

Original Article

# Capital Structure Management in Nepalese Commercial Bank

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**Abstract** - This study entitled, "Capital Structure Management of Commercial Banks of Nepal" has been conducted to examine the determinants of the capital structure of Nepalese commercial banks. Nine commercial banks have been selected for the study based on the availability of data. This study has been conducted with the secondary data obtained from the financial statements, annual publications of NRB, and even from the official website of respective banks for the period 2009-2017. Six independent variables- size, business risk, profitability, growth, liquidity, and asset tangibility have been included. To determine the variables, previous studies particularly of Baral(2004), Singh & Tandon(2012) and Basnet (2015) have been consulted. A descriptive research design has been adopted for the study. Different descriptive statistical measures such as minimum, maximum, percentage, average, standard deviation, and coefficient of variation have been used to analyze. A multiple regression model has been applied for analyzing the data. The researcher has been able to draw the conclusion that these factors size of the bank, profitability, liquidity, business risk, and growth are statistically significant determinants of the commercial banks.

**Keywords** - Capital structure, Commercial banks, Secondary data, Descriptive and Inferential analysis.

## I. INTRODUCTION

Capital structure refers to the mode of finance which a firm uses to finance, usually a blend of debt including preferred stock and equity capital. Capital structure decision is very important for any firm to maximize their return and increase the firm's ability for functioning in a competitive environment. (Goud & Nomula, 2018) The modern theory of capital structure was the great contribution of Modigliani and Miller (1958) under the assumption of perfectly competitive market conditions. This theory of irrelevance was first published in 1958. As per this theory, a firm's value is free from the influence of capital structure decisions. Instead, they argued that a firm's value is derived from the productivity and the quality of assets in which the firm has invested. The argument over the assumptions of Modigliani and Miller (1958) results in three different theoretical explanations: The Static Trade-off, the Pecking Order, and the Agency Cost theories.

A bank is a financial institution that provides banking and other financial services to its customers. Banks are a subset of the financial services industry and play an important role in the global economies.(TECHNOFUNC, 2012). The history of the banking system of Nepal was started with the establishment of "Nepal Bank Limited" in 1937. This is regarded as the first bank of Nepal. After the establishment of the Nepal Bank, Nepal entered the world of banking. It was established with a 51% share of government and the rest of the public sectors. In 1955, "Nepal Rastra Bank" was established. It was the first central bank that was established with the objectives of supervising, protecting, and directing the functions of commercial banking. In 1996, another commercial bank fully owned by the government named "RastriyaBaniija Bank" was established under the commercial activities of 1964. After the 1980s Nepal government liberalized its banking policies and opened the door for the private and foreign sectors. In 2041 B.S. Nabil Bank was established as the first commercial bank. The NRB will classify the institutions into "A" "B" "C" "D" groups on the basis of the minimum paid-up capital and provide a suitable license to the bank or financial institution. Group 'A' is for commercial banks and at present, there are 28 commercial banks in Nepal (Sharma, 2014).

The objective of this study is to analyze the determinant of capital structure of commercial banks. For this purpose, analysis of the present capital structure of commercial banks in Nepal has been done with reference to Nepal Bank Limited, Nabil Bank Ltd, Standard Chartered Bank Nepal, Nepal State Bank of India, Nepal Investment Bank Ltd, RastriyaBaniija Bank, Himalayan Bank Ltd, and Agricultural Development Bank.

## II. REVIEW OF LITERATURE

Some useful literature related to capital structure management has been reviewed. The main purpose of reviewing these articles and journals is to gain an idea of the research studies conducted earlier and what remains to be done. This provides a foundation for developing a comprehensive theoretical framework and hypotheses for testing.

Basnet (2015)investigates the influence of bank-specific and macroeconomic factors on capital structure choices. This study aims at testing whether standard determinants of capital structure affect the



leverage position of financial firms. The paper concludes that standard determinants are actually able to explain the variation in leverage of banks. The regulatory requirements also affect the leverage position. However, this effect is much more evident for book leverage than market leverage. In addition to this, the factors that are significant in the case of book leverage are profitability and dividend. Similar studies on the impact of the determinants of capital structure on leverage of

banks have been done by Hossain & Yakub(2014), Baral(2004)

Singh & Tandon(2012) analyze the capital structure ratios of State Bank of India and ICICI Bank from 2005-06 to 2009-10. The main aim of the present study is to comparatively analyze the capital structure of the banking industry with reference to SBI and ICICI bank. It is clear that capital structure consists of equity and debt funds. The dependence of the State Bank of India on outsider funds is revealed from the study. However, the dependence of ICICI Bank on the owned fund is increasing continuously. The study concluded that both companies have the policy using trading on equity.

