Determinants of capital structure in Nepalese commercial banks

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Abstract

This study examines the determinants of capital structure in Nepalese Commercial Banks. The study is based on secondary data of 16 commercial banks with 112 observations for the period 2011/12 to 2017/18.The total debt to total assets and total debt to total equity were selected as dependent variables while return on assets, bank size, assets tangibility, assets growth and liquidityare the independent variables. The data were collected from annual reports of concerned sample bank. The Pearson's correlation coefficients and regression models are estimated to test the significance and impact of bank specific factors on the capital structure of Nepalese commercial banks.The result shows that banks size and assets tangibility are positively correlated with total debt to total assets whereas return on assets, assets growth and liquidity are negatively correlated with total debt to total assets. Likewise return on assets, bank size, assets tangibility, assets growth and liquidity are negatively correlated with total debt to total equity. It indicates that higher assets growth, return on assets and liquidity lower would be the total debt to total assets and total debt to total equity. Likewise higher the bank size and assets tangibility higher would be the total debt to total assets. This study concludes that return on assets, bank size and assets tangibilityare the most influencing factors and assets growth and liquidity are the least influencing factor affecting the capital structure of Nepalese commercial banks.
Key words: assets growth and liquidity, assets tangibility, bank size, return on assets, total debt to total assets, total debt to total equity

1. Introduction

The capital structure decision is one of the most important decisions made by financial managers in this modern era. The capital structure decision is at the center of many other decisions in the area of corporate finance. One of the many objectives of a corporate financial manager is to ensure low cost of capital and thus maximize the wealth of shareholders. Hence, capital structure is one of the effective tools of

management to manage the cost of capital. Modigliani and Miller (1958) revealed that capital structure choice has inspired and fascinated many researchers. Therefore, many studies theoretically and empirically investigated and explained firms' capital structure choices. Research on the determinants of capital structure was initially directed mainly to firms in the developed countries specifically in United States. Titman and Wessels (1988) studied the theoretical determinants of capital structure attributed namely; asset structure, non-debt tax shields, growth, uniqueness, industry classification, firm size, earnings volatility and profitability were tested to see how they affect a firm's choice of debt-equity mix.

Ashenafi (2005) found that non-debt tax-shield, economic risk, profitability, growth, tangibility, and age showed a negative coefficient of correlation with debt to equity ratio. Maghyereh (2005) revealed that tangibility, growth, age, size, earnings volatility and non-debt tax-shield variables are the significant determinants of capital structure in at least one out of the three models for capital structure employed in the study. Diamond and Rajan (2000) found that a bank's capital structure affects its stability as well as ability to effectively provide liquidity and credits to debtors and borrowers, respectively. Given that a well-functioning and well-developing banking system plays a crucial role in promoting growth of an economy, it is imperative to understand the factors which drive the capital structure decision of banks.

The term capital structure can be defined as the framework of different types of financing employed by banks to acquire resources for its operations and growth; commonly it includes equity capital and long-term loan capital. The decision on capital structure is crucial for both managers and regulators as well as for the interest of shareholders (Tarek Al-Kayed et al., 2014). Therefore, banks must consider whether they want to increase the equity or debt capital in order to maximize shareholders' wealth. In addition to capital structure, growth is the main determinant of profitability. Asset growth, equity growth, deposit growth and loans growth affect the bank profits in both negative and positive way. For instance, asset growth has a positive relationship with bank profitability (Chronopoulos et al., 2015). The capital structure of banks is still a relatively under-explored area in the banking literature. Currently, there is no clear understanding on how banks choose their capital structure and what factors influence their corporate financing behavior (Amidu 2007).

Eldomiaty (2007) argued capital market is less efficient and incomplete and suffers from higher level of information asymmetry than capital markets in developed countries. Omran and Pointon, (2009) stated that examination of the relationship between capital structure choice (i.e. debt level) and firm's performance is very important for many reasons. Jermias (2008) argued that prior studies have examined only the direct effect of financial leverage on performance where's this leverage-performance relationship may be contingent upon some factors such as competitive intensity and business strategy, he provides empirical evidence that the effect of leverage on performance is more negative for firms attempting to be differentiators than those attempting to be cost leaders, also competitive intensity negatively affects the leverage-performance relationship. Majumdar and Chhibber (1999) examined the relationship between capital structure and performance of Indian firms showing that debt level is negatively related with performance.

