

Determinants of Profitability in Ethiopian Private Commercial Banks: Evidence from Selected Banks of Ethiopia

Bekalu Anteneh

Department of Accounting & Finance, Arsi University, Asella, Ethiopia

Abel Tewolde

Department of Management, Arsi University, Asella, Ethiopia

Abstract

In this study the main objective of the research is to analyze the determinants of profitability in case of selected private commercial banks of Ethiopia. Currently commercial banks in Ethiopia are rapidly growing and the purpose of the research is to investigate the common determinants of profitability in selected commercial banks. Panel data were used to examine the bank-specific, industry-specific and macro-economic factors affecting bank profitability for six selected private commercial banks from the period 2001 to 2011. Fixed effect regression model was applied to investigate the impact of equity capital, saving deposit, fixed deposit, noninterest income, liquidity risk, nonperforming loan, bank size, market concentration, GDP growth and inflation on banks profitability measured by ROA. The regression result suggests that, equity capital, bank size and gross domestic product have positive coefficient and statically significant impact on banks' profitability. And also as expected, there is negative and significant relationship between fixed deposit, liquidity risk and nonperforming loan and private commercial banks profitability. However saving deposit, noninterest income and market concentration has a positive relationship, but statically insignificant. And finally as expected inflation has shown a negative coefficient but, statically insignificant

Keywords: Profitability, Determinants, Private commercial banks

1. Introduction

It is widely believed that financial system plays a vital role in the economic growth and development of a country. The importance of a well-organized financial sector lies in the fact that ensures domestic resources mobilization, generation of savings and investments in the sectors. In fact, it is the system by which a country directs most profitable and efficient sectors to most productive bases of future growth. The main role of a financial system is not only to transfer funds from savers to investors but also to ensure that funds are being transferred to the sectors which are most important for an economy. Bank performance gets a great deal of attention in the economic literature considering that banks serve as a crucial role in the economy. Banks are financial institutions that play intermediary role in the economy through channeling financial resources of those surplus economic units to deficit economic units.

When the socialist Derg regime was overthrown in 1991, then, the licensing and supervision of Banking Business Proclamation was issued in 1994 which led to the beginning of a new era for Ethiopian banking sector. Since then the banking sector in Ethiopia has shown numerous developments and policy changes.

During the last decades the banking sector all around the world has experienced major transformation in its environment due to enhancement in the requirement of financial services and high technological facilities, resulting in significant impacts on its profitability. Both internal and external factors have been influencing the profitability of banks over time. A sound and profitable banking sector is better able to resist negative shocks and subsidizes to the stability of the financial system Philip (1989).

Hence, identification and analysis of the determinants of bank profitability have attracted for many years the interest of academic researchers as well as bank management, supervisors and financial service partakers. This study focuses on the profitability performance of banks in Ethiopia. As indicated by podder (2011) the profitability of bank provides an important source of equity especially if it is re-invested in to the business. This should lead to safe banks, and as such high profits could promote financial stability. The study of bank performance becomes even more important in view of the ongoing financial and economic crises, which have a fundamental impact on the banking industry in many countries around the globe. Short (1979) and Bourke (1989) indicated that the determinants of commercial banks Profitability can be divided into two main categories namely the internal determinants which are management controllable and the external factors which are beyond the control of the management of the institutions. Following early work of Short (1979) and Bourke (1989), a number of more recent studies have tried to identify some of the major determinants of bank profitability. Among those recent studies on the determinants of banks profitability, Molyneux and Thornton (1994), Demirgüç-Kunt and Huizinga (2000), Davydenko.(2010), and Athanasoglou et al. (2008) adopt linear specifications to estimate the impact of several internal and external factors on bank performance measured by profitability. And also research conducted by Goddard, et al, (2004) by using panel data and dynamic panel

estimation to investigate the determinants of profitability in six selected European countries banking sectors (i.e Denmark, France, Germany, Italy, Spain, and UK) for the period of 1992 up to 98. The result suggested that among modeled factors of profitability incorporate: size, capital asset ratio, credit risk and ownership, by measuring profitability in term of Return On Equity (ROE), checked that bank- specific determinants and profitability relationship is very strong, but little relationship with the industry specific determinants. Determinants of bank profitability were focused on both the returns on bank assets and equity, and net interest rate margins to measure profitability. It has traditionally explored the impact on bank performance of bank determinants of Ethiopian private Commercial Banks Profitability. More recently, researches has also focused on the impact of macroeconomic factors on bank performance (IMF, 2002).

According to Devinaga Rasiah (2010) internal factors of commercial banks profitability can be broadly classified into two sub-categories namely financial statement variables and nonfinancial statements variables. Financial statement variables are factors related to the decisions which directly affect the items in a balance sheet and profit & loss accounts. On the other hand, the nonfinancial statement variables involve those factors which do not have a direct effect on the financial statements. External determinants of commercial bank profitability are also those factors which are external to the commercial banks and hence outside the control of management. There are a number of specific factors suggested as impacting the profitability of commercial banks which are financial regulation, competition, concentration, market share, market growth, ownership, money supply, economic growth, interest rate and inflation. In the case of Sub - Sahara African (SSA) countries banking sector, the profitability of the commercial banks in the industries are affected by different internal and external factors. For instance research conducted by Flamini et al. (2009) used a sample of 389 commercial banks in 41 SSA countries to access the major determining factor of profitability which is measured by return on asset (ratio of income before tax to total asset). The finding of the study indicated that, the bank – specific, industry – specific and macroeconomic determinants affected the commercial banks profitability. And finally they concluded that Bank profits are high in Sub-Saharan Africa (SSA) as compared to other regions of the world. In addition, the finding of Zarruk, R., (1989) indicated that apart from credit risk, higher returns on assets are associated with larger bank size, income diversification, non-interest expense, private ownership and money supply. Bank returns are also affected by macroeconomic variables, suggesting that determinants of Ethiopian Commercial Banks Profitability macroeconomic policies that promote low inflation and stable output growth do boost credit expansion.

2. Hypotheses of the Study

In order to achieve the above research objectives the researcher were lay down the following hypothesis testing. Hypotheses of the study stand on the theories related to a bank's profitability that has been developed over the years by banking area professionals. The predictable theory of the firm assumes that a firms objective is to maximize profits, based on this assumption a large number of testable hypothesis were predicted about how private commercial banks will maximize profit. Therefore, the followings research hypotheses about the determinants of private commercial bank profitability are specified based on theories and past empirical studies.

- H1: There is a significant positive/negative relationship between the amount of equity capital of a bank and the bank's profitability.
- H2: There is a significant positive impact of saving deposits on bank's profitability.
- H3: There is a significant negative relationship between fixed deposit of bank and profitability.
- H4: There is a significant positive relationship between the non interest Income of a bank and the bank's profitability.
- H5: There is a significant negative relationship between the liquidity risk of a bank and the bank's profitability.
- H6: There is a significant positive/negative relationship between the size of a bank and the bank's profitability.
- H7: There is a significant negative relationship between the non performing loan of a bank and the bank's profitability.
- H8: There is a significant and positive relationship between the concentration of the banking sector and the bank's profitability.
- H9: There is a significant and positive relationship between real gross domestic product growth and bank profitability.
- H10: There is a significant and positive/negative relationship between inflation and bank profitability.

