating income), managerial efficiency (the ratio of operating cost to operating income ratio) and credit risk (the ratio of nonperforming loan) were negative with ROA. This indicates the existence of inverse relationship between dependent and aforementioned independent variables, which was found as expected. On the other hand, positive relationship noted with the rest of six regressors, which implies the increasing of these variables would value added on the profitability of commercial banks.

4.3.2. Fixed effect Regression analysis of RORWA

The other measures of profitability that this study considered is Return on Risk Weighted Assets (RORWA) which is measured by the ratio of net income to risk weighted assets. The section thus presents the regression result for Return on Risk Weighted Assets. As the Hausman specification test results for RORWA suggest the use of the fixed effect model, the fixed effect regression model is employed. Accordingly based on fixed effect regression for RORWA, the operational panel regression models used to determine the private commercial banks profitability were provided as follows:

$$RORWA = 0.0164 + 0.074CAR + 0.0024SIZE - 0.0037GROWTH - 0.0572MGE + 0.0205INDV - 0.156CR - 0.0345BSD + 0.05GDP + 0.0558INF$$

Where: RORWA is Return on Risk Weighted Assets, CAR is the capital strength (the ratio of total equity to total asset), SIZE is bank size (log form of asset size), GROWTH is the bank growth (ratio of asset of current year and asset of previous year to asset of previous year), MGE is managerial efficiency (the ratio of operating cost to operating income ratio), IDIV is income diversification (the ratio of non-interest income to total income ratio), CR is credit risk (nonperforming loan ratio), BSD is banking industry development (the ratio of total asset of the industry to GDP), GDP is the gross domestic product of country and INF is the inflation rate of country.

Table 4: Fixed effect model regression result

```
Fixed-effects (within) regression               Number of obs      =         96
Group variable: No                              Number of groups   =         16

R-sq:  within  = 0.7189                         Obs per group: min =          6
       between = 0.5866                                        avg =        6.0
       overall = 0.6586                                        max =          6

                                                F(9,71)            =      20.17
corr(u_i, Xb)  = -0.2939                        Prob > F           =     0.0000
```

RORWA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CAR	.07424	.017462	4.25	0.000	.0394217	.1090582
SIZE	.0023781	.001727	1.38	0.173	-.0010654	.0058215
GROWTH	-.0037325	.0129054	-0.29	0.773	-.0294651	.022
MGE	-.0571918	.0073667	-7.76	0.000	-.0718807	-.042503
INDV	.0205831	.0106867	1.93	0.058	-.0007255	.0418917
CR	-.1564429	.0647668	-2.42	0.018	-.2855843	-.0273015
BSD	-.0345333	.1061543	-0.33	0.746	-.2461988	.1771323
GDP	.0500348	.0543388	0.92	0.360	-.0583137	.1583832
INF	.0558356	.0372855	1.50	0.139	-.0185095	.1301807
_cons	.0164404	.018558	0.89	0.379	-.0205632	.0534441
sigma_u	.00331765					
sigma_e	.0040557					
rho	.40089698	(fraction of variance due to u_i)				

Source: (STATA Otpute, 2022)

At the top of Table 4 indicated the summary statistics for the fixed effect model. The model summary is shown by the value at the top of the fixed effect model regression table. As shown in the table, the model used a total of 96 observations from a data set comprised of 16 commercial banks over a six-year period. Each of the sixteen banks, for which six years' worth of data were collected, had an observation that was balanced. The model summary revealed the overall adjusted coefficient of determination (R^2) of 0.6586 (65.9%). This meant that a change in profitability of commercial banks which is measured in terms of Return on Risk Weighted Assets could be explained by 65.9% change in the explanatory variables used in this study. More so, the top right side of Table 4.6 above show the test for the joint significant which is given by F-statistic is 20.17 and it is statistically significant at 0.00 percent. This imply that the independent variables considered were jointly relevant in explaining the profitability of commercial banks measured in RORWA.