The choice of capital structure occurs because of the asymmetric information that happens between managers and shareholders (Miller and Rock, 1985). The company's net profit is distributed to shareholders as dividends. The higher profitability, the higher the cash flow of the company, and the company is expected to pay higher dividends (Bhattacharya, 1979). According to Jensen and Meckling (1976), the optimal capital structure is obtained by trading off the agency cost of debt against the benefit of debt. Tornyeva (2013) argued that in order to manage risks, insurance firms must have effective ways of determining the appropriate amount of capital that is necessary to absorb unexpected losses arising from insurance claims and other operational risk exposures. Capital structure is one of the most puzzling issues in corporate finance literature (Brounen and Eichholtz, 2001).

The decision about the capital structure is the main point in banking industry because it relates with the interests of many parties such as shareholders, creditors and the management of the company. Frank & Goyal (2009) stated that this target debt can be classified into two ways. However, recent studies have shown that factors which determine capital adequacy ratio are not only limited to the regulation of Nepalese banks. A special variable for bank is also important in determining the capital structure. The banking sector plays an important role in the Nepalese economy, therefore the bank should select and adjust the mix of capital strategies for maximizing the value of the company and ensure that the operational is directed to achieve optimal capital structure. First the target debt may be static which might be

identified by single period trade-off between costs and benefits of debt and is called static tradeoff theory. Firms that are experiencing higher market to book value ratio, tend to have low target debt ratio (Hall et al., 2004).

Miles et al. (2013) found that large increases in equity capital result in small long-term increases in borrowing costs faced by customers. On the other hand, substantially higher capital requirements could result in great benefits by reducing the risk of systemic banking crisis. Thakor (2014) stated that higher capital is linked to increased lending, increased creation of liquidity, increased shareholder value in banking and increased probabilities of survival in crises; while lower capital might lead to systemic instability and increased government debt. Distinguin et al. (2013) investigated whether banks maintain higher regulatory capital ratios when they face higher illiquidity. Vallascas and Hagendorff (2013) investigated the sensitivity of regulatory capital requirements to risk that helps in they examine whether minimum capital requirements reflect the risk of banks' portfolio accurately.

Kuo and Lee (2003) observed that domestic banks are less profitable than foreign banks. In addition, domestic banks have low liquid reserve ratio than foreign banks. Moreover, capital ratio of domestic banks decreased progressively, while capital ratio of foreign banks increased progressively. Keown (2005) pointed that if the firm's cost of capital can be affected by its capital structure then capital structure management is clearly an important subset of business financial management. Organizations in the nonfinancial sector need capital mainly to acquire operational assets, securities or pursue new areas of business. While this is also true for insurance companies, their main focus is somewhat different.

Leon (2013) stated that capital structure is the most significant discipline of company's operations. The capital structure decision is a vital decision with great implication for the firm's sustainability. The ability of the organizations to carry out their shareholders' need is closely related to the capital structure. The determination of a company's capital structure is a difficult task to achieve. Shibru et al. (2015) observed that profitability, bank size, tangibility and liquidity are important determinants of capital structure of banks in Ethiopia and indicate that growth and risk of banks are unrelated to banks' capital structure. In general, a firm can choose among many alternatives capital structures.

In the context of Nepal, there are a few studies in relation to determinants of capital structure distinctly studied by different researchers. Ghimire *et al.* (2016) revealed that profitability is the major factor affecting the capital structure in the Nepalese commercial banks, followed by the liquidity and bank size. However, Baral (2004) that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies. Our analysis is based on two maintained assumptions. The main role of capital in insurance companies is to provide a cushion against deviations of realized losses from expected losses. Thus, the amount of capital commercial banks has on its balance sheet relative to its liabilities to policyholders determines its probability of insolvency, and regulators monitor insurers' capitalization levels carefully. Pradhan and Pokharel (2016) showed that capital structure has no significant influence on corporate performance. Adhikari *et al. (2016)* concluded that profitability is partially related to the firm leverage which indicates that an increase in profitability partially increases firm leverage.

The above discussion reveals that there is no consistency in the findings of various studies concerning the determinants of capital structure of banks.

Therefore, the main objective of this study is to examine the determinants of capital structure in Nepalese commercial banks. Specifically, it examines the relationship of return on assets, bank size, assets tangibility, assets growth and liquidity with total debt to total assets and total debt to total equityof Nepalese commercial banks.