3. RESEARCH METHODOLOGY

Research design

The researcher was used explanatory research design to explain the relationships of variables in this study. Explanatory research is applied because the research was tries to establish a cause and effect relationship between profitability and the factors that will determine profitability.

Data type and source

The researcher was collected quantitative data type from the annual reports of selected private commercial banks. To collect the necessary data for this particular study, secondary data were used. The bank specific variables of the study were driven from the annual reports of the selected six private commercial banks of Ethiopia. The researcher selected the following commercial banks; Awash Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank and NIB Bank. The above banks which are included in this study have been already operating for the last 11 years. For this regard, 11 years (2001-2011) financial statement of the selected banks was used in the analysis. On the other hand the industry specific and macroeconomic determinants of private commercial banks of Ethiopia data has been obtained from National Bank of Ethiopia (NBE), which regulates the banking sector of the country, from ministry of finance and economic development (MoFED) and central statistics authority (CSA) which regulates the macroeconomic issues of the country.

Sample design

The target population of the study was the selected six private commercial banks of Ethiopia.

Currently there are 15 private and 3 public owned commercial banks in Ethiopia. To analyze the determinants of banks profitability, out of 15 private commercial banks, the researcher was selected the following six private commercial banks with their 11 years annual reports. This is because of the age of the remaining banks. So, Judgmental sampling techniques were used to select the banks. In addition to that, based on the researcher's assumption the selected banks have better performance considered with other banks in terms of their profit, quality of service, number of customers, number of branches, and number of employees.

Variables

To analyze the determinants of the profitability of private commercial banks, 11 variables are included in this study. One dependent variable and the remaining are independent variables.

Dependent Variable

In most of the literature, such as Md.sohel Saklain (2012), Neely and Wheelock (1997) and Barajas et al. (1999) bank's profitability, usually measured by return on asset (ROA) and return on equity (ROE). In this study, Return on Assets (ROA) is used as a measures of bank's profitability. ROA is computed as net profit divided by total assets and is articulated in percent. ROA shows the profit earned per dollar of assets and most importantly, reflects the management ability to utilize the banks financial and real investment resources to generate profits Hassan and Bashir, (2003).

Independent Variables

This subsection describes the explanatory variables that are used in the econometric model to estimate the coefficient of dependent variables. By reviewing several literatures Dueker and Thornton (1997), Akhavein et al. (1997), has identified some common factors which influence profitability of a bank so the researcher will include the following bank specific variables to capture the determinants of profitability;

Bank Specific Determinants

Equity Capital (EC): This is measured by total equity over total asset, reveals capital adequacy and capture the general average safety and soundness of the financial institution. The study employed this ratio to proxy the capital variable because ROA has been used as a measure of profitability. It is not appropriate to include CAP in a profitability equation if return on equity is used as dependent variable. On the other hand, since there is no perfect capital market with efficient information asymmetry in this respective study area, it is difficult to determine the relationship between the capital ratio and profitability.

Deposits: there are three types of deposits received by commercial banks such as saving deposit, fixed deposit and demand deposit. However, only saving and fixed deposits are interest bearing deposits. Therefore, the impact of interest expense on banks profitability are captured by considering saving deposit to total asset ratio (SD) and fixed deposit to total asset ratio (FD). Being the major and perhaps the cheapest source of funding for banks, it is generally believed that customer deposits impact banking performance positively as long as there is sufficient demand for loans in Ethiopian financial market. However, National Bank of Ethiopia regulates the level of loan provision allowed to each banks and therefore more deposits may depress earnings, since this type of funding has its own cost.

Non Interest Income (NII): The importance of fee-based services of commercial banks and their product diversification is captured by non-interest income to total Determinants of Ethiopian Commercial Banks Profitability. Although fee based services in general generate lesser income than loans, it is expected to add something on banks profit and have a positive relationship with profitability. However, when banks shift their attention from interest income services to non-interest income services, profitability may decline, therefore, this ratio may have a negative effect on profitability.

Liquidity risk (LR): Liquidity risk is one of the types of risk for banks; when banks hold a lower amount of liquid assets they are more vulnerable to large deposit withdrawals. Therefore, liquidity risk is estimated by the ratio of liquid assets to total assets. Based on the risk-return hypothesis, more liquidity risk is associated with higher expected returns. Otherwise stated more cash and other liquid non-earning assets result in a lower

expected return because these assets do not generate any return. Following prior research of Pasiouras & Kosmidou (2007), there is a negative association between liquid assets to total asset ratio and profitability.

Non-performing loans (NPL): Non-performing loans are loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract. This measures the quality of banks asset. Unlike other firms banks assets are composed of large volume of loans. If this loan is considered to be uncollectable that leads to reduction in banks profitability and make large number of depositors to fear and run against the bank. Therefore, it is expected that there is negative relationship between bank profitability and the volume of non-performing loans. The proxy used for non-performing loans was the percentage of non-performing loans in the total amount of bank loan.

Bank size (BS): Total assets of the bank measure bank size. The size of the bank is included in this study, as an independent variable, which account for size related economies and diseconomies of scale. Most of the finance literature, the total assets of the banks are used as a proxy for bank size. However, since total assets deflated the dependent variable in the model (Return on Asset) it would be appropriate to take natural logarithm before including it in the model to be consistent with other ratios. Size is used to capture the fact that larger banks are better placed than smaller banks in harnessing economies of scale in transactions to the plain effect that they will tend to enjoy a higher level of profits. Accordingly, a positive relationship is expected between size and profit (Indranarain 2009).

According to Andreas and Gabrielle (2009), larger banks are likely to have a higher degree of product and loan diversification than smaller banks. In addition to the higher diversification potential, economies of scale can also arise from a larger size. Diversification reduces risks and economies of scale lead to increased operational efficiency. The growing banking size is positively related to bank profitability.

Industry Specific Determinant

Market Concentration (CONC): it is the number, size and distribution of banks in a particular market or country. As indicated in other empirical studies market concentration is captured by Herfindahl-Hirschman (HHI) index which is the sum of the square of market share of the sample banks included in this particular study. Market share of each bank is measured by the ratio of a bank's total asset to total asset of all banks. Since highly concentrated market lacks proper competition as to setting the Determinants of Ethiopian Commercial Banks Profitability price of banking services; it makes the existing banks more profitable. On the other hand, when the concentration of the market reduced and the size and distribution of banks become more dispersed, the banking sector profitability is expected to reduce. Therefore, market concentration and banks profitability is expected to be negative.

Macroeconomic Determinants

Economic Growth (GDP): This is measured by the real GDP growth rate and it is hypothesized to affect banking profitability positively. This is because the default risk is lower in upturn than in downturn economy. In addition, higher economic growth may lead to a greater demand for both interest bearing and non-interest bearing financial services, thereby improving the profitability of banks.

