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Relationship of Capital structure and Profitability of Nepalese Commercial Bank

(An evidence from Selected Commercial Bank of Nepal)

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Abstract

This study has been conducted to examine the relationship between the capital structure and profitability of the Nepalese Commercial Bank. Out of twenty seven commercial bank as on March 2020 ten commercial banks has been randomly selected for the study. The theoretical framework has been done by categorizing independent variable as capital structure and dependent variable as profitability of commercial banks in Nepal. To measure capital structure various variables like debt assets ratio, debt equity ratio and interest coverage ratio has been used. Similarly to measure profitability ratio return on assets, return on equity and net interest margin has been used. The study is based on 110 observations from ten commercial Banks of Nepal for 2009-2019. The data has been collected from Secondary sources like Bank individual annual reports, Nepal Rastra Bank(NRB) annual financial statistics and NRB supervision Report. The various descriptive statistics like minimum, maximum, mean and standard deviation has been use to analyse the data. Correlation has been done to measure the relationship between capital structure and profitability. Similarly the regression models are estimated to test the significance and effect of capital structure on profitability of commercial Banks.

The results shows that there is negative relationship of banks profitability with debt assets ratio and debt equity ratio. The results also shows that there is positive relationship between profitability with interest coverage ratio. The regression results shows that there is negative significant relationship for debt asset ratio and debt equity ratio with bank profitability and positive significant relationship for interest coverage ratio and banks profitability.

Keywords: Debt assets ratio, Debt equity ratio, Interest coverage ratio, Return on assets, Return on equity, net interest margin.

Introductions

Capital plays an important role in the business. The capital needed for the establishment and operation of a business is collected from various sources. They can be divided as owner's capital equity capital and borrowed debt capital. Capital structure refers to the way a corporation finance its assets though some combination of equity and debt. A firm's capital structure is the composition of structure of its liabilities. The formation between the owner's capital and borrowed capital is known as capital structure. The owner's capital includes equity shares, preference shares and retained earnings. The borrowed capital included debentures, bonds and long term loan. Generally capital structures refer to the proportion of different sources of finance i. e equity and debt to the total capitalization. It is the composition of different sources of long term financing. Long term sources of financing are common equity, preferred equity, retained earnings and share capital. The main objectives of capital structure is to find out the proper mix of capital that would minimize the overall costs of capital and maximize the value of shares. Profitability refers to the ability of any bank to generate revenue in excess of cost and its capital base. Profitabilty can be measured in different forms like net profit ratio, return on assets, return on equity, net interest margin etc. Modigliani and Miller(1958) states that a firm choice of capital structure does not have any positive effect on firms value. On this assumptions the study can been conducted to analyze the data.

The objectives of the study is to examine the relationship between capital structure and banks profitability of selected commercial banks.

II. Theoretical Framework

Capital structure decision is amongst the major issues in business firms for the firms. Most of the business firms, especially small firms are said poorly performed due to different challenges faced by managers or owners on financing decisions. Firms decision on the use of different forms of financing results into different capital structure which have impact on firms performance. In another way, business activities must be financed. Without finance, companies cannot support their fixed assets and working capital requirements. Also, without finance, business could not exist in this competitive business world. Therefore, financing is playing vital role in the business world(Erasmus and Josephine, 2014)

The effect of capital structure on financial performance of cement companies article shows that there is negative relationship between capital structure and financial performance (Amen and Shahzadi, 2017).

Capital Structure and bank performance of commercial Bank in Nepal entitled article suggests that long term debt to assets, total debt to total equity are statistically significant to ROE and ROA (Bikash Acharya, 2019)

Identification of variables:

Dependent Variables

To determine the bank profitability the various measures can be used such as return on capital, return on assets, return on equity, cash flow to assets, cost of income ratio, net interest margin, cash flow to assets, cost of income ratio, price earnings ratio etc. Profitability of the bank can be derive by its ability to generate sufficient earnings. Ratios like net interest margin(NIM), return on assets(ROA), return on equity(ROE) are used in summarizing large quantities of financial data and making judgment about a firms ability to generate profits(lukorito et al.,2014).