The remainder of this study is organized as follows: Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draw conclusions and discuss the implications of the study findings.

2. Methodological Aspects

The study is based on the secondary data which were gathered from 16 commercial banks in Nepal from 2011/12 to 2017/18, leading to a total of 112 observations. The main sources of data include Banking and Financial Statistics of NRB and annual reports of the selected commercial banks. Table 1 shows the number of commercial banks selected for the study along with the study period and number of observations.

Table 1: Number of commercial banks selected for the study along with study period and number of observations

S.N.	Name of the banks	Study period	Observations
1.	Agricultural Development Bank (ADBL)	2011/12-2017/18	7
2.	Citizen International Bank Limited (CIBL)	2011/12-2017/18	7
3.	Everest Bank Limited (EBL)	2011/12-2017/18	7
4.	Global IME Bank Limited (GIBL)	2011/12-2017/18	7
5.	Himalayan Bank Limited (HBL)	2011/12-2017/18	7
6.	Laxmi Bank Limited (LBL)	2011/12-2017/18	7
7.	Machhapuchhre Bank Limited (MBL)	2011/12-2017/18	7
8.	Nabil Bank Limited (NABIL)	2011/12-2017/18	7
9.	Nepal Bangladesh Bank Limited (NBBL)	2011/12-2017/18	7
10.	Nepal Investment Bank Limited (NIBL)	2011/12-2017/18	7
11.	NIC Asia (NICA)	2011/12-2017/18	7
12.	NMB Bank Limited (NMB)	2011/12-2017/18	7
13.	Nepal SBI Bank Limited (NSBI)	2011/12-2017/18	7
14.	Siddhartha Bank Limited (SBL)	2011/12-2017/18	7
15.	Standard Chartered Bank Limited (SCBL)	2011/12-2017/18	7
16.	Sunrise Bank Limited (SRBL)	2011/12-2017/18	7
Total number of observations			112

Thus, the study is based on the 112 observations.

The model

The model used in this study assumes that total debt to total assets and total debt to total equity depends on different bank specific variables. The selected independent variables in this study are return on assets, bank size, assets tangibility, assets growth and liquidity. Therefore, the model takes the following forms:

Capital structure= *f* (return on assets, bank size, tangibility, assets growth rate and liquidity).

More specifically, the given model has been segmented into following models:

$$TDA_{it} = \beta_0 + \beta_1\, ROA_{it} + \beta_2\, BS_{it} + \beta_3\, GRWT_{it} + \beta_4\, TNG_{it} + \beta_5\, LIQ_{it} + e_{it}$$
$$TDE_{it} = \beta_0 + \beta_1\, ROA_{it} + \beta_2\, BS_{it} + \beta_3\, GRWT_{it} + \beta_4\, TNG_{it} + \beta_5\, LIQ_{it} + e_{it}$$

Where,

TDA=Total debt to assets defined as total debt divided by total assets

TDE=total debt to equity defined as total debt divided by total equity

ROA=Return on total assets defined as net profit to total assets

FS=Firm size defined as natural logarithm of total assets in billion rupees

TNG= tangibility defined as net fixed assets divided by total assets in percentage

GRWT= Assets growth rate defined as the percentage of assets of current year minus assets of previous year divided by assets of current year.

LIQ= Liquidity defined as a ratio of current assets to current liabilities

Return on assets (ROA)

Return on assets is defined as net income divided by total assets. The return on assets which is often called the firm's return on total assets, measure the overall effectiveness of management in generating profit with its available assets. Return on assets measures the profit earned per dollar of assets and reflect how well bank management uses the bank's real investments resources to generate profits (Naceur, 2003). Nassar (2016) revealed that the high level of debt negatively affects a firm's return on assets. Antoniou *et al.* (2008) revealed that the leverage ratio decline with the increase of a firm's profitability, and finds that the degree and effectiveness of profitability as a determinant is dependent on the country's legal and financial traditions. Phung and Le (2013) found that on firm performance such as ROA and ROE has negative impact on capital structure return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. Based on it, this study develops the following hypothesis.