Inflation (INF): High inflation rate is associated with higher costs as well as higher income. If a bank's income rises more rapidly than its costs, inflation is expected to exert a positive effect on profitability. On the other hand, a negative coefficient is expected when its costs increase faster than its income.

1.1 Data analysis techniques

The study were use a panel regression technique to analyze the impact of bank specific, industry specific as well as macroeconomic determinants of profitability of private commercial banks of Ethiopia. A multiple linear regression model and t-static was used to determine the relative importance of each independent variable in influencing profitability. The multiple linear regressions model was run, and thus OLS was conducted Using EVIEWS 6 econometric software package, to test the casual relationship between the firms profitability and their potential determinants and to determine the most significant and influential explanatory variables affecting the profitability of Ethiopian banks. The classical linear regression model (CLRM) assumptions were also tested to check the fitness of the developed model. The researcher were try to develop a linear regression model to analyze the cross-sectional and time series data of six private commercial banks of Ethiopia. The general model to be estimated is the following linear forms which, is also adopted by Birhanu (2012), Davydenko, (2010) and Berger *et al.*, (2000).

Model specification

The general linear regression equation of the study was;

$$ROA_{it} = \beta_0 + \sum \beta_1 (BSD)_{it} + \sum \beta_j (ISD)_t + \sum \beta_k (MED)_t + \varepsilon_{it}, \varepsilon_{it} = V_i + u_{it}$$

Where;

ROA_{it} = is dependent variable (i.e return on asset) for bank i at time t.

$\beta_1, \beta_j, \beta_k \dots$ = Regression co-efficient for the respective variables

$(BSD)_{it}$ = represent bank-specific determinants of bank i at time t.

$(ISD)_t$ = industry specific determinants at time t.

(MED) t = macroeconomic determinants at time t .

ε_{it} = error term

V_i = the unobserved variables

U_{it} = idiosyncratic error

The multiple regression models of the study were shown as follows;

$$ROA_{it} = \beta_0 + \beta_1 EC_{it} + \beta_2 SD_{it} + \beta_3 FD_{it} + \beta_4 NII_{it} + \beta_5 LR_{it} + \beta_6 NPL_{it} + \beta_7 BS_{it} + \beta_8 CONC_{it} + \beta_9 GDP_{it} + \beta_{10} INF_{it} + u_{it}$$

Where;

EC= equity capital

SD = saving deposit

FD = fixed deposit

NII = non interest income

LR = liquidity risk

NPL= non performing loan

CONC = market concentration

GDP = GDP gross domestic product (economic growth)

INF = inflation

Table 3.1 Summary of the relationship of dependent and independent variables

Dependent variable		Variable	notation	measurement
Independent Variables	Bank Specific Variables	Profitability	ROA	Net income before tax/total asset
		Equity capital	EC	Total capital/total asset
		Saving deposit	SD	Saving deposit/total asset
		Fixed deposit	FD	Fixed deposit/total asset
		Noninterest income	NII	Noninterest income/total asset
		Liquidity risk	LR	Liquid asset/total asset
		Nonperforming loan	NPL	Nonperforming loan/total loan
	Bank size	BS	Logarithm of total asset	
	Industry Specific Variables	Market concentration	CONC	Herfindahl-Hirschman index (HHI)
	Macroeconomic variables	Economic growth	GDP	GDP growth (%)
	Inflation	INF	Inflation rate	

4. DISCUSSION AND ANALYSIS

Descriptive statistics of the data

The basic descriptive statistics of the variables are presented in Table 4.1 below to show the outcomes of the variables included in the regression model. For each variable, the table shows mean, standard deviation, median, minimum and maximum values of six private commercial banks for the period from 2001 to 2011.

Table 4.1 Results of descriptive statistics of all variables

Variable	observation	MEAN	MEDIAN	MAX	MIN	STD
ROA	66	0.034364	0.038438	0.056817	0.005131	0.012213
EC	66	0.126457	0.116718	0.294393	0.064251	0.041797
SD	66	0.46868	0.477573	0.645553	0.230891	0.107648
FD	66	0.086392	0.07348	0.258155	0.007799	0.05338
NII	66	0.032542	0.031467	0.062037	0.013135	0.010165
LR	66	0.388414	0.381762	0.569631	0.198661	0.084811
NPL	66	0.088156	0.0685	0.3795	0.023015	0.073513
BS	66	3.385647	3.421895	4.166128	2.330414	0.420397
CON	66	0.189821	0.187004	0.204677	0.180627	0.008087
GDP	66	0.088636	0.112	0.126	-0.021	0.045929
INF	66	0.111273	0.106	0.364	-0.106	0.122372

Source: Output of Eviews 6

In the above table 4.1, the researcher considered 66 observations to assess the statistical relationship between the dependent variables and independent variables. Based on the statistical result, the higher return on asset shows 0.056817 which indicates the most profitable banks have generated almost 0.57 cents of net income for each birr spent in the asset and the minimum profit to be generated is 0.05 cents for each birr invested in the asset with a mean value of 0.34. On the other hand the standard deviation of ROA was 0.0122 which indicates a minimum variation of profitability among the sample banks. This result indicates that banks should efficiently

utilize their asset to maximize their return on asset. From the independent variables of the sample banks, the mean of the equity capital ratio shows 12.6% with maximum values of 29.44% and minimum value of 6.4%, which means from the sample banks for each birr invested in the asset, the highest contribution of capital is almost 0.3 cents. And the minimum contribution was 0.064 cents. With standard deviation of 0.0418 which shows the existence of higher variation in the equity to total asset ratio when it is compared to ROA. And regarding to deposits (both saving and fixed deposit) the statistical result revealed that the mean of saving deposit to total asset ratio shows 46.8% with maximum deposit of 64.55% and minimum saving deposit of 23.08%. The mean of fixed deposit to total asset shows 8.6% with maximum value of 25.8% and minimum value of 0.78% which is much lower than saving deposit ratio. The standard deviation result indicates high variability between the sampled banks on their saving deposit with 10.76% based on statistical result. As it can be seen from Table-4.1, from the total income of the sampled banks at maximum 6.2% were generated from non interest income and the banks with lower noninterest income shows 1.3%. On the other hand the statistical result of the sample banks regarding to liquid assets show on average 38.8% with maximum value of 56.9% and minimum value of 19.8%. Which means from each birr in the total asset on average 0.388 cents was liquid asset and the banks with higher liquid asset have 0.569 cents from each birr in the total assets and least liquid banks have lower amount of liquid asset with 0.198 cents. The result shows that the selected Ethiopian private commercial banks are in good liquidity position with standard deviation of 8.4. On the other hand, bank size which is measured by logarithm of total asset has standard deviation of 0.42% that means it is the most deviated variable from its mean as compared to others bank-specific variable. The maximum and the minimum value of bank size are 4.166 percent and 2.33 percent respectively. The last bank specific determining factor is non performing loan. The descriptive statistics result of this variable indicates that from the total loan invested by the selected private commercial banks, on average 8.8 % is non performing loan. This indicates, private commercial banks had incurred averagely 0.088 cents as non-performing loan from one birr invested as a loan on the customer with maximum and minimum values of 0.379 and 0.023 cents respectively. The mean of market concentration which is defined by Herfindahl-Hirschman Index (HHI) is 18.9%. HHI is a universally accepted measure of market concentration and it takes into account the relative size and distribution of firms in a market and it approaches to zero when a market consists a large number of firms of relatively equal size. The market concentration in the banking sector has the maximum value of 20.46 percent shared and the least concentrated bank in the sector has the minimum value of 18.06 percent share. The remaining independent variables were the macroeconomic indicators that can affect banks liquidity position over time. The mean value of real GDP growth rate was 8.86% indicates the average real growth rate of the country's economy over the past 11 years (2001-2011). The maximum growth of the economy was recorded in the year 2005 (i.e. 12.6%) and the minimum was in the year 2003 (i.e. -2.1%). Since the year 2004, the country has been recorded double digit growth rate with little dispersion with the standard deviation of 4.5%. The other macro-economic variable employed in this study was inflation rate, had somewhat a higher standard deviation of 11.8 percent compared to GDP; this implies that inflation rate in Ethiopia during the study period remains somewhat reasonably unstable.