Sailaja & Madhavi (2015)analyze the relationship between the capital structure of the public and private sector banks and their profitability. The main objective of the study is to examine the effect of capital structure on a bank's profitability. From the study, it can be concluded that in private sector banks capital structure decision influences earnings per share. It is also observed that in public sector banks capital structure affects the earnings per share as per the results shown in regression analysis.

Baral(2004) identifies the determinant of capital structure of companies listed in the Nepal Stock Exchange as of July 16, 2003. Eight variables multiple regression model has been used to assess the influence of defined explanatory variables on capital structure. In the preliminary analysis, manufacturing companies, commercial banks, insurance companies, and finance companies were included. However, due to the unusual sign problem in the constant term of the model, manufacturing companies were excluded in the final analysis. This study shows that size, growth rate, and earning rate are statistically significant determinants of the capital structure of the listed companies.

Gajurel(2005)explain the capital structure pattern and its determinants for a penal set of 20 non-financial firms listed in NEPSE for 1992-2004. By using econometric analysis, it is found that Nepalese firms are highly levered, however, the long-term debt ratio is significantly low. Assets structure and size are observed positively related to leverage whereas liquidity, risk, growth, non-debt tax shield are negatively related to leverage.

In the context of commercial banks, very limited studies have been done regarding their capital structure. This study adds to existing literature the

effect of capital structure specifically on commercial banks' performance in the context of Nepal.

### THEORETICAL MODEL

This study follows the theoretical model of Timsina(2016) which has considered a certain factor in analyzing the capital structure of banks. Incorporating these factors, the theoretical framework for conducting the study is as follows.

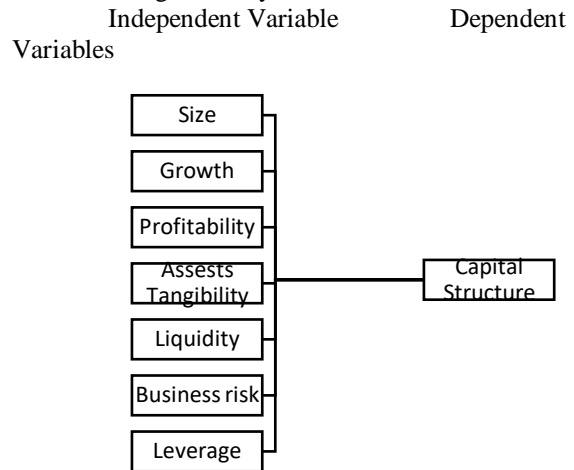


Figure 1. Theoretical Framework

Size: The size of the firm is also an important factor to determine the leverage or the capital structure of the firm. Larger firms are more diversified and hence have a lower variance of earnings, making them able to tolerate high debt ratios (Basnet, 2015).

Size = Total Assets

Growth: The agency cost theory and pecking order theory explain the contradictory relation between the growth rate and capital structure. The agency cost is likely to be higher for enterprises in growing industries that have more flexibility in their choice of future investment (Baral, 2004).

Growth= change in total assets

Profitability: The higher profitability of firms implies higher debt capacity and is less risky to the debt holders. Pecking order theory suggests that this relation is negative (Baral, 2004).

Profitability= Net income / Total assets

Assets tangibility: Firms with a high level of assets can use their assets as collateral to secure debt finance with less cost. So, a higher proportion of fixed assets lead to the use of more debt financing because of the availability of collateral (Afolabi, Boakye, & Appiah, 2013).

Assets tangibility= Fixed assets / Total assets

Liquidity: When firms have high liquidity, they might support a relatively higher debt ratio due to the greater ability to meet short-term obligations when they fall due (Timsina, 2016). It indicates a positive relationship between a firm's liquidity position and capital structure.

Liquidity= Current assets/ Current liability

Business risk: The bankruptcy cost theory contends that the less stable earnings of the enterprises, the greater is the chance of business failure and the greater will be the weight of bankruptcy costs on enterprise financing decisions. (Baral, 2004).

Business risk= Change in operating income

Leverage = A leverage ratio is any one of several financial measurements that look at how much capital comes in the form of debt.

Leverage = Total debt / Total assets

### III METHODOLOGY

This study tries to provide an insight into the major drivers of the capital structure management of banks and financial institutions. Theories such as Net Income Approach, Net Operating Income Approach, Modigliani-Miller (MM) Approach and modern theories of capital structure such as pecking order theory and agency cost theory consider different determinants crucial for optimizing the capital structure.