H_1: *There is negative relationship between return on assets and capital structure.*

Bank size (BS)

Firm size is measured by the total assets of the firm. Pervan and Visic (2012) showed that the firm size has a significant (but weak) positive influence on firm leverage. Similarly, the study of Dogan (2013) indicated a positive relation between size indicators and capital structure of firms.The results showed that the larger firms reached higher economic performance compared with smaller ones. These finding indicates that economies of scale are likely to play an important role in sector of raising swine (Kuncova et al., 2016). However, Olawale et al., (2017) revealed that firm size in terms of total assets has a negative effect on financial leverage. Larger sized firms usually are more diversified and have more stable cash flow, therefore

they are less risky. This will result in lower cost of debt as well as easier access to the external debt markets. The study suggested that there is a positive relationship between size and leverage (Alzomaia, 2014). Based on it, the study develops the following hypothesis.

H_2: There is positive relationship between firm size and capital structure.

Assets Tangibility (TNG)

Assets tangibility is defined as net fixed assets divided by total assets. It is considered to be one of the most significant determinants of capital structure and firm's performance (Chechet *et al.,* 2013). Firm that invest more of its retained earnings in tangible assets will have low bankruptcy cost and financial distress so firms relies on intangible assets (Akintoye, 2008). There exists a positive relationship between asset tangibility and a firm's debt ratio, that is, larger the tangible assets, higher would be the leverage (Anafo *et al.,* 2015). Likewise, the propositions of the trade-off theory Kraus and Litzenberger (1973) suggested that tangible assets insert a positive impact on debt borrowing decisions since they have value in case of bankruptcy, in contrast to intangible ones. MacKie- Mason (1990) concluded that a firm that has more tangible assets in its asset base is likely to choice debt and this will affect the firm's performance. There is a positive association between tangibility and leverage (Gurunlu and Gursoy, 2010). Based on this, the following hypothesis has been developed:

H_3: There is positive relationship between tangibility and capital structure.

Assets growth rate (GRWT)

Assets growth is defined as the Percentage of assets of current year minus assets of previous car divided by assets of current year. Assets are the economic resources of a company expected to benefit the firm's future operations. Mutai (2014) indicated a positive but insignificant relationship between financial leverage and asset growth of firm. Sarchah & Hajiha (2013) found that asset growth had a positive significant effect on leverage. Zhao and Wijewardana (2012) revealed that financial Leverage is positively related to the growth and financial strength. Growth provides additional capabilities, opportunities, revenue and profit (Maggina and Tsaklanganos, 2012). Firms with a high proportion of non-collate realizable assets (such as growth

opportunities) could find it more expensive to obtain credit because of the asset substitution effect (Titman and Wessels, 1988). Based on this; the following hypothesis has been developed:

H_4:*There is positive relationship between assets growth rate and capital structure.*

Liquidity (LIQ)

Liquidity is defined as current assets divided by current liabilities. Excessive amounts of current assets owned by a firm would perhaps increase the chances of internal funding resulting in a relation between leverage and liquidity (Bhunia and Das 2012). Eljelly (2004) stated that liquidity involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short-term obligations on one hand and avoid excessive investment in these assets on the other hand. Furthermore, sufficient liquidity has an impact on the financial strength of a firm (Bei and Wijewardana, 2012). Agyei and Yeboah (2011) stated that in the banking sector, liquidity is a measure of performance, at least for two reasons; to meet regulatory requirement and to guarantee enough liquidity to meet customers' unannounced withdrawals. Current assets therefore must be sufficient to allow daily operations. Liquidity in this study will be measured using current ratio.

H_5: *There is a positive relationship between liquidity and financial performance.*

3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2011/12 to 2017/18.

Table 2: Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of commercial banks for the study period of 2011/12 to 2017/18. The dependent variables are TDA (Total debt to total assets ratio, in percent) andTDE (Total debt to total equity ratio, in percent). The independent variables are ROA (return on assets is the ratio of net income divided by total assets, BS (bank size is defined as the size of an individual firm is calculated as the log of total assets of a bank), TNG (tangibility is measured by the ratio of net fixed assets to total assets, in percentage), GRWT (assets growth rate is measured by the percentage of assets of current year minus

assets of previous year divided by assets of current year, in percentage) and LIQ (liquidity is measured by the ratio of current assets to current liabilities, in percentage).