Correlation analysis

This section presents the correlation matrix which indicates all independent variables included in the analysis. These variables are listed in Table 4.2. The correlation coefficient is a measure of linear association between two independent variables. The values of the correlation coefficient are always lies between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear sense; while a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense. A correlation coefficient of 0 indicates that there is no linear relationship between the two variables. The correlation between the explanatory variables of the study are presented and analyzed as follows;

Table 4.2 Correlation matrix between dependent and independent variables

Correlation	ROA	NPL	NII	LR	GDP	INF	FD	EC	CONC	BS	SD
ROA	1.000000										
NPL	-0.702216	1.000000									
NII	0.652721	-0.512854	1.000000								
LR	0.174448	-0.058162	0.493415	1.000000							
GDP	0.623847	-0.495453	0.317248	0.022489	1.000000						
INF	0.312588	-0.340157	0.176222	0.281827	0.368909	1.000000					
FD	-0.195960	0.007465	-0.124463	-0.229623	-0.098639	-0.091056	1.000000				
EC	0.242653	-0.160238	0.172415	0.113637	-0.120540	-0.130979	0.106937	1.000000			
CONC	-0.554174	0.498770	-0.417612	-0.398637	-0.608488	-0.747488	0.212190	0.190075	1.000000		
BS	0.515410	-0.360392	0.373235	0.360357	0.531886	0.603072	-0.428734	-0.416754	-0.681026	1.000000	
SD	-0.312201	0.371713	-0.433757	-0.123447	0.047501	-0.030146	-0.635894	-0.436316	-0.032915	0.258042	1.000000

Source: output of evIEWS 6

Table 4.2 above provides information on the degree of correlation between the dependent variables and explanatory variables used in the regression analysis. If an independent variable is an exact linear combination of the other independent variables, then it can say that the model suffers from perfect co linearity problem, and it cannot be estimated by OLS (Brooks 2008). As it can be seen in Table 4.2 non interest income, GDP growth and bank size are the most positively correlated variable with ROA with a coefficient of 0.65, 0.62 and 0.51 respectively. Equity capital, liquidity risk and inflation are also move on the same direction with ROA. In contrast, nonperforming loan, saving deposit, fixed deposit and market concentration are negatively correlated with return on asset and this relationship point out that as the stated variable moves upward the profitability of selected private commercial banks will move down. At the same time the correlation matrix in the above table shows in general, the relationship between the independent variables is not strong, suggesting that multicollinearity problems are either not severe or non-existent. As indicated in Table 4.2 above, bank size has a positive correlation coefficient with GDP, inflation, liquidity risk, non interest income and saving deposit with a value of 0.53, 0.60, 0.37 and 0.25 respectively. On the other hand, it has a negative correlation coefficient value of -0.681 with market concentration, -0.416 with equity capital, -0.428 with fixed deposit and -0.360 with non performing loan. Liquidity risk has a negative correlation coefficient value with NPL, SD, FD and CONC, but positively related with other variables. As it can be also seen from the table, asset size of private commercial banks are highly positively correlated with inflation and highly negatively correlated with market concentration when it is compared to other explanatory variables with the coefficient of 0.60 and -0.681 respectively. NPL of selected private commercial banks have a negative correlation coefficient with all explanatory variables except market concentration and fixed deposit. In opposite to NPL of banks, NII has a positive correlation with all explanatory variables except market concentration with a coefficient of -0.417 and fixed deposit with a coefficient of -0.124.

Testing assumptions of classical linear regression model (CLRM)

The third part of this chapter was testing the classical linear regression model/CLRM assumptions. The diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model. Therefore before running the regression model for return on asset the researcher was testing the following CLRM assumptions;

Test for average value of the error term is zero (E (ut) = 0) assumption

The first assumption that is required to be tested in this study is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term (i.e. α) was included in the regression equation, the average value of the error term in this study is expected to be zero.

Test for Heteroscedasticity Assumption (Var (ut) = σ^2)

The second CLRM assumptions which is conducted in this study is testing heteroscedasity Which stated that the variance of the errors is constant, σ^2 this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic as explained by Brooks (2008). To test this assumption the white test was used having the null hypothesis of heteroskedasticity. Both F-statistic and chi-square tests statistic were used. According to Brooks if the p-values were more than 0.05, there is no evidence for the presence of heteroscedasticity problem. Therefore as Table 4.3 below shows that the test results for the regression analysis's p-values are considerably less than 0.05, it can be say that there is no evidence for the presence of heteroscedasticity. And the table below stated that, both *F-statistics* and p-value fails to reject the null hypothesis.

Table 4.3 Heteroskedasticity Test: white

The null hypothesis: Ho = there is no heteroskedasticity
 Alternative hypothesis Ha = there is heteroskedasticity

F-statistic	1.412715	Prob. F(10,55)	0.1993
Obs*R-squared	13.48807	Prob. Chi-Square(10)	0.1976
Scaled explained SS	9.387628	Prob. Chi-Square(10)	0.4958

Source: output of eviews 6

Test for normality (bera-jarque test)