Research design

The research design used is descriptive between capital structure and performance of commercial banks.

Sources of information

This study is based on secondary data. Data are collected from the annual report and website of selected banks for the period 2009-2017.

Population and sample

For the purpose of the study, the population has been defined in terms of the number of commercial banks in Nepal. Depending on the availability of information, out of 28 commercial banks 9 banks have been selected as samples. Nepal Bank Limited, Nabil Bank Ltd, Standard Chartered Bank Nepal, Nepal State Bank of India, Nepal Investment Bank Ltd, RastriyaBanijya Bank, Himalayan Bank Ltd, and Agricultural Development Bank have been selected as sample banks.

Data Analysis Methods

The researcher has used analytical and descriptive study methods with the help of appropriate statistical or financial tools. The important financial and statistical tools, and methods used for the analysis are ratio analysis, descriptive statistics, and multiple regression analysis. Secondary data was also collected and analyzed using MS-Excel and E-VIEWS. Multiple regression has been used to test the theoretical relation between leverage and factors affecting the capital structure of the firm.

### IV. DATA ANALYSIS AND INTERPRETATION

Various measures such as ratio analysis, arithmetic mean, standard deviation, coefficient of correlation, testing of hypothesis, regression analysis, etc. have been employed to analyze the position of the capital structure management of nine sample commercial

banks. of Nepal Bank Limited, Nabil Bank Ltd, Standard Chartered Bank Nepal, Nepal State Bank of India, Nepal Investment Bank Ltd, RastriyaBanijya Bank, Himalayan Bank Ltd, and Agricultural Development Bank.

Descriptive statistics

Descriptive measures used to describe the data sets are central tendency and measures of variability or dispersion. Size, Growth, Profitability, Assets Tangibility, Liquidity, Risk are the major determinants of leverage which are the independent variables considered for the study.

Table 1. Descriptive Statistics

	LEVERAGE	GROWTH	BUSINESS_RISK	ASSET_TANGIBILITY	LIQUIDITY	PROFITABILITY	SIZE
Mean	0.914015	16.12725	17.93844	1.115333	0.731967	2.571111	8.46E+10
Median	0.908916	15.88752	20.37800	1.191000	0.745500	2.550000	7.32E+10
Maximum	0.928643	32.89751	32.93400	1.608000	0.781200	3.250000	1.40E+11
Minimum	0.899561	8.700956	-4.032000	0.564000	0.644300	2.060000	4.39E+10
Std. Dev.	0.010583	7.147757	11.21444	0.395015	0.040203	0.321240	3.34E+10
Observations	81	81	81	81	81	81	81

As it is presented in table 1 above, During the period 2009-2017, the mean value of financial leverage measured by debt ratio on average is 91.40%. It means that Nepalese commercial banks under this study are highly levered i.e. 91.40% of their assets finances from debt. The standard deviation of leverage is 0.0105, this statistical measurement implies that the volatility of debt ratio from the mean value is 0.0105. furthermore, in the period 2009-2017, the minimum and maximum leverage ratios are 89.95% and 92.86% respectively. The mean value of profitability measured by return on assets (ROA) is 2.571%. It implies that 2.571% of revenues are generated from their total assets. Similarly, the mean value of growth, business risk, assets tangibility, liquidity, and size are 16.127%, 17.938%, 1.115%, 0.731, and 8.46E+10 respectively.

Hausman test

There are broadly two classes of panel estimator approaches that can be employed in financial research: fixed-effects models and random-effects models. The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectionally but not overtime, while all of the slope estimates are fixed both cross-sectionally and over time. The random-effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectionally and temporally (Brooks, 2008).

The Hausman test hypothesis is

H<sub>0</sub>= Random effect model is appropriate

H<sub>1</sub>= Fixed effect model is appropriate

**Table 2. Hausman tests**

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.0000006	6	1.0000

Source: E-views 8

According to the above table 2 shows the Hausman specification test, the P-value of both models is 1 which is more than 5% level of the significant level. This implies that for this research model random effect model is more appropriate than the fixed-effect model.

Hypothesis testing

(H01): There is no significant relationship between leverage and the size of sample banks.

(H02): There is no significant relationship between leverage and profitability of sample banks.

(H03): There is no significant relationship between leverage and liquidity of sample banks.

(H04): There is no significant relationship between leverage and assets tangibility of sample banks.

(H05): There is no significant relationship between leverage and business risk of sample banks.

(H06): There is no significant relationship between leverage and growth of sample banks.

