Determinants of Capital Structure: A Case of Nepalese Non-Financial Firms

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Abstract

This study examines the determinants of capital structure in the context of Nepalese non-financial firms. Short term debt ratio and long term debt ratio are selected as the dependent variables. The selected independent variables are assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age. The study is based on secondary data with 105 observations from 7 hydro power firms, 3 hotel industries and 4 manufacturing firms listed in Nepal Stock Exchange (NEPSE). The data were collected from annual reports of the selected non-financial firms. The correlation coefficients and regression models are estimated to test the significance and importance of determinants of capital structure in the context of Nepalese non-financial firms.

The study showed that assets tangibility has a positive impact on long-term debt ratio and short-term debt ratio. It indicates that higher the assets tangibility, higher would be the long-term debt ratio and short-term debt ratio. Similarly, liquidity has a positive impact on long-term debt ratio and short-term debt ratio. It indicates that increase in liquidity leads to increase in long-term debt ratio and short-term debt ratio. Likewise, non-debt tax shields has a positive impact on long-term debt ratio and short-term debt ratio. It indicates that increase in non-debt tax shields leads to increase in long-term debt ratio and short-term debt ratio. Further, firm size has a positive impact on long-term debt ratio and short-term debt ratio. It indicates that increase in firm size leads to increase in long-term debt ratio and short-term debt ratio. In addition, profitability has a positive impact on long-term debt ratio and shortterm debt ratio. It indicates that increase in profitability leads to increase in long-term debt ratio and short-term debt ratio. Likewise, Tobin's q has a positive impact on long-term debt ratio and short-term debt ratio. It indicates that higher the Tobin's q, higher would be the long-term debt ratio and short-term debt ratio. Moreover, firm's age has a negative impact on long-term debt ratio and short-term debt ratio. It indicates that higher the firm's age, higher would be the long-term debt ratio and short-term debt ratio.

Keywords: assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q, firm's age, short term debt ratio, long term debt ratio

1. Introduction

Capital structure is a combination of a debt and equity to finance a firm. The management of a firm is responsible to make vital decisions about setting capital structure in a way that the firm's value is maximized. Financial distress may be emerged through a wrong decision even it may lead to bankruptcy

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(Alipour *et al.*, 2015). The decision about the capital structure of a firm is determined by many factors that can be grouped mainly under main three categories which are firm specific, industry specific and country specific factors; these factors include size of the firm, profitability, corporate tax, bankruptcy costs, industry type, internal policies of the firm (Colombage and Rao, 2015). Similarly, Tian and Zeitun (2007) argued that financial managers who managed to achieve the optimal capital structure of the firm will not only be minimizing the cost of capital of the firm, but they are also maximizing the firm's profitability, hence, enhancing the firm's performance and value.

Ibrahim and Lau (2019) examined the determinants of financial leverage for surviving listed firms in Malaysia. The study revealed that assets tangibility has a positive and significant impact on long term debt ratio. Similarly, Ahmed (2022) analyzed the Internal and external determinant of capital structure: a study of non-financial firms listed at Karachi stock exchange. The study showed that firm size and liquidity have negative impact on long term and short term debt ratio. Likewise, Djuaeriah and Winarta (2020) investigated the effect of capital structure on firms' profitability: A case study of Indonesian firms. The study found that growth opportunity and size have an insignificant negative influence, while tangibility and nondebt tax shields have an insignificant positive influence toward profitability. Further, Jadah et al. (2021) observed the dynamic panel data analysis of capital structure determinants in Iraqi banks. The study found that assets tangibility has a positive and significant impact on leverage ratio measured by short term debt and long term debt ratio. In addition, Akinlosotu and Okmuoma (2019) examined the determinants of capital structure in selected Chinese industries: A panel data approach. The study found that assets tangibility and firm size have positive and significant impact on long term debt ratio. Similarly, Garcia-Rodriguez et al. (2022) asserted the capital structure and debt maturity in nonprofit organizations. The study found that assets tangibility has a positive and significant impact on short term debt and long term debt ratio. Likewise, Sahoo and Deb (2022) investigated the determinants of capital structure: A study on selected firms of Indian automobile sector. The study found that there is a positive relationship between assets tangibility and liquidity on long term debt ratio.

Duc Nha *et al.* (2016) examined the determinants of capital structure choice from Vietnamese listed firms. The study showed that tangibility, non-debt tax shields, liquidity and firm size, have significant impact on leverage ratio measured by long term debt and short term debt ratio. Similarly, Saif-Alyousfi *et al.* (2020) investigated the determinants of capital structure from Malaysian

firms. The study revealed that firm specific factors such as profitability, growth opportunity, tax-shield, liquidity and cash flow volatility have negative and significant impact on debt measures. The study also revealed that firm size and firm age have significant impact on value of debt measured by long term debt and short term debt ratio. Further, Khemiri and Noubbigh (2018) explored the determinants of capital from sub-Saharan African firms. The study showed that firm size and firm age have positive impact on value of debt measured by long term debt and short term debt ratio. In addition, Panda and Nanda (2020) observed the determinants of capital structure for Indian manufacturing firms. The study observed a significant positive impact of firm specific factors such as asset tangibility, growth opportunity, effective tax rate, non-debt tax shield, cash flow, profitability and firm size on level of debt proxies by long term debt and short term debt ratio. Similarly, Li and Islam (2019) analyzed the firm and industry specific determinants of capital structure from the Australian market. The result of the study showed that the industry specific factors have both direct and indirect impact on formation of capital structures of Australian firms. Likewise, Khaki and Akin (2020) examined the factors affecting capital structure from GCC countries. The result showed that firm size, tangibility, and growth opportunities have positive impact on debt ratio proxies by long term debt and short term debt ratio. Further, Obi et al. (2020) found that non-debt tax shields have positive relationship with long term debt.