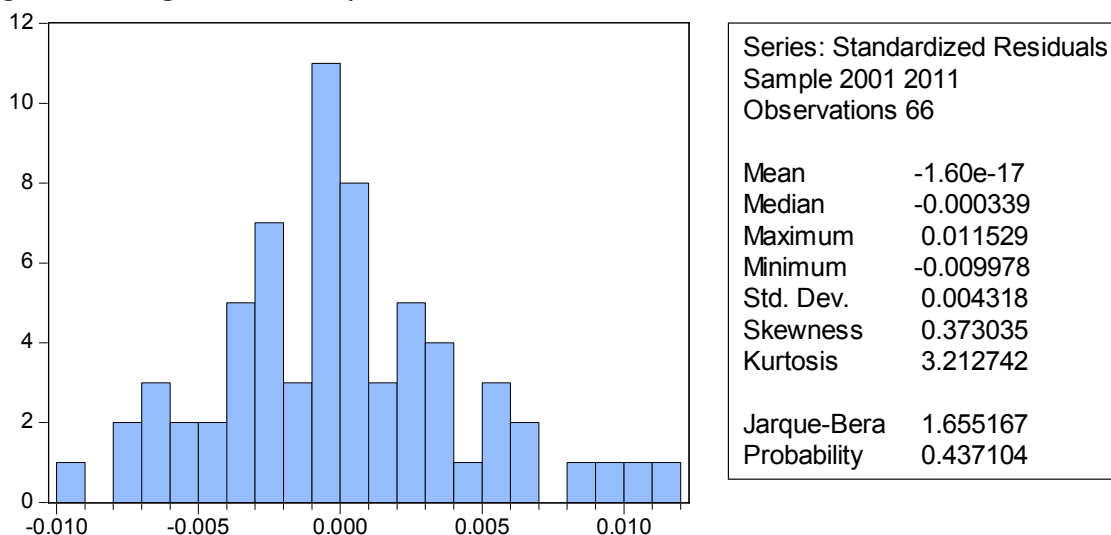
Another important diagnostic test conducted in this study was the normality assumption (i.e the normally distributed errors). Brooks (2008) as quoted by Brihanu (2012) stated that the normality assumption '(ut ~ N (0, σ^2))' is required in order to conduct single or joint hypothesis tests about the model parameters. One of the most commonly applied tests for normality is the Bera—Jarque (BJ) test. Bera-Jarque formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and

kurtosis measures how far the tails of the distribution are. Figure1 below revealed that the data is normally distributed and residuals are normally distributed since the histogram is bell-shaped and the Jarque-Bera statistic of 1.655 has a probability of 0.437. This implies that, the inference made about the coefficient estimates was significant. The means value that the *p*-value given at the bottom of the normality test screen should be higher than 0.05 to not reject the null hypothesis at 5% level of confidence. If the residuals are normally distributed, the histogram was bell-shaped and then the Bera-Jarque statistic is significant. Therefore, the researcher in this study concluded that there is no the problem of normality on ROA at 5% level of confidence.

HO: there is no normality problem

HA: there is normality problem

Figure 4.1 Histogram of normally test



Test for multicollinearity

Another important CLRM assumption is multicollinearity. This assumption deals with the relationship that exists between the independent variables. In this test the pair wise correlations between variables are lays between ± 1 . According to Cameron and Trivedi (2009) Multicollinearity condition exists where there is high, but not perfect correlation between two or more explanatory variables. As indicated in table 4.4 below, the minimum correlation coefficient of -0.747 is observed between inflation rate and market concentration of the banks and also the maximum correlation coefficient of 0. 603 are existed between bank size and inflation rate. As quoted by Habtamu (2012), Mashotra (2007) indicated that since their coefficient is less than 0.70 it can be concluded that there is no series multicollinearity problem. On the other hand Cooper & Schindler (2009) suggested that a correlation coefficient below 0.8 can show a healthy relationship between the variables. In contrary as quoted by tseganesh (2012) Kennedy (2008) suggested that any correlation coefficient above 0.7 could cause a serious multicollinearity problem leading to inefficient estimation and less reliable results. This indicates that there is no consistent argument on the level of correlation that causes serious multicollinearity problem. Therefore based on the eview 6 statistical soft ware package outputs there is no multicollinearity problem in this study since all the correlation coefficient values are below 0.7.

Table 4.4 correlation matrix of explanatory variables

Correlation	BS	CONC	EC	FD	GDP	INF	LR	NII	NPL	SD
BS	1.000000									
CONC	-0.681026	1.000000								
EC	-0.416754	0.190075	1.000000							
FD	-0.428734	0.212190	0.106937	1.000000						
GDP	0.531886	-0.608488	-0.120540	-0.098639	1.000000					
INF	0.603072	-0.747488	-0.130979	-0.091056	0.368909	1.000000				
LR	0.360357	-0.398637	0.113637	-0.229623	0.022489	0.281827	1.000000			
NII	0.373235	-0.417612	0.172415	-0.124463	0.317248	0.176222	0.493415	1.000000		
NPL	-0.360392	0.498770	-0.160238	0.007465	-0.495453	-0.340157	-0.058162	-0.512854	1.000000	
SD	0.258042	-0.032915	-0.436316	-0.635894	0.047501	-0.030146	-0.123447	-0.433757	0.371713	1.000000

Source: output of eviews 6

Test for autocorrelation

The final CLRM assumption to be tested in this study is the test for autocorrelation which was tested by using Durbin - Watson (1951). Durbin-watson's demonstration may help to verify the residual from a linear regression or multiple regression analysis. In this assumption if the covariance between the errors terms over time or cross-sectionally for that type of data is zero, it would be stated that they are 'autocorrelated' or that they are 'serially correlated'. A test of this assumption is therefore required, because most regression problems involving time series data exhibit positive autocorrelation, the hypotheses usually considered in the Durbin-Watson test are;

H0: $\rho = 0$

H1: $\rho > 0$

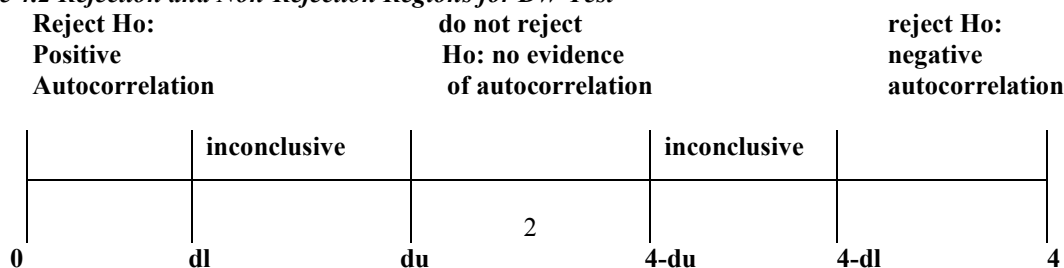
Table 4.5 Autocorrelation Test: Durbin Watson

Variables	durbin Watson test result
All explanatory variables (bank specific, industry specific and macro economic variables)	1.535

Source: output of eviews 6

According to Chris Brooks (2008) if the *durbin Watson result* is near to two, it shows that there is no autocorrelation problem. In the above table DW test result was 1.535, therefore there is no evidence for the existence of serious autocorrelation problem in this study since the result is nearest to two. According to Brooks (2008), DW has two critical values: an upper critical value and a lower critical value, and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 4.2. So, the null hypothesis is rejected and the existence of positive autocorrelation is presumed if DW is less than the lower critical value; the null hypothesis is rejected and an existence of negative autocorrelation is presumed if DW is greater than 4 minus the lower critical value; the null hypothesis is not rejected and no significant residual autocorrelation is presumed if DW is between the upper critical value and 4 minus the upper limits; the null hypothesis is neither rejected nor not rejected if DW is between the lower and the upper limits, and between 4 minus the upper and 4 minus the lower limits.