Variables	Minimum	Maximum	Mean	Std. Deviation
TDA	2.31	16.98	9.30	2.67
TDE	0.87	16.87	8.94	3.21
ROA	0.15	4.01	1.76	0.66
BS	23.61	25.87	24.84	0.55
TNG	0.08	2.78	1.01	0.50
GRWT	-27.13	88.14	22.25	16.12
LIQ	4.90	36.65	16.64	9.11

The descriptive statistics table shows the dependent and independent variables for the selected commercial banks. Clearly, total debt to total assets ranges from a minimum of 2.31 percent to the maximum of 16.98 percent to the average of 9.30. However, total debt to total equity ranges from minimum of 0.87 percent to maximum of 16.87 percent leading to an average of 8.94 percent. The average return on assets of selected commercial banks during the study period is noticed to be with a minimum of 0.15 percent and a maximum of 4.01 percent with an average of 1.76 percent. Likewise, bank size a minimum of 23.61 to maximum of 25.87 with an average of 24.84. The average of assets tangibility of selected commercial banks during the study period is noticed to be 1.01 percent with minimum of 0.08 percent and maximum of 2.78 percent. Similarly, the average of assets growth during the study period is noticed to be 22.25 percent with a minimum of -27.13 percent and a maximum of 88.14 percent. And the liquidity ratio ranges from minimum of 4.90 percent to maximum of 36.65 percent, leading to an average of 16.64 percent.

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed. The Pearson's correlation coefficients for the selected Nepalese commercial banks have been computed and the results are presented in Table 3.

Table 3: Pearson's correlation coefficients matrix for selected Nepalese commercial banks

This table shows the Pearson's correlation coefficients among different dependent and independent variables. The dependent variables are TDA (Total debt to total assets ratio, in percent) and TDE (Total debt to total equity ratio, in percent). The independent variables are ROA (return on assets is the ratio of net income divided by total assets, BS (bank size is defined as the size of an individual firm is calculated as the log of total assets of a bank), TNG (tangibility is measured by the ratio of net fixed assets to total assets, in percentage), GRWT (assets growth rate is measured by the percentage of assets of current year minus assets of previous year divided by assets of current year, in percentage) and LIQ (liquidity is measured by the ratio of current assets to current liabilities, in percentage).

Variables	TDA	TDE	ROA	BS	TNG	GRWT	LIQ
TDA	1						
TDE	0.684**	1					
ROA	-0.203*	-0.227*	1				
BS	0.035	-0.288**	0.274**	1			
TNG	0.034	-0.016	-0.182	0.015	1		
GRWT	-0.013	-0.013	-0.235*	-0.046	0.052	1	
LIQ	-0.367**	-0.437**	-0.061	-0.079	-0.253**	0.223*	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at 1 percent and 5 percent level respectively.

Table 3 shows that there is a negative relationship between return on assets and total debt to total assets ratio. This means that increase in return on assets, leads to decrease in total debt to total assets ratio. Similarly, there is a positive relationship between bank size rate and total debt to total assets ratio. It indicates that higher bank size leads to increase in total debt to total assets ratio. Likewise, there is a positive relationship between tangibility and total debt to total assets ratio. This means that increase in assets tangibility leads to increase in total debt to assets ratio. Further, there is a negative relationship between assets growth and total debt to total assets ratio. This means that higher assets growth leads to decrease in total debt to assets

ratio. However, there is a negative relationship between liquidity and total debt to total assets ratio. This means that increase in liquidity ratio leads to decrease in total debt to total assets ratio.

Similarly, the result shows that there is a negative relationship between return on assets and total debt to total equity ratio. This means that increase in return on assets, leads to decrease in total debt to total equity ratio. Similarly, bank size is negatively related to total debt to total equity ratio. It indicates that larger bank size leads to decrease in total debt to total equity ratio. Likewise, tangibility has a negative relation with total debt to total equity ratio. This means that decrease in assets tangibility leads to increase in total debt to total equity ratio. Further, there is a negative relationship between assets growth and total debt to total equity ratio. This means that higher assets growth leads to decrease in total debt to equity ratio. Similarly, there is a negative relationship between liquidity and total debt to total equity ratio. This means that increase in liquidity ratio leads to decrease in total debt to total equity ratio.

Regression Analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been computed and the results are presented in Table 4. More specifically, it shows the regression results of return on assets, bank size, assets tangibility, assets growth and liquidity with total debt to total assets of Nepalese commercial banks.

