

# Impact of Managerial Factors on Commercial Bank Profitability: Empirical Evidence from Ethiopia Banks

Mohammed Ahmed Yasin

Lecture, Department of Accounting and Finance, Assosa University, Ethiopia

## Abstract

The main purpose of this paper was to determine the impact of managerial factors on profitability, empirical evidence of commercial banks of Ethiopia. Specifically, the study empirically examined impact of bank liquidity, capital adequacy, bank size, cost efficiency and deposit to asset ratio on banks profitability. This study adopted explanatory research design with arrangement of secondary method of data collection via document analysis, panel, quantitative approach and deductive method of inquiry. The sample of this study was taken 10 banks covering the period 2010-2016. Descriptive and regression analysis were performed to analyze the data using Stata version 12. Besides, econometric model estimation procedures and specification tests plus multiple regression assumptions were tested. Accordingly, random effect regression model was chosen. The results of random effect regression analysis revealed that capital adequacy and cost efficiency were positively associated to banks profitability, whereas bank liquidity and deposits to asset ratio was negatively correlated with banks profitability. However, banking size has negative but statistically insignificant relationship with profitability of banks in Ethiopia. Therefore, in the case of Ethiopia banks, bank size has not considered as a factor that effect on profitability of Ethiopia banks.

**Keywords:** Managerial Factors, Profitability, multiply regression and Commercial banks of Ethiopia.

## 1.1. Introduction

Today, profitability became one of the challenges faced by the commercial banks to strengthen their financial positions in order to meet the risks associated with openness and globalization. A profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. The determinants of profitability are well observed and explored, as it is increasingly important to strengthen the foundations of domestic financial system as a way to buildup flexibility for capital flow volatility. The profitability of commercial banks is affected by Managerial and Environmental factors. Managerial factors are affected by management decisions and goals to be achieved by the management of the bank; such as capital adequacy, bank liquidity, cost efficiency, deposit to asset ratio and size of the bank performance. Environmental factors are affected by external forces such as financial market structure, tradeinterdependence, economic growth, inflation, market interest rates and ownership structure. In this context, the importance of this study is to identify the managerial factors that affect commercial banks Profitability in Ethiopia.

Based on the empirical literature different studies have been conducted in different parts of the world in order to identify the impact of managerial factors on banks profitability, such as (Abuzer,2013) Study in Islamic banks in Sudan result of study show that only internal factors to these banks have a significant impact on banks profitability. Yilmaz et al., (2013) analyzed profitability and its determinants for nine emerging countries including Turkey, The results reveal that cost efficiency management, capital adequacy, bank liquidity, bank size and inflation are important determinants for both, return on asset and net-interest margin dependent variables.

Uremandu (2012) presented empirical evidence of the effect of bank capital structure and liquidity on profitability using Nigerian data for the period 1980-2006 studied. The study found a positive influence of cash reserve ratio, liquidity ratio and corporate income tax; and a negative influence of bank credits to the domestic economy, savings deposit rate, gross national savings balances with the central bank, inflation rate and foreign private investments, on banking system profits. However, the findings revealed that mixed and contradicting results of managerial factors on banks profitability. In comparison with this research studies carried out in the developed countries, to the best of the researcher knowledge, no study has not yet examined on the impact of managerial factors on banks profitability of commercial banks in Ethiopia. Due to this background the main purpose of this study also proposes and tests the impact of managerial factors on banks profitability in commercial banks of Ethiopia.

## 1.2. Overview of Commercial Banks of Ethiopia

The history of modern commercial banking in Ethiopian dates back to the turn of the twentieth century when, in 1905, the Bank of Abyssinia was established in Addis Ababa by the agreement between Emperor Menelik II and a representative of British owned National Bank of Egypt. After the bank was bought and owned by the Ethiopian government, it was disintegrated into two different banks forming the National Bank of Ethiopia and the Commercial Bank of Ethiopia (Mauri, 2003). According to Memmel and Scherteler (2010), traditional perception on such financial intermediaries show a simple logic that a bank accept deposits with short term maturities from a

large number of individuals and grants loans with long term maturities to a small number of borrowers. These transformation activities expose a bank to credit, interest rate, and liquidity risks.

### 1.3. Review of Related Literature

Determinants of bank profitability have received much attention from academic researchers. This section provides the overview of previous studies reviewed related to the determinants of the profitability of banks. Some studies were country specific and few of them considered panel of countries for reviewing the determinants of profitability.

