



# The Impact of Financial Leverage on the Performance of Commercial Banks: Evidence from Selected Commercial Banks in Ethiopia

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**Abstract:** The financing decision function of corporate finance deals with determining the best financing mix or capital structure of the firm in order to maximize the value of firm or wealth of owners. In Ethiopia, Commercial Banks use a combination of debt and equity source of finance in their capital structure. Each source of finance has its own cost of capital in the capital structure and hence effect on value of corporation. The ratio used to measure the proportion of debt to equity is considered as Financial Leverage. The main objective of this study is to investigate the effect of financial leverage on the financial performance of Ethiopian Commercial Banks for the period of 10 years (2008-2017) for the 5 selected commercial banks. As a measure of financial leverage for the independent variables three variables such as Debt ratio (DR), Debt Equity ratio (DER) and Interest coverage ratio (ICR) (times interest earned ratio) were used. As a measure of financial performance, the dependent variable two ratios such as return on asset (ROA) and return on equity (ROE) were used. The ex-post facto and longitudinal research design were used. The secondary data were collected from the audited financial reports (profit and loss statement and statement of financial position) of selected commercial banks operated in Ethiopian financial system. Descriptive statistics and Fixed Effect model were used. The result of the study showed that, Debt Ratio (DR) has a negative insignificant effect on Banks' performance measured by Return on Assets (ROA) and Return on Equity (ROE) while Debt Equity Ratio (DER) And Interest Coverage Ratio (ICR) have significant positive Effect on Banks' performance measured by Return on Assets (ROA) and Return on Equity (ROE).

**Keywords:** Financial Leverage, Return on Assets, Return on Equity, Debt Ratio, Debt Equity Ratio (DER), Interest Coverage Ratio, Commercial Banks

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## 1. Introduction

The sources of long-term funding for a business are divided into two main categories, owners' funding (equity) and borrowed funding (debt). The proportionate mix of these two sources in financing a firm's investment proposals has been the subject of intensive theoretical modeling and empirical examination over the years having its tenet in the implication of such a mix on corporate performance [1].

[2] In her study on "Impact of leverage on Profitability of Pantaloon Retail India Ltd" had stated that finance decision was concerned with selection of correct mix of debt and equity in its capital structure. Its conclusion was that the

company should reframe its capital structure and capacity utilization for further capability in future.

Zhang, H and Li, S [3] discussed that, increase in leverage decrease the agency cost. The results of the study explain that increase in the leverage may reduce the agency cost. In this study they also stated that if the leverage is increased from the optimal level then those results in the opposite put effect on the agency cost of free cash flow. They discussed that sometimes increase in the debt causes bankruptcy cost. They said that the increase in the debt level reduces the agency cost but increases the bankruptcy cost.

Financial decision is one of the integral and important parts of financial management in any kind of business

concern. A sound financial decision must consider the board coverage of the financial mix (Capital Structure), total amount of capital (capitalization) and cost of capital (Ko). Capital structure is one of the significant things for the management, since it influences the debt equity mix of the business concern, which affects the shareholder's return and risk. Hence, deciding the debt-equity mix plays a major role in the part of the value of the company and market value of the shares. The debt equity mix of the company can be examined with the help of leverage.

The financing decision function of corporate finance deals with determining the best financing mix or capital structure of the firm in order to maximize the value of firm or wealth of owners. In Ethiopia, Commercial Banks use a combination of debt and equity source of finance in the investment activities. Each source of finance has its own cost of capital in the capital structure and hence effect on value of corporation. The ratio used to measure the proportion of debt to equity is considered as Financial Leverage. This study focuses on how financial leverage affects the financial performance of selected Commercial Banks in Ethiopia measured by Return on Assets (ROA) and Return on Equity (ROE).

The general objective of the study is to investigate the effect of financial leverage on the financial performance of Commercial Banks particular reference to selected Commercial Banks in Ethiopian.