Table 4: Estimated regression results of return on assets, firm size, asset tangibility, assets growth, and liquidity on total debt to total assets of Nepalese insurance companies

This result is based on panel data of 16 banks with 112 observations for the period of 2011/12 to 2017 /18 by using linear regression model. The model is $TDA_{it} = \beta_0 + \beta_1\ ROA_{it} + \beta_2\ BS_{it} + \beta_3\ GRWT_{it} + \beta_4\ TNG_{it} + \beta_5\ LIQ_{it} + e_{it}$ where, dependent variables are TDA (Total debt to total assets ratio, in percent) and TDE (Total debt to total equity ratio, in percent). The independent variables are ROA (return on assets is the ratio of net income divided by total assets, BS (bank size is defined as the size of an individual firm is calculated as the log of total assets of a bank), TNG (tangibility is measured by the ratio of net fixed assets to total assets, in percentage), GRWT (assets growth rate is measured by the percentage of assets of current year minus

assets of previous year divided by assets of current year, in percentage) and LIQ (liquidity is measured by the ratio of current assets to current liabilities, in percentage).

Models	Intercept	Regression Coefficients of					Adj. R_bar^2	SEE	F-value
		ROA	BS	TNG	GRWT	LIQ			
1	10.740 (15.244)**	-0.813 (2.177)*					0.033	2.628	4.741
2	5.126 (0.446)		0.168 (0.363)				0.008	2.682	0.132
3	9.123 (15.913)**			0.179 (0.352)			0.008	2.682	0.124
4	9.351 (21.565)**				-0.002 (0.134)		0.009	2.683	0.018
5	11.097 (22.515)**					-0.108 (4.144)**	0.127	2.496	17.175
6	12.765 (15.998)**	-0.096 (2.617)**				-0.112 (4.405)**	0.171	2.432	12.468
7	4.140 (0.384)	-0.984 (2.732)**	0.352 (0.803)			-0.110 (4.336)**	1.169	2.436	8.500
8	13.706 (12.644)**	-0.998 (2.830)**		-0.619 (1.278)		-0.121 (4.599)**	0.176	2.425	8.905
9	4.268 (0.407)	-1.086 (2.959)**	0.382 (0.874)	-0.641 (1.321)		-0.120 (4.546)**	0.174	2.428	6.855
10	4.368 (0.405)	-1.063 (2.818)**	0.378 (0.861)	-0.651 (1.333)	0.004 (0.294)	-0.122 (4.475)**	0.167	2.438	5.455

Notes: The asterisk signs (**) and (*) indicate that the results are significant at 1 percent and 5 percent level respectively.

Table 4 shows that beta coefficients for return on assets are negative with total debt to total assets ratio. It indicates that return assets has a negative impact on total debt to total assets ratio. This finding is consistent with the findings of Siddik et al. (2017). However, the beta coefficients for bank size are positive with total debt to total equity ratio. It states that bank size has a positive impact on total debt to total assets ratio. This finding is similar to the findings of Kedir and Mekonnen (2015).

Additionally, the beta coefficients for assets tangibility rate are positive with total debt to total assets ratio. It indicates that assets tangibility has a positive impact on total debt to total assets ratio. The result is similar to the findings of Nasution et al. (2017). Similarly, the beta coefficients for assets growth are negative with total debt

to total assets ratio. It indicates that assets growth has a negative impact on total debt to total assets ratio. This finding contradicts with the findings of the Zhang et *al.* (2011). Likewise, the beta coefficients for liquidity are negative with total debt to total assets ratio. It indicates that liquidity has negative impact on total debt to total assets ratio. This finding is consistent with the findings of Alipour et al. (2015). The beta coefficients for liquidity ratio and return on assets are significant at 1 percent and 5 percent level of significance.

Table 5 presents the regression results of return on assets, bank size, assets tangibility, assets growth and liquidity on total debt to total equity of Nepalese commercial banks of Nepalese commercial banks.