Abuzar (2013) explored the determinants of profitability of Islamic banks in Sudan. The study found that only the internal factors to these banks have a significant impact on banks' profitability, as measured by return on assets (ROA), return on equity (ROE), and net financing margin (MARG). More specifically, cost, liquidity, and size of the bank are found to have positive and significant effects on profitability. However, external macroeconomic factors are classified as redundant and have no significant effects on profitability. Yilmaz et al. (2013) analyzed profitability and its determinants for nine emerging countries including Turkey. The results reveal that operating expenses management, capitalization, credit risk, bank size and inflation are important determinants for both, return on asset and net-interest margin dependent variables.

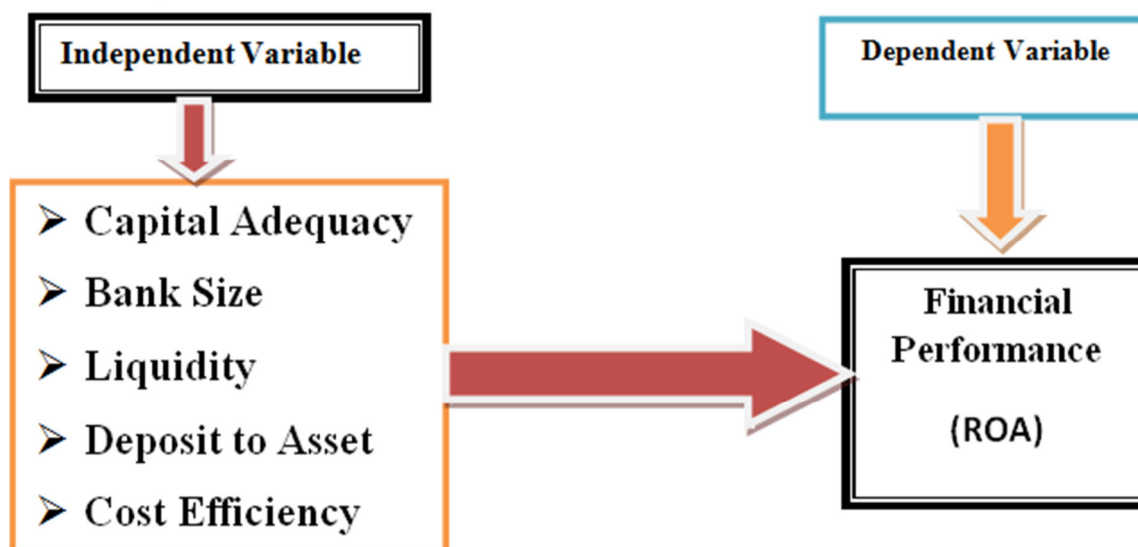
Zeitun (2012) measured some influential factors (foreign ownership, banks-specific variables, and macroeconomic factors) on Islamic and conventional banks in Gulf Cooperation Council (GCC) countries, during the period 2002-2009. The results show that a bank's equity is important in explaining and increasing conventional banks profitability only. The cost-to-income had a negative and significant impact on Islamic and conventional banks performance. Additionally, the estimated effect of size provides evidence of economies of scale in Islamic banking using the ROE, while it is not significant for conventional banks. Foreign ownership, however, does not improve Islamic and conventional banks performance. Furthermore, bank's age and banking development have no effect on bank performance. Finally, GDP is positively correlated to bank's profitability, while inflation is negatively correlated to bank's profitability.

According to Ceylan, (2008) commonly used measure of bank profitability can be measured by return on asset (ROA), is a financial ratio of banks profit before tax to its total assets. This ratio measures the ability of the bank management to generate income by utilizing company assets (Ally, 2013). In the literature, return on asset and return on equity can be used to measure financial performance of banks. However, return on asset is a better proxy for bank profitability as opposed of return on equity because return on equity disregards financial leverage and the risk associated with it as a measure of profitability in the bank (Feimianti, 2014) as cited by (Ally, 2013).

### 1.4. Conceptual Framework for the study

The conceptual framework was the mental picture of the relationship between the independent variables, and dependent variable of the study.

**Figure 2.1 Conceptual Frameworks**



## 2. Research Methodology

This focus on the manner in which the study had been conducted to address the objectives of the study stated in the introductory chapter. It greatly concern research approach and design, type of data and data collection techniques, sampling mechanisms including sample size, method of data analysis and measurement of variables included in the regression model and model specification.