The findings in table 4 also show the coefficients of the regression. According to the findings, among the considered nine independent variables, four variables had statistically significant impact and considered to be as the major determinants of private commercial banks profitability, as measured by RORWA. The variables include: CAR (the capital strength) which is measured by the ratio of total equity to total asset, MGE (managerial efficiency) which is measured by the ratio of operating cost to operating income ratio, and CR (credit risk) which is measured by nonperforming loan ratio were statistically significant in determining profitability of commercial banks which is measured in terms of Return on Risk Weighted Assets. IDIV (income diversification) which is measured by the ratio of non-interest income to total income ratio had significant at 10%. The remaining five variables that are: bank size, the bank growth, banking industry development, the gross domestic product of country and inflation rate of the country did not significantly determine the profitability of private commercial banks in Ethiopia, as measured by RORWA.

4.4 Hypothesis test and discussion of findings

In this section the effect of each of the independent variable on the private commercial banks' profitability, as measured by return on asset and return on risk weight return on asset, is discussed. The outcome of the regression was also analyzed with the predicted hypothesis and previous literatures. In line with the finding of from the above regression results, the result of the summary of hypotheses are shows in the Table 5 below:

Table 5 Summary of Hypothesis test

Hypothesis	Acceptance	Remarks
H1: Bank capital strength has significant effect on the profitability of commercial banks.	Accepted	P-value for ROA (0.034) and RORWA (0.00) is significant
H2: Bank size has significant effect on the profitability of private commercial banks.	Rejected	P-value for ROA (0.874) and RORWA (0.173) is insignificant
H3: Bank growth has significant effect on the profitability of private commercial banks.	Rejected	P-value for ROA (0.564) and RORWA (0.773) is insignificant
H4: Management efficiency has significant effect on the profitability of commercial banks.	Accept	P-value for ROA (0.00) and RORWA (0.00) is significant
H5: Income diversification has significant effect on the profitability of commercial banks.	Accepted	P-value for ROA (0.001) is significant
H6: Credit risk has significant effect on the profitability of the private commercial banks.	Accepted	P-value for RORWA (0.018) is significant
H7: Banking sector development has significant effect on the profitability of commercial banks.	Accepted	P-value for ROA (0.030) is significant
H8: GDP growth has significant effect on the profitability of private commercial banks.	Rejected	P-value for ROA (0.648) and RORWA (0.34) is insignificant
H8: Inflation has significant effect on the profitability of private commercial banks.	Accepted	P-value for ROA (0.006) is significant

The statistical significance of the independent variables in explaining profitability of commercial banks is captured throughout the p-values. From the table above, bank capital strength (the ratio of total equity to total asset) has significantly influence on bank profitability measured in ROA and RORWA. Consequently, with respect to hypothesis testing, the study supports the null hypothesis that bank capital strength has significant effect on the profitability of commercial banks in Ethiopia. According to the result of random effect regression analysis, bank capital strength (the ratio of total equity to total asset) is inversely related with ROA. The output result is consistent with the hypothesis predicted in this study. The negative sign implies that a one unit change in the ratio of total equity to total asset resulted 0.0204 unit decrease in the banks profitability, as measured by ROA. The greater ratio may be a sign that commercial banks have changed their focus to lower risk investments or keeping idle resources, both of which have an adverse impact on return. The results of bank capital strength (the ratio of total equity to total asset) on ROA matched those of Brahmana (2018), study which found that banks move their investments to

safer assets in order to have greater capital adequacy ratios, which may have an impact on bank performance.

Contrary to the random effect regression analysis of ROA, capital strength is positively related with RORWA. The output result is consistent with the hypothesis predicted in this study. The positive sign implies that a one unit change in the ratio of total equity to total asset resulted 0.0742 units increase on the banks profitability, as measured by RORWA. The situations that expected to have negative effect on ROA will have a positive contribution to RORWA; the higher ratio of total equity to total asset is an indicator of commercial banks either shifted their activities to lower risk investments or raised their capital in order to actively participate on risky investment to generate a better return. As a result, the value of risk-weighted assets either decreased or revenue from risky activities increased. As a result, the profitability of commercial banks as determined by RORWA rises. The positive outcome of bank capital strength (the ratio of total equity to total asset) on RORWA is also in line with the studies conducted by Ahmad, et al (2016) and Brahmana et. al (2018).

From the table above, bank size (log form of asset size) has not significantly influence on bank profitability measured in both ROA and RORWA. Consequently, with respect to hypothesis testing, the study rejects the hypothesis that bank size has significant effect on the profitability of private commercial banks. This result is not line with the hypothesis that was anticipated in this study. The relationship between bank size and profitability shows mixed results. Non-significant relationship identified by Boru (2014) and Ahmad, et al (2016). On the other hand, Elshaday (2018), and Menicucci et al., (2016) have noted positive and strong relationship.