The study has the following specific objectives.

To examine the effect of Financial Leverage on Return on Equity (ROE) of Selected Commercial Banks in Ethiopia.

To examine the effect of Financial Leverage on Return on Assets (ROA) of Selected Commercial Banks in Ethiopia.

## 2. Research Hypothesis

Based on objectives of the study, the researcher developed the following statement of hypothesis.

### HYPOTHESIS 1

H0: There is no significant effect of Financial Leverage on Return on Assets (ROA) of Selected.

Commercial Banks in Ethiopia

H1: There is a significant effect of Financial Leverage on Return on Assets (ROA) of Selected.

Commercial Banks in Ethiopia

### HYPOTHESIS 2

H0: There is no significant effect of Financial Leverage on Return on Equity (ROE) of Selected.

Commercial Banks in Ethiopia

H1: There is a significant effect of Financial Leverage on Return on Equity (ROE) of Selected.

Commercial Banks in Ethiopia

## 3. Theoretical Framework

[4] Investigates that, Debt Ratio (DR) and Debt Equity Ratio (DER) have negative relationship with Return on asset (ROA) while Interest Coverage Ratio (ICR) has a positive

relationship with Return on Assets (ROA) in Nigeria pharmaceutical companies. The study has also revealed that all independent variables have no significant effect on financial performance of sampled companies in Nigeria.

[5] In their study, they are concluded that there is positive correlation between ROA and DFL while there is negative correlation between ROA and DOL. DFL and ROI have inverse relationship and similarly DOL and ROI also have inverse relationship. There is positive correlation between DFL and EPS while there is negative correlation between DOL and EPS. These results does not affect significantly. So there is no significant effect of DFL and DOL on ROA, ROE, ROI and EPS.

[6] The empirical finding indicates that high debt level causes significant positive impact on ROE. Debt is used by many companies to leverage their capital and profit.

[7] In her study has analyzed the impact of leverage on profitability of two best companies of FMCG sector i.e. Britannia Industries Ltd and Marico Industries. It was studied through analysis that Marico Industries Ltd was a high leveraged firm than Britannia Industries Ltd. A high leveraged firm was capable of providing high return on equity to its shareholders but the profitability of both the companies was similar.

[8] Have examined the impact of leverage on the profitability of selected cement companies in India; It explained the relationship between debt equity ratio and earnings per share and how effectively the firm uses debt financing. Its results of the study suggested that leverage, profitability and growth are positively related and leverage had impact on profitability of firm.

[9] Using combined sources to fund activities and increase debt to a certain level that doesn't affect the financial autonomy of the company is another way designed to increase the assets' ability to generate profit. In the analyzed situation, action of the financial leverage was favorable and it acted in the sense of increasing the ROA, this aspect justifying the company's financing strategy through increasing debts.

[10] Examines the effect of financial leverage on Firm's Performance; a study of Nigerian banks. The finding showed that financial leverage has positive effect on profitability and efficiency. No significant effects were found on liquidity, size and market capitalization value. Their findings implied that, the use of debt improves managerial efficiency as managers will have to ensure more profit is made to pay interests and still be profitable. Interests which are tax deductible were also found to reduce tax and improve profitability.

## 4. Description of Variables

### 4.1. Dependent Variables

As a measure of financial performance, different studies used either return on asset (ROA) for instance [4] or Return on Equity (ROE) for instance [11]. In this study both Return on Assets (ROA) and Return on Equity (ROE) were used as a

proxy of Financial Performance of Commercial banks operated in Ethiopia financial system for the purpose of investigating the relationship between ROA and FL and also ROE and FL. These variables are expressed as follows:

$$ROE = \frac{\text{Net Income}}{\text{Total stock holders' equity}}$$

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

#### 4.2. Independent Variables

[4] Used three variables such as debt ratio, debt equity ratio and interest coverage ratio as a measure of Financial Leverage, the independent variables. In this study in addition to the three variables additional one variable (cash coverage ratio) is included in the independent variables. So that here are four variables used as a proxy of independent variable (financial leverage), these are debt ratio (DR), debt equity ratio (DER), interest coverage ratio (ICR) and cash coverage ratio (CCR).