Figure 4.2 Rejection and Non-Rejection Regions for DW Test



The study used the dL and dU values for 66 observations. As it can be seen from the appendix, 66 observations with 10 explanatory variables at 1% level of significance, the dL and dU values are 1.120 and 1.802 respectively. The DW values for return on asset for 66 observations were 1.535. The DW value of ROA lies in the inconclusive region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected. Durbin-Watson statistic can be difficult to interpret and it is difficult to judge the presence of autocorrelation if the value lies in the inconclusive region.

Results of regression analysis

To test the formulated hypotheses, the relationships between return on asset which is the dependent variables of the model and the explanatory variables representing equity capital, saving deposit, fixed deposit, non interest income, liquidity risk, bank size, non performing loan, market concentration, GDP, and inflation rate were examined using ordinary least square (OLS) regression. Under the following regression finding the beta coefficient may be negative or positive; but whatever it is, beta indicates that each variable's level of influencing on the dependent variable which is return on asset. P-value also indicates at what percentage or precession level of each variable is significant. On the other hand R-squared values indicate the explanatory power of the model and also the adjusted R-squared value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the independent variables in the regression model.

Choosing Fixed effect (FE) Versus Random effect (RE) models

According to Gujarati (2004), if T (the number of time series data) is large and N (the number of cross-sectional units) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model/FEM and random effect model/REM. Hence the choice here is based on computational convenience. Since the number of time series (i.e. 11 year) is greater than the number of cross-sectional units (i.e. 6 commercial banks), FEM is preferable in this study. According to Brooks (2008); Verbeek (2004) and

Wooldridge (2004), it is often said that the REM is more appropriate when the entities in the sample having been randomly selected from the population, but a FEM is more conceivable when the entities in the sample effectively constitute the entire population/sample frame. Hence, the sample for this study was not selected randomly and equals to the sample frame FEM is appropriate.

Empirical model: As presented in the third chapter the operational panel regression model used to find the statistical significant determinants of selected private commercial banks profitability measured by ROA was as follows;

$$ROA_{it} = \beta_0 + \beta_1 EC_{it} + \beta_2 SD_{it} + \beta_3 FD_{it} + \beta_4 NII_{it} + \beta_5 LR_{it} + \beta_6 NPL_{it} + \beta_7 BS_{it} + \beta_8 CONC_{it} + \beta_9 GDP_{it} + \beta_{10} INF_{it} + u_{it}$$

The fixed regression model developed and the regression result for determinants of profitability measured by operating income to total asset is described in the following tables.

Table 4.6 fixed effect regression result for bank specific variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001855	0.013633	-0.136051	0.8923
EC	0.086560	0.022016	3.931729	0.0002***
SD	-0.027705	0.013277	-2.086660	0.0413**
FD	-0.039807	0.021980	-1.811041	0.0753*
NII	0.296286	0.108019	2.742892	0.0081***
LR	-0.037833	0.010528	-3.593633	0.0007***
NPL	-0.032661	0.013096	-2.494058	0.0155**
BS	0.014693	0.002630	5.586509	0.0000**

R-squared	0.776363
Adjusted Rsquared	0.749372
S.E. of regression	0.005482
F-statistic	28.76406
Prob(F-statistic)	0.000000
Durbin Watson stat	1.566308

Source: output of eviews 6

***, **, and * denotes significance level at 1%, 5% and 10% respectively.

Note; the above table is required only for the purpose of identifying the explanatory power(R-square) of bank specific variables, but the explanation was presented under the following table.

Table 4.7 fixed effect regression result for all explanatory variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.092359	0.062984	-1.466384	0.1482
EC	0.087811	0.020366	4.311646	0.0001***
SD	-0.041872	0.012081	-3.465841	0.0010***
FD	-0.050217	0.020933	-2.398929	0.0199**
NII	0.163454	0.099325	1.645657	0.1055
LR	-0.024188	0.009580	-2.524693	0.0145**
NPL	-0.023372	0.012194	-1.916674	0.0605*
BS	0.018423	0.004384	4.202383	0.0001***
CONC	0.402036	0.244612	1.643564	0.1060
GDP	0.085358	0.018109	4.713609	0.0000***
INF	-0.003779	0.007729	-0.488928	0.6268

R-squared	0.844528
Adjusted R-squared	0.816260
S.E. of regression	0.004694
Prob(F-statistic)	0.000000
Durbin Watson stat	1.535551

Source: output of eviews 6

***, **, and * denotes significance level at 1%, 5% and 10% respectively.

Determinants of private commercial banks profitability which is measured by (net income to total asset) ROA are presented for the selected six private commercial banks. Table 4.7 shows that the coefficient of saving deposit (SD), fixed deposit (FD), and liquidity risk (LR), non performing loan (NPL) and inflation (INF) against return on asset (ROA) were negative. Which is -0.041, -0.050, -0.024, -0.023 and -0.003 respectively. This indicates that there was an inverse or negative relationship between the above mentioned five independent variables and ROA. This implies that the increase of those variables will cause a decrease in ROA. On the other hand the remaining independent variables might have a positive relationship since their respective correlation coefficient shows positive, thus increasing the values of those assets will cause an enhancement in the profitability of private commercial banks. Or it is possible to conclude that among the statistically significant factors affecting the profitability of selected private commercial banks in Ethiopia, seven variables had statistically significant impact on banks financial performance. Equity capital share, bank size and economic growth had positive and statistically significant impact on financial performance at 1% level of significance. And also non interest income and market concentration had positive correlation but, statistically insignificant impact on financial performance with p- values of 0.105. Saving deposit, fixed deposit and liquidity risk had negative and statistically significant impact on financial performance at 1%, 5% and 5% level of significance. The explanatory power of this regression model which is measured by adjusted R-square is high (i.e. around 81.6%). This indicates that from the determining factors of commercial banks profitability 81.6% were already included in this regression model and the remaining 18.4% were not included in the study. Table 4.8 above also described, the value of F-statistics is 29.87 with p-value of 0.0000, which used to measure the overall significance of the regression model, since the p-value is 0.0000 which is sufficiently low, the null hypothesis can be rejected and the result shows that the model is well fitted at 1 percent level of significance. And therefore, the regression output has economical meaning for profitability of the selected private commercial banks.

Hypothesis testing

In the previous portion of this chapter presented mainly the outputs of the econometrics models which include, statistical descriptions, testing CLRM assumptions, and the correlation results of explanatory variables and in depth regression analysis. The data are analyzed in light of the specific hypotheses stated in the first chapter of the study. Hence, the analysis focused mainly on the results of the regression analysis for the selected bank-specific, industry-specific and macro-economic factors that have an impact on private commercial banks profitability. These selected factors to be tested are equity capital, saving deposit, fixed deposit, non interest income, liquidity risk, non performing loan, bank size, and market concentration, GDP, and inflation rate.

Equity capital

Hypothesis: 1: Ho: There is no significant positive/negative relationship between the equity capital of a bank and the bank's profitability.

H1: There is a significant positive/negative relationship between the equity capital of a bank and the bank's profitability.