As indicated in table above, bank growth which is measured by the ratio of asset of current year and asset of previous year to asset of previous year has not significant effect on the profitability of private commercial banks measured in both ROA and RORWA. This result is not line with the hypothesis that was anticipated in this study. Consequently, with respect to hypothesis testing, the study rejects the hypothesis that bank growth has significant effect on the profitability of private commercial banks. Banks with good growth condition are able to generate profit from investment, and therefore it is expected that growth influences the profitability of the firm as the argument of (Brahmana, et al, 2018). However, the result of this study revealed bank growth did not significantly determine the profitability of private commercial banks. This result is inconsistence with many studies which have undertaken with different countries. In the study which undertake in Kenya by Klaassen & Van (2015), they found that bank growth had generate profit from investment and hence improved profitability for banks.

Managerial efficiency which is the ratio of operating cost to operating income ratio has significantly negative effect on the profitability of private commercial banks measured in both ROA and RORWA. This result is in line with the hypothesis that was anticipated in this study. Consequently, with respect to hypothesis testing, the study accepted the hypothesis that Management efficiency has significant effect on the profitability of commercial banks in Ethiopia. The negative sign indicates the existence of inverse relationship between the operating cost to operating income ratio and the dependent variables. When the ratio of operating cost to operating income ratio changed by one unit, banks profitability decreases by 0.058 unit in case of ROE and 0.057 unit in case of RORWA. The p- value is 0.00 for both ROA and RORWA shows the operating cost to operating income ratio is one of the banks independent variables that highly determine the banks profitability. The presence of too much rivalry in the banking sector or inefficient bank management are both indicated by high operating cost to operating income ratios. It's recommended that the ratio not exceed 60 percent as a general rule. In this regard, the average mean operating cost to operating income ratio for private banks in Ethiopia was 56 percent, indicating that commercial banks are effectively controlling their operational costs to produce a higher income. This negative relationship of the operating cost to operating income ratio with profitability is in line with the previous studies of Elshadey (2017), and Tewodros (2019).

More so, the finding indicated that income diversification, which is measured by the ratio of non-interest income to total income has significant effect on the profitability of private commercial banks measured in ROA. This result is in line with the hypothesis that was anticipated in this study. Consequently, with respect to hypothesis testing, the study accepted the hypothesis that income diversification has significant effect on the profitability of commercial bank. When non- the ratio of non-interest income to total income increased by one unit, profitability increased by 0.0213 units, as measured by ROA. However, the ratio of non-interest income to total income has not significantly determined the profitability of private commercial banks measured in RORWA. The positive effect on non-interest income ratio on ROA is in line with the previous studies of Sayilgan (2009) and Ahmad, et al (2016).

The results showed that the nonperforming loan ratio, which measures credit risk, has a statistically significant impact on the profitability of private commercial banks as evaluated by return on risk weighted asset. This outcome is consistent with the study's predicted hypothesis. Consequently, with respect to hypothesis testing, the study accepted the null hypothesis that credit risk has significant effect on the profitability of the private commercial banks. According to the initial priority assumptions, the nonperforming loan ratio, a proxy for credit risk, was inversely correlated with the bank's profitability as measured by return on risk-weighted assets. The negative sign denotes an inverse relationship between the nonperforming loan ratio and profitability. One unit change of nonperforming loan ratio brought an impact of 0.1564 unit of loss on the banks profitability as measured by return

on risk weighted asset. However, nonperforming loan ratio did not bring significant effect on profitability of private commercial banks as evaluated by return on asset. The negative relationship of nonperforming loan ratio with profitability is consistent with the previous studies of Tan (2015), Abdissa (2016), Ahmad, et al and Brahmana (2018).

The results showed that the banking industry development which is measured by the ratio of total asset of the industry to GDP has a statistically significant impact on the profitability of private commercial banks as evaluated by return on asset. This outcome is consistent with the study's predicted hypothesis. Consequently, with respect to hypothesis testing, the study accepted the null hypothesis that banking sector development has significant effect on the profitability of commercial banks. One unit change of banking industry development brought an impact of 0.144 unit increase on the banks profitability as measured by return on asset. However, banking industry development did not bring significant effect on profitability of private commercial banks as evaluated by return on risk weighted asset. The positive and significant effect of banking industry development in consistence with Tan (2015), who point out that financial development which is measured by the ratio total asset of the industry to GDP significantly determine bank profitability. When the market becomes more competitive, banks need to adapt different strategies in order to retain profitability (Tan, 2015).