## 2.1. Research Design and Approach

The choice of research design depends on objectives that the researchers want to achieve (Admas, 2007). The study would be used explanatory research design. Explanatory research design it examines the cause and effect relationships between dependent and independent variable (Kothari, 2004 ).

## 2.2. Population, Sampling and Sampling Technique

The populations of this study would be including all commercial banks in Ethiopia which are 18 in number. A sample consists of a panel of ten (10) commercial banks from the total population of 18 banks operated in the Ethiopia.

## 2.3. Data type and source

The type of data for this study was use secondary data for the period 2010-2016. Data for this study would be obtained from the National Bank of Ethiopia (NBE).

### Summary of Measurement of Dependent and Independent Variables

No	Dependent Variable	Symbol	Measurement	Expected Sign
	Return on Asset	ROA	Net income before tax / Total Assets	
<b>Independent Variable</b>				
1.	Bank Liquidity	BLD	Current asset /Total Asset	-
2.	Capital Adequacy	CAD	The ratio of Equity Capital to Total Assets.	+
3.	Bank Size	BAS	Logarithm of the value of total assets	+
4.	Deposit to Asset	DTA	The ratio of Total Deposit /Total Assets	+
5.	Cost Efficiency	CEF	Total Operating Expense / Total Income	-

## 2.4. Hypothesis of the Study

- H<sub>1</sub>: Bank liquidity and banks profitability have negative relationship.
- H<sub>2</sub>: Capital adequacy and banks profitability are positive relationship.
- H<sub>3</sub>: Bank size and banks profitability have positive associated.
- H<sub>4</sub>: Deposit to asset ratio and banks profitability are positive relationship.
- H<sub>5</sub>: Cost efficiency and banks profitability are negative associated.

## 3. Econometric Model specification and Data Analysis

This study used Panel data multiple regression to determine the impact of managerial factors on banks profitability of selected Ethiopian banks by including the dependent and independent variables of the study. The study includes the following variable, capital adequacy; bank liquidity, bank size, cost efficiency and deposit of assets (Carlson, 2001). Hence, the following regression model would be specified with some modification depending on prior studies on the issue under investigation such as (Yilmaz et al., 2013), (Abuzar, 2013 and Zeitun, 2012)

$$Y_{it} = \beta_0 + \beta_1 CAD_{it} + \beta_2 BAS_{it} + \beta_3 BLD_{it} + \beta_4 DTA_{it} + \beta_5 CEF_{it} + \epsilon_{it}$$

Where

- $Y_{it}$  = Profitability of bank i at time t,
- $CAD_{it}$  = Capital adequacy of bank i at time t,
- $BAS_{it}$  = Bank size of i at time t.
- $BLD_{it}$  = Bank Liquidity of i at time t
- $DTA_{it}$  = Deposit to Assets of bank i at time t
- $CEF_{it}$  = Cost Efficiency of bank i at time t.
- $\epsilon_{it}$  = the disturbance term I at time t.
- i = indexes bank level observations
- t = indexes time in years
- $\beta_1, \beta_2, - \beta_5$  are the parameters estimate/coefficient of the independent variables.

### 3.1. Method of Data Analysis

This study was used descriptive and inferential statistics. Mean, standard deviation, minimum, and maximum is calculate and present in tables for the purpose of descriptive analysis. For inferential statistics, the researcher used STATA software version 12 Outputs determines the relationship between the dependent and independent variables. Econometric model specification tests including Chow-test, Breusch and Pagan Lagrange Multiplier test and Hausman-test was used to select the best suited model among pooled regression model, fixed effect model, and random effect model. In the same fashion, diagnostic tests for the classical linear regression model assumptions

would be carried out.

**Descriptive Statistics of Dependent and Independent Variables over the Entire Sampled Period of Selected Banks (Seven Years for 10 Banks)**

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	70	.0399625	.01094	.0034961	.0750155
BAS	70	4.058856	.5517536	3.023664	5.564319
BLD	70	.4265273	.0631935	.1831883	.5728494
CAD	70	.1353815	.0321243	.0769559	.1952434
CEF	70	.8691217	.0397561	.798676	.954109
DTA	70	.7608346	.0597226	.4754842	.9049021

Source: Own Computation

**Econometric Model Estimation Procedures and Specification Tests**

The main objective of this study was to examine the impact of managerial factors on banks profitability of Ethiopian banks using panel data collected from annual financial report. Panel studies begin by making comparison among three models, pooled regression model, fixed effect model, and random effect model while estimating econometric models. Therefore, the choice among pooled regression model, fixed effect model and random effect model is very important as it largely influences conclusions on the individual coefficients (Gujarati, 2003). Specification tests and determination of appropriate panel data model were carried out by using F- test, Breusch and Pagan Lagrange Multiplier test, and the Hausman test to select the appropriate model. Therefore, from the results of the F-test, Breusch and Pagan Lagrange Multiplier test and Hausman-test, the best model used in this study was Random effect regression model. Hence, the regression results of the random effect model were used for statistical inference and further analysis of the individual coefficients.