Independent Variables

To analyze the capital structure variables the different capital structure theories has been studied. Financial management theory and practices of thirteen edition by Michael C. Ehrhardt and Eugene F. Brigham has been reviewed to gain detail knowledge on capital structure. By reviewing this book the variables selected for the study of capital structure are debt assets ratio, debt equity ratio and interest coverage ratio.

III. Research Methodology

Research design

The article adopts the descriptive research design for the study.

Population and sample

The population for the study is 27 commercial banks of Nepal as on March 2020. The sample for the study 10 randomly selected commercial banks of Nepal. The randomly selected banks are:

Table 1: List of Banks with study period and number of observations

SN	Year	Name of the Bank	Observation
1	2009-2019	Nepal bank limited	11
2	2009-2019	Agriculture Development Bank	11
3	2009-2019	Nabil Bank Limited	11
4	2009-2019	Himalayan Bank limited	11
5	2009-2019	Kumari Bank Limited	11
6	2009-2019	Everest Bank limted	11
7	2009-2019	Mega Bank limited	11
8	2009-2019	Laxmi Bank Limited	11
9	2009-2019	Siddhartha Bank Limited	11
10	2009-2019	Standard chattered Bank limited	11

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Sources of Data collection and Analysis

The data has been collected from secondary sources i.e Nepal Rastra Bank banking supervison report from 2009-2019, individual banks official websites, annual publication and various reports. The normal descriptive analysis, correlation and regression model has been tested for the analysis of the data. The data has been analysed by Ms excel and advanced analysis has been made through eviews 8.

Model

The model set for the estimation in the study suppose that the dependent variables are return on assets(ROA), return on equity(ROE) and net interest margin(NIM) and the independent variables are debt equity ratio(DER), interest coverage ratio(ICR) and Debt to total assets ratio(DTR). The following variables are been tested for the study. Model has been set off as:

Model 1:

$ROA = \beta_0 + \beta_1(DER) + \beta_2(ICR) + \beta_3(DTR) + e_t$

Model 2:

$ROE = \beta_0 + \beta_1(DER) + \beta_2(ICR) + \beta_3(DTR) + e_t$

Model 3:

$NIM = \beta_0 + \beta_1(DER) + \beta_2(ICR) + \beta_3(DTR) + e_t$

Where,

β_0= Beta coefficient

$\beta_1, \beta_2, \beta_3$= regression coefficient for independent variables

ROA= Return on assets

DER= Debt equity ratio

ICR= Interest coverage ratio

DTR= debt to total assets ratio

ROE= Return on equity

NIM= Net interest margin

e_t = error terms

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Hypothesis

The following hypothesis has been tested for the analysis:

H1= Debt equity ratio has no significant relationship with banks profitability.

H2= Interest coverage ratio has no significant relationship with banks profitability.

H3= Debt to total assets ratio has no significant relationship with banks profitability.

IV. Results

Descriptive statistics

Descriptive statistics involves summarizing and organizing the data so that they can be easily understood. The descriptive statistics for the selected independent and dependent variables for this study is presented in table 2.

Table 2: Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Standard Deviation
ROA	110	-0.65	10.12	1.2	0.7
ROE	110	-189.34	80.83	14.17	20.74
NIM	110	0.9	16.45	3.66	1.82
DER	110	-63.62	20.38	9.27	9.74
DTA	110	30.37	90.74	74.80	6.86
ICR	110	-1.16	3.23	0.37	0.69