As indicated in table above, the gross domestic product of country has not significant effect on the profitability of private commercial banks measured in both ROA and RORWA. Although RGDP is positively correlated with the profitability measured by ROA and RORWA, the p-value (0.648 and 0.340) indicates that the impact of RGDP is not statistically significant to determine the private commercial banks profitability. This result is not line with the hypothesis that was anticipated in this study. Consequently, with respect to hypothesis testing, the study rejects the null hypothesis that GDP growth has significant effect on the profitability of private commercial banks. Contrary to the identified significant impact of the economic growth on the banks profitability in most of the previous studies (Boru, 2014; Aderaw & Manjit, 2016 and Chinoda 2014), this study result indicates the impact of RGDP is insignificant, even at 10% level. This may be because commercial bank financial intimidation as a percentage of GDP is still in its infancy. The commercial banks' proportion of the nation's GDP, according to the most current MOFED report (2019/20), is barely 3.3 percent. This demonstrates the commercial banks' disengagement and minimal impact on the nation's economic development.

Lastly, the results showed that the inflation rate of country has a statistically significant impact on the profitability of private commercial banks as evaluated by return on asset. This outcome is consistent with the study's predicted hypothesis. Consequently, with respect to hypothesis testing, the study accepted the null hypothesis that inflation has significant effect on the profitability of private commercial banks. One unit increase in inflation rate of country brought an impact of 0.0582 unit increase on the banks profitability as measured by return on asset. However, inflation rate of country did not bring significant effect on profitability of private commercial banks as evaluated by return on risk weighted asset. The positive and significant effect of inflation rate of country in consistence with Menicucci & Paolucci (2016), they point out that the annual rate of inflation is found to have positive relationship with profitability. According to Ongore (2013), inflation exerts upwards pressure on lending rates which forces commercial banks to increase their base lending rates in order to offset the imbalances in their earnings and as a result experience profitability.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings and Conclusion

This study's major objective is to establish the factors that affect Ethiopia's private commercial banks' profitability. Based on this broad objective, the variables that are anticipated to have an impact on profitability have been divided into three categories: macroeconomic variables, industry-specific variables, and bank-specific variables. To verify the independent variables that behave differently with risk adjusted return, risk neutral and risk adjusted performance metrics were also used. In terms of sample, the looked at all private commercial bank in the country. Nine variables that were expected to impact the financial performance of commercial banks were examined. Balanced Panel data of 16 commercial banks from 2014 to 2019 was used. In order to analyze the data, both descriptive and inferential statistics were used. The determinant of financial performance of the private commercial banks was examined using the multiple linear regression approach of the Ordinary Least Square (OLS) model. The models were checked to see if they met the requirements of the CLRM assumptions before using the OLS regression. All of the assumptions of the classical linear regression model have been met by the models. Random effect model was chosen for return on assets and fixed effect model for return on risk-weighted assets, respectively, based on the results of the Hausman test.

The findings of the study revealed that the combined effect of nine factors considered in this study influenced the private commercial banks' profitability measured in ROA and RORWA. The model summary revealed the overall adjusted coefficient of determination (R^2) of 0.729 (72.9%). This meant that a change in profitability of commercial banks which is measured in terms of return on asset could be explained by 72.9% change in the explanatory variables used in this study. More so, the model summary for RORWA revealed the overall adjusted

coefficient of determination (R^2) of 0.6586 (65.9%). This meant that a change in profitability of commercial banks which is measured in terms of Return on Risk Weighted Assets could be explained by 65.9% change in the explanatory variables used in this study.

From the total nine independent variables, six variables have statistically significant impact on the private commercial banks' profitability. Among six statistically significant variables two of them simultaneously determine commercial banks' profitability measured both in ROA, and RORWA, namely the bank capital strength (the ratio of total equity to total asset) and managerial efficiency (the ratio of operating cost to operating income ratio). The remaining three variable, namely; income diversification (the ratio of non-interest income to total income ratio), banking industry development (the ratio of total asset of the industry to GDP) and the inflation rate of country had significantly determined commercial banks' profitability measured in return on asset. While credit risk (nonperforming loan ratio) had significantly determined commercial banks' profitability measured in return on risk weighted asset. The remaining three variables, namely: bank size, bank growth and the gross domestic product of country had not significantly determined commercial banks' profitability measured either on return on asset or in return on risk weighted asset.