Debt to total assets Ratio (Debt ratio):

It measures the percentage of total funds provided by debt (supplied by creditors), which is computed as:

$$Debt\ ratio = \frac{\text{Total liabilities}}{\text{Total assets}}$$

Debt equity ratio (DER):

Express the relationship between the amount of a firm's total assets financed by creditors (debt) and owners (equity). Thus, this ratio reflects the relative claims of creditors and shareholders' against the asset of the firm. This is computed as:

$$\frac{\text{Total Liability}}{\text{Stockholders' Equity}}$$

Interest coverage ratio (ICR):

It measures the ability of a firm to pay its interest charges. This ratio indicates how many times interest charge can be covered by the available earnings before interest and tax (EBIT). It is expressed as:

$$\frac{\text{Earnings before Interest and Tax (EBIT)}}{\text{Interest Expense}}$$

Cash coverage ratio:

The problem with the times interest earned ratio is that, it is based on earnings before interest and tax, which is not really a measure of cash available to pay interest. One major reason is that, depreciation and amortization, a non cash expense has been deducted from earnings before Interest and Tax (EBIT). Since interest is a cash outflow, one way to define the cash coverage ratio is as follows:

$$\frac{EBIT + \text{Non - Cash Expense}}{\text{Interest expense}}$$

## 5. Materials and Methods

### 5.1. Description of the Study Area

This study was conducted on 5 selected commercial banks operated in Ethiopian financial system.

### 5.2. Study Design

Research design is the arrangement of conditions for collection, analysis and interpretation of data in a manner to combine relevance to the research purpose with economy in procedure [12]. In this study Ex-Post Facto and Longitudinal research design were used. This is because it involves events that have already taken place in the past and cannot be manipulated [13]. This study used secondary data as data used in the analysis were obtained from audited annual financial reports (profit and loss statement and financial position statement) of selected Commercial Banks operated in Ethiopian Financial System from 2008-2017, a period of 10 years. The variables that were used in this study were Return on Equity (ROE), Debt Ratio (DR), Debt-Equity Ratio (DER), Interest Coverage Ratio (ICR) and Cash Coverage Ratio (CCR). As a proxy of financial performance, the independent variable Return on Equity (ROE) was used. Whereas independent variable (Financial Leverage) measured by DR, DER, ICR and CCR.

### 5.3. Methods of Data Collection

The researcher used only secondary data that were obtained from audited financial reports (profit and loss statement and statement of financial position) of the selected commercial banks in Ethiopia. Because of unavailability of 10 years data, the researcher used 1 public owned and 4 private owned commercial banks from a total of 18 commercial banks in Ethiopia. The selected banks are Commercial bank of Ethiopia (CBE), Dashen Bank (DB), Awash International Bank (AIB), Nib International Bank (NIB) and Zemen Bank (ZB). The ratios are calculated with excel spread sheet by taking necessary data from financial reports.

### 5.4. Method of Data Analysis

For the purpose of analysis and interpretation both descriptive statistics such as mean and standard deviation and regression were used. To determine the degree of significance and impact of leverage on firm performance, fixed effect model estimation technique was used. Hausman test was conducted to select whether fixed effect or random effect is appropriate model for this study and the result indicates fixed effect model is appropriate. StataMP 13 (64-bit) software was used for the purpose of running regression.