Table 5: Estimated regression results of return on assets, bank size, assets tangibility, assets growth and liquidity on total debt to total equity of Nepalese commercial banks

This result is based on panel data of 16 banks with 112 observations for the period of 2011/12 to 2017 /18 by using linear regression model. The model is $TDE_{it} = \beta_0 + \beta_1\ ROA_{it} + \beta_2\ BS_{it} + \beta_3\ GRWT_{it} + \beta_4\ TNG_{it} + \beta_5\ LIQ_{it} + e_{it}$ where, dependent variables are TDA (Total debt to total assets ratio, in percent) and TDE (Total debt to total equity ratio, in percent). The independent variables are ROA (return on assets is the ratio of net income divided by total assets, BS (bank size is defined as the size of an individual firm is calculated as the log of total assets of a bank), TNG (tangibility is measured by the ratio of net fixed assets to total assets, in percentage), GRWT (assets growth rate is measured by the percentage of assets of current year minus assets of previous year divided by assets of current year, in percentage) and LIQ (liquidity is measured by the ratio of current assets to current liabilities, in percentage).

Models	Intercept	Regression Coefficients of					Adj. R_bar^2	SEE	F-value
		ROA	BS	TNG	GRWT	LIQ			
1	10.022 (11.654)**	-0.612 (1.982)*					0.017	3.207	1.804
2	11.529 (0.832)		-0.104 (2.620)**				0.169	3.233	12.035
3	9.047 (13.093)**			-1.105 (0.172)			0.009	3.276	0.030
4	8.997 (17.220)**				-0.003 (0.132)		0.389	3.145	0.017
5	11.510 (20.042)**					-0.154 (5.096)**	0.184	2.908	25.970

6	12.878 (13.638)**	-0.743 (1.950)*				-0.158 (5.250)**	0.200	2.878	14.901
7	14.541 (1.138)	-0.728 (2.103)*	-0.068 (2.661)**			-0.158 (5.224)**	0.193	2.891	9.850
8	14.941 (1.184)	-0.908 (2.103)*	-0.014 (3.028)**	-1.126 (1.975)*		-0.174 (5.628)**	0.214	2.853	8.561
9	14.533 (1.134)	-0.665 (1.510)	-0.079 (3.152)**		0.001 (0.627)	-0.162 (5.221)**	0.188	0.188	4.900
10	14.941 (1.182)	0.036 (1.889)	0.027 (2.052)*	-1.157 (2.020)*	0.014 (0.776)	-0.180 (5.647)**	0.211	2.859	6.943

Notes: The asterisk signs (**) and (*) indicate that the results are significant at 1 percent and 5 percent level respectively.

Table 5 shows that beta coefficients for return on assets are negative with total debt to total equity ratio. It indicates that return on assets has a negative impact on total debt to total equity ratio. This finding is consistent with the findings of Kipesha and James (2014). Similarly, the beta coefficients for bank size are negative with total debt to total equity ratio. It states that bank size has a negative impact on total debt to total equity ratio. This finding contradicts with the findings of the Chen (2004). Additionally, the beta coefficients for assets tangibility are negative with total debt to total equity ratio. It indicates that assets growth tangibility has a negative impact on total debt to total equity ratio. The result is similar to the findings of Sritharan and Vinasithamby (2014).

Similarly, the beta coefficients for assets growth are negative with total debt to total equity ratio. It indicates that assets growth has a negative impact on total debt to total equity ratio. This finding contradicts with the findings of the Saberi and Asadipour (2016). However, the beta coefficients for liquidity ratio are negative with total debt to total assets ratio. It indicates that liquidity ratio has a negative impact on total debt to total equity ratio. This finding is similar to the finding of Khanqah and Ahmadnia (2013). The beta coefficients for liquidity ratio and bank size are significant at 1 percent level of significance.

Summary and Conclusion

Most of the studies on capital structure have concentrated on the banking sectors of the western and developed countries. On the other hand, empirical evidence on the developing countries is relatively scarce. The present study attempts to fill in this gap by providing new empirical evidence on the capital structure of Nepalese

commercial banks. The capital structure decision is one of the most important decisions made by financial managers in this modern era. The capital structure decision is at the center of many other decisions in the area of corporate finance. Banking system plays a crucial role in promoting growth of an economy and the predominant role of capital ratios in prudential regulation that helps to understand the factors which drive the capital structure decision of banks.

This study attempts to examine the determinants of capital structure in Nepalese commercial banks. The study is based on secondary data of 16 commercial banks with 112observations for the period 2011/12 to 2017/18.

Bank size and assets tangibility have positive impact on total debt to total assets ratio whereas return on assets, assets growth and liquidity ratio have negative impact on total debt to total assets ratio. Likewise, return on assets, bank size, assets tangibility, assets growth and liquidity ratio has negative impact with total debt to total equity ratio.

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