**4. Diagnostic Tests for Classical Linear Regression Model Assumptions**

**4.1. Normality Test**

Normality assumption is required in order to conduct single or joint hypothesis tests about the model parameters (Brooks C. , 2014).

**4.2. Zero Mean Value of Errors**

The first assumption required in the classical linear regression model is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Brooks, 2014) (Gujarati, 2003).

**4.3. Multicollinearity Test**

The assumption here is explanatory variables are not correlated with one another. A problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity (Brooks, 2014). Therefore, multicollinearity between the explanatory variables is not considered to be a problem here.

**4.4. Model Specification Test**

One of the assumptions of the classical linear regression model (CLRM) is that the regression model used in the analysis is correctly specified. Ramsey RESET test was performed for model specification with null hypothesis that the model has no omitted variables and its result was statistically insignificant supporting the null hypothesis.

**4.5. Heteroscedasticity Test**

The variance of the errors is constant which is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedasticity. If there is heteroscedasticity, the standard errors could be wrong and hence any inferences made could be misleading (Brooks, 2014). Modified Wald test was used to test heteroscedasticity with null hypothesis that variance of errors is homoscedastic. Result of this test was statistically insignificant indicating that there is no existence of heteroscedasticity.

**4.6. Autocorrelation Test**

It is assumed that the errors are uncorrelated with one another otherwise there is autocorrelation. In fact, the consequences of ignoring autocorrelation when it is present are similar to those of ignoring heteroscedasticity. There exists the possibility that the wrong inferences could be made about whether a variable is or is not an important determinant of variations in the dependent variable (Brooks, 2014). Wooldridge test was used to test autocorrelation with null hypothesis that there is no first order auto correlation. However, Wooldridge test

indicated statistically significant result supporting autocorrelation.

#### 4.7. Empirical Results of Regression Analysis and Discussion on Profitability.

This section presented the overall empirical result of regression analysis on impact of managerial factors on banks profitability with empirical evidence of Commercial banks of Ethiopia. The dependent variable of this study was profitability and the independent variable of the study was variable such as capital adequacy, banks liquidity, banks size, cost efficiency and deposit to asset ratio. Based on the econometric estimation of F-test, Breusch and Pagan Lagrange Multiplier test and Hausman-test, the best suited model used in this study was random effect regression model.

The result of random effect regression model the impact of managerial factors on profitability the coefficient of determination, R square and adjusted R square measures the proportion of the variation in dependent variable explained by the independent variables jointly (Gujarati 2004). The result R square and adjusted R square talk about the joint significance of the independent variables presented in the **Table 4.1**. The regression output reveals that the dependent variable is well explained by the explanatory variables in the model with R square and adjusted R square of 56.63% and 50.48% respectively and the rest of the variation of profitability were not explained by the explanatory variables included in the model of this study. The F-statistic regression result was with P- value of zero ( $\text{Prob} > \chi^2 = 0.0000$ ) and that also statistically significant, suggesting that variations in the dependent variable are well enough explained by the regresses in the model.

**Table 4.1**

ROA	Coefficients	Robust Std. Err.	T	P> t
BAS	-0.0033645	.0035427	-0.95	0.342
BLD	-0.0194789	.0090729	-2.15	0.032**
CAD	.0766068	.0457923	1.67	0.094***
CEF	.1083537	.0391354	2.77	0.006 *
DTA	-0.0722334	.0289456	-2.50	0.013 **
Con	.0212611	.0396367	0.54	0.592

Notl2e: \*, \*\*, and \*\*\* = significant at 1%, 5%, and 10% significance level respectively

## 5 Conclusions

The results of empirical evidence from the econometric regression analysis of random effect model revealed that independent variables including: bank liquidity, capital adequacy, cost efficiency and deposit to asset ratio were statistically significant to explain banks profitability of commercial banks of Ethiopia. Specifically, the result of the study indicates that capital adequacy and cost efficiency was positively associated to banks profitability, whereas bank liquidity and deposit to asset ratio was negatively correlated with banks profitability. Hence, those banks with, higher capital adequacy, lower liquidity, higher cost efficiency, lower deposit asset ratio and lower inflation established better banks profitability than those with lower capital adequacy, higher liquidity, lower cost efficiency and higher deposit to asset ratio established banks in Ethiopia. However, banks size has negative result, but statistically insignificant relationship with profitability of banks in Ethiopia. Therefore, in the case of Ethiopia commercial banks, bank size has not considered as a factor that impact on banks profitability.