The coefficient of equity capital which is measured by total equity to total asset ratio was positive and statistically significant at 1% significance level with p-value of 0.0001. The positive relationship between profitability and equity capital is consistent with those of Demirgüç- Kunt and Huizinga (1999, 2000), shows that the most profitable banks are better, and capitalized. The positive coefficient for capital strength was in favor of the signaling or bankruptcy costs hypotheses and in opposite to the risk-return trade-off hypothesis. Moreover, the coefficient (0.087) of the ratio of equity to total asset was relatively higher next to non interest income and market concentration when it is considered with other explanatory variables. An increase in capital strength will result in a relative increase in profitability. This is in line with the expectation as a bank with a sound capital position is able to track business opportunities more effectively and has more time and flexibility to deal with problems arising from unanticipated fatalities. Belayneh (2011) also indicates that well capitalized Ethiopian banks face lower costs of liquidity, which may help to reduce their cost of funding. Based on the above finding the null hypothesis should be rejected at 1 % significance level.

Saving deposit

Hypothesis: 2: Ho: There is no significant positive relationship between saving deposit of bank and the bank's profitability.

H1: There is a significant positive relationship between saving deposit of bank and the bank's profitability.

According to the econometrics model results which is computed by eviews statistical software package the coefficient of saving deposit to total asset ratio shows -0.0418 with p- value of 0.0010 with negative relationship but significant at 1% level of confidence. Due to this the researcher rejected null hypothesis.

Fixed deposit

Hypothesis: 3: Ho: There is no significant and negative relationship between fixed deposit of bank and profitability.

H1: There is a significant and negative relationship between fixed deposit of bank and

profitability.

In similar to saving deposit fixed deposit (fixed deposit to total asset) ratio also has a negative coefficient of -0.050 with p-value of 0.0199. This is statistically significant at 5% significance level. The regression coefficient of fixed deposit at -0.050 indicates that when FD ratio increases by 5% the ROA will proportionately decrease by 5 percent at 5% significance level.

Therefore based on the above result null hypothesis is rejected.

Noninterest income

Hypothesis: 4: Ho: There is no significant positive relationship between the non interest Income of a bank and the bank's profitability

H1: There is a significant positive relationship between the non interest Income of a bank and the bank's profitability.

Concerning the impact of diversification strategy of income, the positive coefficient of non interest income to total asset ratio (0.163) entered the regression model and is found statistically very much insignificant with probability value of 0.1055. The results imply that banks which derived a higher proportion of its income from non-interest sources like fee based services tend to report a higher level of private commercial banks profitability. Thus the highest positive coefficient that existed between income diversification and profitability compared to other variables were not indicates as the Ethiopian banks profitability is highly determined by income other than interest. Therefore, since the probability of committing type I error is very high as indicated by the p-value, the researcher fail to reject null hypothesis.

This result was also consistent with the previous findings of Amdemickael (2012).

Liquidity risk

Hypothesis: 5: Ho: There is no significant negative relationship between the liquidity risk of a bank and the bank's profitability.

H1: There is a significant negative relationship between the liquidity risk of a bank and the bank's profitability.

The researcher's expectation was a negative and significant relationship between liquidity and banks profitability. Consistent to the above empirical studies, the results of regression analysis show that there exist a negative and somewhat statistically significant relation between liquidity risk and profitability of private commercial banks of Ethiopia. The results of fixed effect regression of panel evidence of six private commercial banks for eleven years revealed regression coefficient of -0.024, t-statistics of -2.525 and p-value of 0.0145. Hence at 5% significance level, liquidity ratio negatively explains profitability of commercial banks profitability and it is consistent with the hypothesis of the study as banks become more liquid it may help them to increase their profitability therefore the result shows that there is no liquidity risk which is faced by commercial banks. Schumacher (2009) in Sub-Saharan countries found negative and significant relationship between bank profitability and liquidity. The opposite is true for Rasiah, (2010) from his finding he check that the bank with more liquidity risk has the more return of assets (ROA). According to their justification the primary reason behind the positive relation between liquidity risk and profitability is; firstly, based on the risk-return hypothesis, more liquidity risk is associated with higher expected returns. Secondly, utilization of idle funds have the higher returns on liquid assets may also positively affect the profitability of those institutions with surplus liquidity (reduction of opportunity cost). Even though, short-term borrowings are costly and the loss of income from the sale of liquid assets will tend to have an adverse effect on profitability. The researcher rejected the null hypothesis.

Nonperforming loan

Hypothesis: 6: Ho: There is no significant negative relationship between non performing loan of a bank and the bank's profitability

H1: There is a significant negative relationship between non performing loan of a bank and the bank's profitability.

Another significant bank specific factor of Ethiopian private commercial banks profitability is non performing loan (NPL) which is measured by the ratio of nonperforming loan to total loans and advances. Most literatures suggest that increased exposure to the quality of asset is obviously associated with decreased firm's profitability. hayken (2012) and saklain (2012) are among those authors. As stated in the above table 4.7 this study also find a negative and significant impact of credit risk on banks profitability. The regression coefficient of nonperforming loan at -0.023 indicates that when non-performing loan ratio increases by 1, the return on asset will decrease by 2.3%. Therefore one can conclude as the asset quality of banks which is measured by the ratio of nonperforming loans to total loans was a key driver of profitability of private commercial banks in Ethiopia. This study concluded that an increase in nonperforming loan will reduce profitability at 10 percent level of confidence and the researcher was able to reject the null hypothesis.

Bank size

Hypothesis: 7: Ho: There is no significant and positive/negative relationship between the size of a bank and

the bank's profitability.

H1: There is a significant and positive/negative relationship between the size of a bank and the bank's profitability.

Bank size which is measured by natural logarithm of total assets has a significant positive impact on ROA. This positive and statistically significant impact of bank Size on profitability was consistent with hypothesis seven (H7) and in line with the assumption that small banks focus on the conventional intermediation and transformation activities and hold less liquid assets. On the other hand Kosmidou et al. (2006) compare the performance of Ukraine banks over the period 1998- 2002 and find that smaller banks performed better than larger banks which is not consistent with this result. The results in table 4.8 above shows a direct relationship with bank profitability, which is positive and statistically significant at 1% level of confidence with coefficient of 0.0184 and t- statistics of 4.202. Thus, any increase in bank size is accompanied with an increase in profitability. This relationship suggests the presence of economies of scale at private commercial banks of Ethiopia and shows that the larger the size of the bank, the better its ability to manage its production factors (especially interest received and interest paid) and thus improves its profitability. Or Further, the positive coefficient which is 0.0184 between Ethiopian private commercial banks size and profitability clearly indicated that larger banks of the country are better placed than smaller banks of the country in harnessing economies of scale in transactions. Generally, the regression results in the above table (table 4.7) reveal that higher banks have high amount of bank size. Then reject the null hypothesis which states, bank size has positive and significant impact on banks profitability and reject their negative relationship. Amedemickael (2012) also concluded as the same result with this paper.

Market concentration

Hypothesis: 8: Ho: There is a significant positive relationship between market concentration of the banking sector and the bank's profitability

H1: There is a significant positive relationship between market concentration of the banking sector and the bank's profitability.

The only industry specific variable included in this study is market concentration. During the sample period (2001-2011) the market concentration which is measured by the Herfindahal -Hirschman index (HHI) has a positive and insignificant impact on Commercial banks profitability.