More so, two independent variable coefficients, namely: managerial efficiency (the ratio of operating cost to operating income ratio) and credit risk (nonperforming loan ratio) were negatively correlated with the both dependent variables (ROA RORWA). On other hand, the coefficients for bank capital strength (the ratio of total equity to total asset) had negatively correlated with the ROA, while the coefficients for bank growth and financial industry development (the ratio of total asset of the industry to GDP) were negatively correlated with the RORWA.

Over all, with the exception of the current finding that there is a negative relationship between the bank growth (ratio of asset of current year and asset of previous year to asset of previous year) and profitability as measured by RORWA, the findings of this study are consistent with earlier research on the factors influencing commercial banks in Ethiopia. The previous studies conducted on a sample of commercial banks in Ethiopia with a focus on old and middle-aged banks by Elshaday (2017) and Million (2015), do not support the negative relationship between the bank growth (ratio of asset of current year and asset of previous year to asset of previous year) and profitability found in this study. Similar to the NPL ratio, the average capital adequacy ratio for newly founded banks was greater than that of older and middle-aged banks, at 22%. Additionally, the average bank capital strength of private banks—defined as the proportion of total equity to total assets—was 19 percent, which is much greater than the regulatory body's minimal threshold of 8 percent. This suggests that over the reviewed period, the industry kept idle resources or placed more emphasis on less risky projects. The profitability of commercial banks would suffer if they held capital over the recommended level. The findings of the other independent variables taken into account in this study are consistent with the reviewed earlier research on commercial banks in Ethiopia.

5.2. Recommendation

Based on the findings and conclusions of the study, the researcher provides the following recommendations aimed at ensuring the profitability of commercial banks in Ethiopia.

- Banks would do well to put in place a sufficient follow-up and management system for their capital management since, as this study's findings demonstrate, capital strength is one of the main bank-specific factors that influence profitability. The profitability of the bank is greatly impacted by holding idle funds or investing in less risky ventures because lower risk is typically accompanied with lower returns.
- Attention should be given to the income diversification. Ethiopian private banks' profitability is found to be significantly influenced by the share of non-interest income, which is heavily dominated by service fees from international operations. Therefore, the study recommends the banks to focus on maintaining the ideal mix of non-interest-bearing resources that can generate service fee income. Therefore, Ethiopian banks must engage in fee-based activities that are less vulnerable to credit risk in order to transition away from traditional banking operations (which focus on intermediary business) and maintain their profitability by broadening their income sources.
- The study recommends the bank to give attention to managerial efficiency (overhead expense management). One of the factors that greatly influences the profitability of private commercial banks is the impact of management efficiency, as determined by the ratio of operational costs to operational income. The lower profitability of the bank is attributed to weak management efficiency in containing operational-related costs, which is indicated by a larger ratio of operational cost to operational income. According to the report mentioned above, private commercial banks have a rate of 57 percent on average, meaning that for every 1 birr in income, they spend 57 cents on operating expenses. This appears to cost more. Therefore, banks must put robust controls in place to manage overhead costs in order to maintain long-term profitability.

5.3 Area Further Research

This study was done to figure out what factors affect the profitability of private commercial banks. As a result, it can be used as a resource for further research, particularly in the field of banking. However, as the study was limited to the banking industry, thus the findings cannot be extrapolated to other industries. Therefore, it is advised that similar studies be carried out in other economic sectors that provide financial services, such as insurance, in order to have a full understanding of the factors that affect financial performance. The study also suggests that further studies should include a qualitative analysis determinants financial performance. Such a study would involve interview of key informants in the banking sector and would provide hidden insights into intricate relationship between financial performance and any other qualitative factors. For instance, as the banking sector in Ethiopia seems to be deeply entwined with religion and ethnicity; it is advised to do more in-depth research studies that examine how ethnicity and religion affect the performance of commercial banks in Ethiopia.

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Conflicts of interests

This original research work has not published elsewhere and has no conflicts of interest.