### 5.1. Implications of the Study

Research is significant for many reasons. First, it is undertaken to contribute to existing information about issues by providing additional results to confirm or disconfirm results of prior studies and add value to existing knowledge. Second, it is undertaken to suggest improvements for practice. Third, it provides information to policy makers (Creswell, 2012). Accordingly, the findings of this study have theoretical, practical and policy contributions and suggestions.

### 5.2. Implications for Policy Makers and Regulators

The implication of policy makers and regulators those banks with, higher capital adequacy, lower liquidity, higher cost efficiency and lower deposit asset ratio established banks better profitability than those with lower capital adequacy, higher liquidity, lower cost efficiency and higher deposit to asset ratio established banks in Ethiopia. However, banks size has negative result, but statistically insignificant relationship with profitability of banks in Ethiopia.

### 5.3. Practical Implications for Banks

The finding of this study was suggested that commercial banks of Ethiopia bank liquidity, capital adequacy, cost efficiency and deposit to asset ratio on commercial banks profitability. Specifically, the result of the study indicates that capital adequacy and cost efficiency was positively associated to banks profitability, whereas bank liquidity and deposit to asset ratio was negatively correlated with banks profitability. Bank size is not considered

as factors of profitability in Ethiopia banks.

#### 5.4. Implications for further Researchers

The study focused on the impact of managerial factors on banks profitability empirical evidence of commercial banks of Ethiopia. Furthermore it serves as a useful reference for future research especially relating to the banking sector. First, the study was confined to the banking sector and the results aren't able to generalization to other sectors. Hence, future studies can be carried out to expand coverage to incorporate other sectors of financial institutions in order to have a comprehensive view of impact of managerial factors on examinations of profitability and by using other measurement of financial performance such as the net profit margin and return on equity.

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**Appendix**

**Table 4.1 Pooled OLS against fixed-effect specification test (F-test)**

F test that all $u_i=0$ :	$F(9, 55) =$	4.43	Prob > F = 0.0002
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**Table 4.2 Breusch and Pagan Lagrangian multiplier test for random effects**

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xttest0
Breusch and Pagan Lagrangian multiplier test for random effects
ROA[Campanycode,t] = Xb + u[Campanycode] + e[Campanycode,t]
Estimated results:

```

	Var	sd = sqrt(Var)
ROA	.0001197	.01094
e	.0000487	.0069787
u	7.11e-06	.0026664

```

Test: Var(u) = 0
chibar2(01) = 4.18
Prob > chibar2 = 0.0205

```

**Table 4.3 Hausman Specification Tests of Random-Effects against Fixed-Effects**

	Coefficients		(b-B)	sqrt(diag(V_b-V_B))
	(b)	(B)	Difference	S.E.
	random	fixed		
BAS	-.0033645	-.0038641	.0004995	.
BLD	-.0194789	-.0258142	.0063353	.0023319
CAD	.0766068	.1285488	-.051942	.
CEF	.1083537	.107561	.0007927	.
DTA	-.0722334	-.0989458	.0267124	.
INF	-.0000225	-.0000209	-1.61e-06	.

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

```

Test: Ho: difference in coefficients not systematic
chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 3.95
Prob>chi2 = 0.5561
(V_b-V_B is not positive definite)

```

**Table 4.4 Normality test**

```

swilk u
Shapiro-Wilk W test for normal data

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Variable	Obs	W	V	z	Prob>z
u	70	0.97915	1.283	0.542	0.29377

**Table 4.6 Model specification test for omission of variables**

Ramsey RESET test using powers of the fitted values of ROA  
 Ho: model has no omitted variables  
 $F(3, 60) = 2.29$   
 Prob > F = 0.0876

**Table 4.7 Heteroscedasticity test**

```

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (10) = 12.68
Prob>chi2 = 0.2419

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