The figures in the tables for the bank profitability that is ROA, ROE, and NIM are measured in percentage . Similarly for capital structure ratios are measured in terms of times (DER) and interest coverage ratio and debt to total assets are measured in terms of percentage. The above table shows that return on assets ranges from negative 0.65 to 10.12 percent with an average of 1.2 percent and standard deviation with 0.7 percent. Likewise return on equity ranges from negative 189.34 percent to positive 80.83 percent with an average of 14.17 and standard deviation of 20.74. net interest margin ranges from 0.9 to 16.45 with an average of 3.66 and standard deviation of 1.82. Similarly, debt equity ratio ranges from negative 63.62 to positive 20.38 times with an average of 9.27 and standard deviation of 9.74. Moreover the debt to total assets ratio ranges from 30.37 times to 90.74 percent with an average of 74.80 and 6.86 standard

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deviation. Similarly interest coverage ratio ranges from negative 1.16 percent to positive 3.23 percent with an average of 0.37 and 0.69 standard deviation.

Correlation Analysis

Correlation analysis is a statistical method used to evaluate the relationship between two quantitative variables. For identifying the correlation of the variables presented on this study, Pearson coefficient correlation have been calculated. The correlation results are presented on table 3.

Table 3 Pearson's Correlation coefficients for the variables

Variables	ROA	ROE	NIM	DTR	DER	ICR
ROA	1					
ROE	-.201*	1				
NIM	.342**	-0.002				
DTR	-.340**	-.231**	-.227**			
DER	-0.058	-.602**	-0.112	.252**	1	
ICR	.332**	0.13	.305**	0.098	0.145	1

The significance level is tested on two tailed.

       *Correlation is significant at 0.01 level.
       **Correlation is significant at 0.05 level.

The figures presented on the tables are mentioned on percentage except debt equity ratio(DER) which is presented on times. The results shows that return on assets are negatively correlated to debt to total assets ratio and debt equity ratio with the figures of -0.340 and -0.058. It means that if debt to total assets ratio increases the return on assets will be decreases. Similarly higher the debt equity ratio the ROA will be lower. And interest coverage ratio is positively correlated with the positive figure of 0.332. It means that if interest coverage ratio increases than the return on assets also increases. Likewise return on equity is negatively correlated with debt to total assets ratio, debt equity ratio with the figures of -0.231 and -0.602. It means that higher the debt , lower will be the return on equity and higher the debt equity ratio. Return on equity is positively correlated with interest coverage ratio with the figures of 0.13. It means that higher the interest coverage ratio higher will be the return on equity. Similarly net interest margin is negatively correlated with debt to total assets ratio and debt equity ratio with the figures of -0.227 and -

0.112. It means that higher the net interest margin lower will be the debt to total assets ratio and debt equity ratio. Likewise net interest margin is positively correlated with interest coverage ratio with the figures of 0.305. It means that if interest coverage ratio increases net interest margin will also increases.

Regression results of return on assets and its determinants

After having the correlation coefficients, further analysis has been done with regression analysis. The table presented below shows the regression coefficients of independent variables on return on assets. The results are based on data of 10 commercial banks of Nepal with 110 observation for the periods of 2009 to 2019 by using linear regression model. The results are:

Table 4 Regression results of ROA and its determinants

Models	Intercepts	Regression Coefficients			Adjusted R^2	F	DW
		DTA	DER	ICR			
1	6.59** (5.79)	-2.30** (-3.79)			0.60	19.09	1.234
2	1.71** (11.09)		0.01 (0.7)		0.43	10.49	0.98
3	1.33** (10.48)			0.65** (4.25)	0.49	18.06	0.99

Figure in parentheses are t-values
The signs * and ** denotes results are significant at 5% and 1% level of significance respectively.

The numerical figure presented on this table are in percentage basis for DTA and ICR and debt equity ratio are presented in times). The beta coefficients shows negative for total debt ratio and debt equity ratio. It means that total debt has positive effect on return on assets. Beta coefficients are positive for interest coverage ratio. Similarly beta coefficients are significant for total debt to total assets ratio. Adjusted R^2 is between 43 percent to 60 percent , that means that above variables can be explained with minimum 43 percent to 60 percent other variables are unexplained variables. F test indicates whether linear regression model provides better fit to data. The study results implies it is best fitted. The Durbin Watson values is from 0 to less than 2 that indicates of positive autocorrelation.