Specification of the Model

Following multiple regression model has been used to test the theoretical relation between the leverage and characteristics of the firm.

$$\text{LEVERAGE} = A + C(1)*\text{GROWTH} + C(2)*\text{BUISNESS\_RISK} + C(3)*\text{ASSET\_TANGIBILITY} + C(4)*\text{LIQUIDITY} + C(5)*\text{PROFITABILITY} + C(6)*\text{SIZE}$$

Regression analysis

**Table 3. regression output**

Dependent Variable: LEVERAGE

Method: Panel EGLS (Cross-section random effects)

Date: 01/05/19 Time: 17:15

Sample: 2009 2017

Periods included: 9

Cross-sections included: 9

Total panel (balanced) observations: 81

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GROWTH	0.001407	0.000554	2.5386	0.0132*
BUISNESS_RISK	0.000533	0.000173	3.0780	0.0029*
ASSET_TANGIBILITY	0.030576	0.017437	1.7534	0.0837
LIQUIDITY	0.245999	0.072025	3.4154	0.0010*
PROFITABILITY	0.016678	0.003934	4.2396	0.0001*
SIZE	-8.21E-13	2.55E-13	-3.2266	0.0019*
C	1.272799	0.100043	12.7220	0.0000*

Effects Specification			
	S.D.	Rho	
Cross-section random	0.000000	0	0.0000
Idiosyncratic random	0.005993	3	1.0000

Weighted Statistics			
	Mean	S.D.	
R-squared	0.735447	0.9140	dependent var
Adjusted R-squared	0.713997	0.0105	dependent var
S.E. of regression	0.005660	0.0023	Sum squared resid
F-statistic	34.28624	3.0229	Durbin-Watson stat
Prob(F-statistic)	0.000000	76	

Unweighted Statistics			
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	Mean	0.9140
R-squared	0.735447	dependent var 15
	Durbin-	3.0229
Sum squared resid	0.002370	Watson stat 76

\*correlation coefficient significant at 5%

source: E-views 8 output

Table 3 shows that the Adjusted R-squared is 0.7354, this means a 73.54% variation of leverage explained by independent variables of the model. The above table shows that the P-value of the F-statistic is 0.0000 which implies all the independent variables in the above model can jointly influence the dependent variable.

The panel random effect estimation regression result in the above table shows coefficient intercept ( $\alpha$ ) is 1.2727. This means, when all explanatory variables took a value of zero, the average value leverage would be taken 1.2727 units and statistically significant at 5% of the significance level.

As can be presented in the above table random effect regression output, a coefficient of profitability is -0.01667 and its P-value is 0.0001. This implies that holding other variables constant at their average value, when profitability (ROA) increased by 1 unit, leverage of sampled banks would be decreased by -0.01667 units and statistically significant at 5% of significant level. In other words, there is a significant negative relationship between profitability and leverage.

Similarly, the coefficient and P-value of liquidity are -0.245999 and 0.0010 respectively. It implies that there is a significant negative relationship between liquidity and leverage. The other independent variable in this model that has a significant relation with leverage is growth, size, and business risk with P-value 0.0132, 0.0019, and 0.0029 respectively at a 5% level of significance. The coefficient of growth, size, and business risk are -0.001407, -8.21E-13, and -0.000533 respectively. It indicates that growth, size, and business risk have a negative relation with leverage. The P-value of assets tangibility is 0.0837 which shows there is no significant relation between assets tangibility and leverage at a 5% level of significance.

## V. SUMMARY AND CONCLUSION

The study examines the determinants of the capital structure of Nepalese commercial banks. The study reveals that out of six independent variable sizes, growth, profitability, business risk, and liquidity are statistically significant to the capital structure of banks matches with findings of Basnet(2015) and Afolabi, Boakye, & Appiah(2013) However, the study shows a significant relationship between assets tangibility and leverage which is different from their findings. These variables explain around 74% of the variation in leverage.

According to the dynamic trade-off theory, profitability has negative relation with leverage that

matches with the study. Similarly, both agency and bankruptcy cost theories suggest the negative relation between the capital structure and business risk that is also revealed in the study. A similar study conducted by Baral(2004) has concluded the positive relationship between size and growth with leverage. However, our finding shows negative relation among them.

This study was conducted in the commercial banking sector to evaluate their capital structure and capital management practices in the Nepalese banking sector. The study has contributed something new to the existing studies done in the banking sector. The study is not free from limitations, as the study covers only the financial aspects. It is conducted solely on the basis of secondary data of the past 9 years. However, the outcome of this comparative study is expected to help the other researchers or students who are interested in understanding the capital structure management of the Nepalese commercial management practices of the bank.

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