Hence, the decline on market concentration makes Ethiopian private commercial banks to lose their absolute monopoly power on pricing of their services and enjoy the new era of competition. This result should be interpreted with carefulness since the existence of a significant positive association between concentration and profitability does not necessarily mean the removal of monopoly rents but also a difference in efficiency. The structure-efficiency hypothesis implies that banks that efficiently manage their inputs and have a better diversification. Thus, this positive correlation between profitability and concentration may reflect a greater efficiency of large banks in Ethiopia. The finding of this study indicates market concentrations of private commercial banks are positively related with a coefficient of 0.402 but not significantly determine profitability, therefore it is not possible to reject the null hypothesis.

GDP Growth

Hypothesis: 9: Ho: There is no significant positive relationship between real gross domestic product growth and bank profitability.

H1: There is a significant positive relationship between real gross domestic product growth and bank profitability.

One of the most commonly used macroeconomic factor to determine private commercial banks profitability is real GDP growth rate. The researcher in this study observes that GDP has highly statistical significant and positive impact on ROA at 1% significance level with a coefficient and t-statistics of 0.0853 and 4.713 respectively. This result could be explained by the fact that a favorable trend in economic activity that is accompanied by an improvement in corporate profitability will cause an improvement in profitability. The same result is also indicated by Bashir (2000) and Birhanu (2012) who show a significant positive relationship between commercial bank profitability and economic growth. Based on the statical finding it is not possible to accept the null hypothesis.

Inflation

Hypothesis: 10: Ho: There is a significant positive/negative relationship between inflation and bank profitability.

H1: There is a significant positive/negative relationship between inflation and bank profitability.

The coefficient of inflation (-0.00378) was negative as anticipated by the researcher, but it was not statistically significant with a larger p-values of 0.627, thus, the effect of inflation on Ethiopian commercial banks profitability is not significant.

The findings also suggested that as inflation is not a determinant of banks' profitability in Ethiopia as far as the parameter for this variable is insignificant as illustrated by the largest p-values of 0.758. Thus the result of this study clearly shows as inflation has a negative impact on profitability and statistically not significant

determinant of Ethiopian private commercial banks profitability. This might be because of the existence of a lower real interest rate which is obviously lower than the real inflationary rate, resulting in costs increased faster than revenues. Therefore based on the empirical results the researcher was failing to reject the null hypothesis.

Generally, Empirical results provide detailed discussions on sample descriptive statistics comparing between ROA and independent variables followed by CLRM assumptions to test the fitness of the model, correlation analysis to determine the relationship between dependent variable and independent variables And finally Regression analysis is also used to describe the determinants among the selected private commercial banks profitability. ROA is affected positively by equity capital, non interest income, bank size, market concentration and GDP growth but negatively by saving deposit, fixed deposit, liquidity risk, non performing loan and inflation. Therefore, the positively related variables identified as determinant factors of profitability. The findings of this study contribute towards a better understanding of financial performance in selected Ethiopian private commercial banks.

The result of the regression analysis is summarized as follows;

Table 4.8 Summary of actual and expected signs of explanatory variables on the dependent variables

Explanatory variables	Expected impact on profitability	Actual impact on profitability
EC	Positive/negative	Positive and significant
SD	Positive	Negative & significant
FD	Negative	Negative & significant
NII	Positive	Positive & insignificant
LR	Negative	Negative & significant
NPL	Negative	Negative & significant
BS	Positive/negative	Positive & significant
CONC	Positive	Positive & insignificant
GDP	Positive	Positive & significant
INF	Positive/negative	Negative & insignificant

5. CONCLUSIONS

The banking sector of Ethiopia has undergone a worthy financial reform, which has significantly transformed the sector in to new era. At present private commercial banks are dominant in respect of market share and profitability in the banking sector. Profitability is always an important criterion to measure the performance of banks. Over the last eleven years a number of important changes occurred in the Ethiopian commercial banking industry, leading to increased competition and pressure bank profitability.

The objective of this study was to examine the internal and external determinants of selected private commercial bank's profitability in Ethiopia as measured by ROA by using the data obtained from the financial statements of selected six private commercial banks for the year 2001 to 2011 and macro economic data which is obtained from CSA. The study also used an appropriate econometric model for the estimation of the variables coefficient under fixed effect regression models. The following section includes conclusions based on discussion and analysis and also forwarded possible recommendations.

Data was presented by using descriptive statistics and the balanced correlation and regression analysis to compute ROA. Before performing OLS regression the models therefore were tested by the classical linear regression model assumptions. Fixed effect model/FEM was used and ten factors affecting private commercial banks profitability were chosen and analyzed. From the list of possible explanatory variables, most of them proved to be statistically significant. The results of the model enabled to make the following conclusions.

Based on the descriptive statistics results, the higher return on asset shows 0.056817 which indicates the most profitable of all sample banks have generated almost 5.7 cents of net income for each birr invested in the asset and the minimum profit to be generated by the least profitable of the sample bank is 0.5 cents for each birr invested in the asset with a mean value of 0.034364.

The bank-specific factors that were used in this study include variables such as equity capital, saving deposit, fixed deposit, non interest income, liquidity risk, non performing loan and bank size. Based on regression results, the selected banks specific determinants are able to explain a substantial part of banks profitability in Ethiopia with R- square of 77.6%. This result shows the strong explanatory power of the selected bank specific variables. On the other hand the industry specific and macro economic variables include market concentration, GDP growth and inflation rate. Since the aggregate explanatory power of all the variables was 84.4%, these external variables have the explanatory power of 6.8%. Therefore the researcher concluded that the selected variables are appropriate to determine the profitability of private commercial banks of Ethiopia.

As expected, the regression result showed a positive statistical coefficient between equity capital, banks size, and GDP growth with strong significance level of 1% for each of the variables. The coefficient of the ratio of equity capital is relatively high when it is compared with other variables. An increase in capital strength will

result an increase in profitability of selected private commercial banks. This is in line with the expectation as a bank with a sound capital position is able to pursue business opportunities more effectively and has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability.

The result of this study also confirms a negative and highly significant relationship between fixed deposit, liquidity risk and non performing loan with the selected private commercial banks profitability at 5% for FD and LR and at 10% significant level for NPL. This implies that higher level of nonperforming loan results in lower profit, which is in line with the expectation and the same is true for liquidity risk, since the increase in the value of liquidity risk will affect profitability.

On the other hand, the coefficient of the ratio of noninterest income and market concentration (which is measured by HHI) is positively related with profitability but with insignificant situation, showing that an increase in noninterest income and market concentration will result in increased profitability. The remaining two variables (i.e SD and INF) were coming with the different result from the expectation of the study. Positive relationships were expected between SD and profitability, but the coefficient shows a negative relationship with significant situation.

And finally the expected negative relationship was showed by the coefficient of inflation, but insignificantly influenced the profitability of selected private commercial banks. The main conclusion in this study is that bank-specific and macroeconomic factors are the most important explanations based for banks' high returns in Ethiopian private commercial banks.

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