Regression results of return on equity and its determinants

The regression coefficients results of return on equity on their variables are presented on the table:

Table 5 Regression results of ROE and its determinants

Models	Intercept	Regression Coefficients			Adjusted R^2	F	DW
		DTR	DER	ICR			
1	-45.59* (2.11)	-0.73** (2.87)			0.65	8.25	1.92
2	2 (0.89)		-1.53** (8.1)		0.63	80.91	2.12
3	14.00** (5.74)			4.66 (1.60)	0.43	12.53	2.03

a. The signs * and ** denotes the level of significant at 5% and 1% level of significance.
b. Figure in the parentheses are t-values.

The numerical figures shown on the table are in percentage basis for DTR and ICR and DER are presented on times. The above table shows that beta coefficients for debt to total assets ratio and debt equity ratio are negative. It means that there is negative impact between debt to total assets ratio, debt equity ratio and return on equity. The beta coefficients for interest coverage ratio is positive. It means that if interest coverage ratio increase than the return on equity also increases. The adjusted R^2 lies between 43 percent to 65 percent. It implies that the above variables are explained by 43 to 65 percent and other remaining variables are explained by other variables. F test on the above shows that they are best fitted on the regression line. Durbin Watson test lies between 1 to 2.12 which means it is positive autocorrelate.

Regression results of net interest margin and its determinants
The regression coefficients of net interest margin and its determinants are presented on the table:

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Table 6 Regression results on NIM and Its determinants

Models	Intercept	Regression Coefficients			Adjusted R^2	F	DW
		DTA	DER	ICR			
1	11.56** (4.67)	-.08** (2.81)			0.67	7.93	0.56
2	4.97** (15.53)		-0.03 (1.36)		0.70	11.90	0.54
3	5.24** (19.62)			-0.03 (1.36)	0.58	15.03	0.58

a. The sign * and **denotes the significant level at 5% and 1% level of significance respectively.
b. Figure in parentheses are t-values.

The numerical figures presented on above table are on percentage basis for DTA and ICR and DER are presented on times. The above table shows that beta coefficients for debt to total assets and debt equity ratio are negative. It means that there is negative impact between debt to total assets ratio and debt equity ratio. The beta coefficients for interest coverage ratio are positive. The adjusted R^2 shows that the above variables are explained by 58 percent to 70 percent and remaining percent is explained by unexplained variables. Durbin Watson test statistics ranges from 0 to less than 2 indicates there is positive autocorrelation.

V. Conclusion

Capital structure is very well known phenomenon for every individual. Capital structure refers to the proper mix of debt and equity of various firm. The present study aims at examining the relationship between capital structure and profitability of Nepalese commercial banks. The study period covers the time period between 2009-2019 with total of 110 observations. The randomly selected ten commercial banks has been taken as a sample. The results shows that the mean value of return on assets range from negative 0.65 and 10.12 percent and mean value of return on equity ranges from negative 189.34 to 80.83 percent. Similarly mean value of net interest margin ranges from 0.9 to 16.45. The study shows that total debt to total assets and debt equity ratio have negative significant impact on bank profitability. But the interest coverage ratio shows positive significant relationship on bank profitability. The major conclusion can be made as the selected variables of capital structure shows the relationship with bank profitability. The relationship between capital structure and profitability is one which grab much attention to the finance literature. The study regarding the effects of capital structure on

banks profitability will help us to know the potential problems in performance and capital structure. No study has been bound without limitation. This studies also carry a lot of limitation. Within the limitation of the study the following recommendation can been made:

a. Among 27 commercial Bank in Nepal the study has only limited with 10 commercial banks . Further researcher can increase the sample size for the study purpose.

b. The variable used in this study is limited, further researcher can broaden their study with other remaining variables.

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