The variables chosen were calculated as follows:

No.	Variables	Formula used to calculate	Category
1	Return on Equity (ROE)	Net Income/ Stockholders' Equity	Dependent Variable
2	Debt Ratio (DR)	Total Liabilities/total Assets	Independent Variable
3	Debt Equity Ratio (DER)	Total Liabilities/Stockholders' Equity	Independent Variable
4	Interest Coverage Ratio (ICR)	EBIT/Interest Expense	Independent Variable
5	Cash Coverage Ratio (CCR)	EBIT+Non-Cash Expense/Interest Expense	Independent Variable

### 5.5. Model Specification

In order to conduct this research study, the effect of financial leverage on financial performance, model was adopted from previous studies among them [4, 11]. For the current study the researcher modified in compact form for this study as follows:

$$Y_{it} = \alpha_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \dots + \mu_{it}$$

Where:

$Y_{it}$  = dependent variable of company i at time t

$X_{it}$  = independent variable of company i at time t

$\alpha_0$  = intercept for x variable of i company at time t

$\beta_1$ - $\beta_3$  = co-efficient for the independent variables x of companies, denoting the nature of the relationship with dependent variable Y.

$\mu_{it}$  = the residual

The above general model modified in compact form of this study as follows:

Model-1:  $ROE_{it} = \alpha_0 + \beta_1 DR_{it} + \beta_2 DER_{it} + \beta_3 ICR_{it} + \beta_4 CCR_{it} + \mu_{it}$

Model-2:  $ROA_{it} = \alpha_0 + \beta_1 DR_{it} + \beta_2 DER_{it} + \beta_3 ICR_{it} + \beta_4 CCR_{it} + \mu_{it}$

Where: ROE = Return on Equity

ROA = Return on Assets

DR = Debt to Asset Ratio

DER = Debt to Equity Ratio

ICR = Interest Coverage Ratio

CCR = Cash Coverage Ratio

## 6. Results and Discussions of Findings

### 6.1. Descriptive Statics

Table 1. Descriptive Statics.

VARIABLES	N	sum	Mean	Sd
ROA	50	1.385	0.0277	0.0111
ROE	50	13.74	0.275	0.167
DR	50	68.98	1.380	1.998
DER	50	448.8	8.977	5.252
ICR	50	145.5	2.910	1.417
CCR	50	158.9	3.178	1.333

Source: Author's Stata output, 2019.

As it is presented in the above table 1; the descriptive statistics shows that over the period under study, the financial leverage measured by Debt Ratio (DR), Debt Equity Ratio (DER), Interest Coverage Ratio and Cash Coverage Ratio (CCR) have positive mean value which ranges from 1.380 for Debt Ratio (DR) to 8.977 for Debt Equity Ratio (DER). Highest standard deviation of 5.252 is measured for Debt Equity Ratio (DER). This indicates that the observations in

the data set are widely dispersed from the mean. The result also indicates that Return on Assets (ROA) has the lowest value of mean and standard deviation of 0.0277 and 0.0111 respectively.

Table 2. Correlations Matrix.

	ROA	ROE	DR	DER	ICR	CCR
ROA	1.0000					
ROE	0.4205	1.0000				
DR	-0.6926	-0.1584	1.0000			
DER	0.0780	0.8924	0.0784	1.0000		
ICR	0.7634	0.6864	-0.5082	0.4322	1.0000	
CCR	0.6236	0.6523	-0.3683	0.4309	0.9619	1.0000

Source: Author's Stata Output, 2019.

The above correlation matrix table shows that, Debt Ratio (DR) has negative relationship with Return on Assets (ROA) while Debt Equity Ratio (DER), Interest Coverage Ratio (ICR) and Cash Coverage Ratio (CCR) have positive relationship with Return on Assets (ROA). The magnitude of their relationship is indeed at -69.26%, 7.8%, and 76.34% and 62.36% for Debt Ratio (DR), Debt Equity Ratio (DER), Interest Coverage Ratio (ICR) and Cash Coverage Ratio (CCR) respectively. The researcher also observed that Debt Ratio (DR) has negative relationship with Return on Equity (ROE) to the extent of -15.84%. While the remaining three variables Debt Equity Ratio (DER), Interest Coverage Ratio (ICR) and Cash Coverage Ratio (CCR) have positive relationship with Return on Equity (ROE) with strength of 89.24%, 68.64% and 65.23% respectively. As it is shown in the correlation matrix above and tested with Variance Inflation Factor (VIF >10), the researcher identified that, there is Multicollinearity problem between Interest Coverage Ratio (ICR) and Cash Coverage Ratio (CCR). So that Cash Coverage Ratio was dropped in the regression result.

### 6.2. Regression Result

#### 6.2.1. Effect of Financial Leverage on Return on Asset (ROA)

The following result summarizes the effect of financial leverage on Return on Asset (ROA) of selected commercial banks in Ethiopia.

Table-3. Effect of Financial Leverage on ROA.

VARIABLES		ROA
DR	Co-efficient	-0.102
	Standard error	(0.0556)
DER	Co-efficient	0.00134***
	Standard error	(0.000239)
ICR	Co-efficient	0.00986***
	Standard error	(0.00159)

VARIABLES		ROA
Constant	Co-efficient	0.0764
	Standard error	(0.0481)
Observations		50
Number of id		5
R-squared		0.860

Robust standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Author's Stata output, 2019.

The above table presents the fixed effect model result of stata output used to see the impact of Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) on Return on Assets (ROA) of financial institutions particular reference to Commercial Banks Operated in Ethiopian Financial System.

The R-squared shows that, the regressors (DR, DER and ICR) jointly account for 86% of variation in banks Return on Assets (ROA) while the remaining 14% of variation in Commercial banks Return on Assets (ROA) are caused by other variables not included in this model. So this indicates that Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) are the major determining Factor of Return on Assets (ROA) of the 5 selected commercial banks in Ethiopia.

The stata output result showed that regression co-efficient of Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) at -0.102, 0.00134 and 0.00986 respectively. This implies that had a negative co-efficient but did not show significance within the level of significance adopted for this study as significance level > 0.1. While both Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) has positive significant effect on ROA at 99 % confidence interval level. Thus the higher the DER and ICR the more ROA the Bank would be.

#### Test of Hypothesis 1

As it is presented in the above, the regression result suggests that null hypothesis (Ho) be rejected and the alternative hypothesis (H1) be accepted. This implies that there is significant effect of financial leverage on Return on Assets (ROA) of selected commercial banks in Ethiopia. So, the test outputs described below provide considerable reliability to the results and the emerging multiple regression equation is as:  $ROA = 0.0764 - 0.102 (DR) + 0.00134 (DER) + 0.00986 (ICR) + ui$ .

#### 6.2.2. Effect of Financial Leverage On Return on Equity (ROE)

The following result summarizes the effect of financial leverage on Return on Equity (ROE) of selected commercial banks in Ethiopia.

**Table 4.** Effect of Financial Leverage on ROE.

VARIABLES		ROE
DR	Co-efficient	-1.150
	Standard error	(0.694)
DER	Co-efficient	0.0362***
	Standard error	(0.00401)
ICR	Co-efficient	0.0623***

VARIABLES		ROE
Constant	Standard error	(0.00913)
	Co-efficient	0.781
Observations	Standard error	(0.557)
		50
Number of id		5
R-squared		0.795

Robust standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Author's Stata output, 2019.

As it is indicated in the above table, the researcher has been also conducted fixed effect model result to investigate the impact of Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) on Return on Equity (ROE) of financial institutions particular reference to Commercial Banks Operated in Ethiopian Financial System.

The R-squared shows that, the regressors (DR, DER and ICR) jointly account for 79.5% of variation in banks Return on Equity (ROE) while the remaining 20.5% of variation in Commercial banks Return on Equity (ROE) are caused by other variables not included in this model. So this indicates that Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) are the major determining Factor of Return on Equity (ROE) of the 5 selected commercial banks in Ethiopia.

The stata output result showed that regression co-efficient of Debt Ratio (DR), Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) at -1.150, 0.0362 and 0.0623 respectively. This implies that DR had a negative co-efficient but did not show significance within the level of significance adopted for this study as significance level > 0.1 just like ROA. While both Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) has positive significant effect on ROE at 99 % confidence interval level. Thus the higher the DER and ICR the more ROE the Bank would be.

#### Test of Hypothesis 2

As it is presented in the above regression output, the regression result suggests that null hypothesis (Ho) be rejected and the alternative hypothesis (H1) be accepted. This implies that there is significant effect of financial leverage on Return on Equity (ROE) of selected commercial banks in Ethiopia. So, the test outputs described below provide considerable reliability to the results and the emerging multiple regression equation is as:  $ROE = 0.781 - 1.150 (DR) + 0.0362 (DER) + 0.0623 (ICR) + ui$

## 7. Discussion of Findings

The result shows that financial leverage significantly affects profitability of Banks Measured By both Return on Assets (ROA) and Return on Equity (ROE). Debt is the cheapest source of finance in the capital structure of corporation business because of tax benefit than equity fund. The main source of profit for banks is rate of interest charged which is greater than the rate of interest paid on deposits so that financial leverage has no negative effect on banks that is why a positive significant effect is revealed in this study and consistent with study conducted by [6, 10, 14-16]. The

finding of [17] Shows there is a negative effect between Financial Leverage and firms' performance. While [4], found that financial leverage has no significant effect on firms' performance.

## 8. Summary of Findings, Conclusion and Recommendations

### 8.1. Summary of Findings

Financial leverage affects the performance of Commercial banks significantly by reducing cost of capital in the source of financing for commercial banks in Ethiopia.

Debt Ratio (DR) has not significant effect on both Return on Asset (ROA) and Return on Equity (ROE) of Commercial Banks in Ethiopia.

Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) have a positive significant effect on Return on Assets (ROA) and Return on Equity (ROE) of Commercial Banks in Ethiopia.

### 8.2. Conclusion and Recommendation

Overall this study was conducted on 10 years data from 5 selected commercial Banks in Ethiopia in order to investigate the effect of financial leverage on the performance of banks in Ethiopia measured by Return on Assets (ROA) and Return on Equity (ROE). The collected data were analyzed and presented accordingly and the following conclusions are made.

The computed descriptive statistics indicates that, the highest mean value of 9.977 was measured for Debt Equity Ratio (DER) with standard deviation of 5.252 for selected commercial banks in Ethiopia.

The Debt Ratio (DR) has a negative relationship with Return on Asset (ROA) and Return on Equity (ROE) while Debt Equity Ratio (DER), Interest Coverage Ratio (ICR), and Cash Coverage Ratio (CCR) have positive relationship with Return on Asset (ROA) and Return on Equity (ROE) of selected commercial banks in Ethiopia.

The computed  $R^2$  indicates that 86% of variations in the Return on Asset (ROA) of selected Commercial Banks in Ethiopia are explained by the independent variables included in this study while the remaining 14% of variations in ROA explained by other factors outside of this model. Whereas 80% of variations in Return on Equity (ROE) selected Commercial Banks in Ethiopia are explained by independent variables included in the model.

The negative relationship and insignificant value of Debt Ratio (DR) on Return on Assets (ROA) and Return on Equity (ROE) of sampled Commercial Banks in Ethiopia implied that, increases in debt leads to inefficiency with regard to utilization of assets and capital raised through equity sources.

The Debt Equity Ratio (DER) and Interest Coverage Ratio (ICR) show a positive significant relationship with Return on Assets (ROA) and Return on Equity (ROE). This implied that, DER and ICR are important determining factors affecting the performances of Commercial Banks in Ethiopia.

Based on the findings of the study the researcher recommends that, until its cost of capital does not exceed actual return of a corporation better to use debt source of finance for the sake of maximizing ultimate goal of a firm, which is maximizing the wealth of share holders and value of a corporation.

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