Ali et al. (2022) examined the corporate taxation and firm-specific determinants of capital structure of the UK and US multinational firms. The study found that non debt tax shields, assets tangibility and liquidity have positive impact on leverage ratio proxies by long term debt and short term debt ratio. Similarly, Akinlosotu and Okmuoma (2019) analyzed the determinants of capital structure in selected Chinese industries: A panel data approach. The study revealed that assets growth, firm size and non-debt tax shields have positive and significant impact on long term debt ratio but have an insignificant impact on short term debt ratio. Likewise, Rosli et al. (2018) analyzed the relationship between organization characteristics and capital structure in Malaysian firms. The study revealed that profitability, non-debt tax shields and company size have significant impact on long term debt and short term debt ratio. Further, D'Amato (2020) observed the capital structure, debt maturity, and financial crisis: An empirical evidence from SMEs. The study found that there is a positive relationship between firm size and short term debt ratio. In addition, Legesse and Guo (2020) revealed that form size and assets tangibility have positive impact on short term debt and long term debt ratio. Similarly, Appiah et al. (2020) examined the financial leverage

and corporate performance: Does the duration of the debt ratio matters? The study found that firm growth, firm size, tax shields and assets tangibility have positive and significant impact on leverage ratio proxies by long term debt and short term debt ratio.

Mundi and Gautam (2021) examined the impact of firm-specific variables on capital structure decisions. Evidence from the Indian hospitality sector. The study found that firm size and return on assets are significantly associated with both long term debt and short term debt ratio. However, Dalci et al. (2019) revealed that assets tangibility and liquidity have negative impact on both long term debt and short term debt ratio. Similarly, Ibrahim and Lau (2019) analyzed the determinants of financial leverage for surviving listed firms in Malaysia. The study found that there is a positive and significant relationship between firm size and short term debt ratio. Likewise, Kasasbeh (2021) investigated the impact of financing decisions ratios on firm accountingbased performance: An evidence from Jordan listed firms. The study found that firm size and firm age have positive impact on short term debt ratio. Further, Thanh and Huyen (2023) revealed that asset turnover, firm size and tangible assets ratio have positive and significant impact on both short term debt and long term debt ratio. In addition, Benozir (2019) examined the determinants of capital structure: A study on listed manufacturing firms of Bangladesh. The study revealed that firm size, collateral value of asset and liquidity ratio have positive impact on long term debt and short term debt. Similarly, Nelson and Peter (2019) investigated the effect of capital structure on firm performance: Evidence from microfinance banks in Nigeria. The study found that firm size has a positive impact on short term debt ratio. Likewise, Nangih (2021) revealed that firm size has a positive and significant impact on both long term debt and short term debt ratio. In contrast, Amjath and Sufeera (2021) analyzed the factors determining capital structure of firms listed in Colombo stock exchange in Sri Lanka. The study showed that firm size, tangibility and liquidity have negative but significant impact on leverage level proxies by short term debt ratio. Further, Suciati et al. (2021) revealed that there is a significant positive relationship between profitability and long-term debt ratio. In addition, Itopa et al. (2019) analyzed the corporate governance and capital structure. Evidence from Nigeria listed non-financial services firms. The study revealed that profitability and liquidity have negative impact on long term debt ratio whereas profitability and liquidity have positive and significant impact on short term debt ratio. Likewise, Akhter and Maruf-Ul-Alam (2019) showed that liquidity has a significant and positive impact on long-term debt ratio whereas liquidity has a significant but negative impact

on short-term debt ratio.

In the context of Nepal, Baral (2006) examined determinants of capital structure of listed firms of Nepal. The study revealed that size, growth rate and earning rate have a significant effect on capital structure in Nepalese firms. Similarly, Dhodari (2019) carried out an investigation on determinants of capital Structure on trading and manufacturing enterprises of Nepal. The study concluded that the capital structure is influenced significantly by the firm specific factors such as asset tangibility, profitability, liquidity and interest coverage ratio in Nepalese trading and manufacturing industries. Likewise, Bhatt and Jain (2020) examined the Capital structure and profitability of commercial banks in Nepal. The study revealed that return on equity has an insignificant but positive impact on long term debt and deposits whereas return on equity has an insignificant and negative impact on short term debt and total debt. Further, Rajbanshi (2019) examined the determinant of capital structure of Nepalese hydropower firms. The study revealed that assets tangibility and non-debt tax shield are positively influence the total debt whereas profitability and liquidity are negatively influence on the total debt decision of the Nepalese Hydropower Firms. In addition, Oli (2021) found that liquidity ratio has a positive impact on long term debt ratio. Likewise, Bhattarai (2020) determined the effects of capital structure on financial performance of insurance firms in Nepal. The study revealed that firm size, liquidity ratio and assets tangibility have positive impact on both long term debt and short term debt.

The above discussion shows that empirical evidences vary greatly across the studies on the determinants of capital structure: A case of nonfinancial firms. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to examine the determinants of capital structure: A case of Nepalese non-financial firms. Specifically, it examines the relationship of assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age with debt level of Nepalese non-financial firms.

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 draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 14 non-financial firms listed in the NEPSE by the end of mid-July 2023, leading to a total of 105 observations. The main sources of data include annual report of respective firms. The study is based on descriptive and causal comparative research design. Table 1 shows the list of non-financial firms for the study along with the number of observations.

Table 1

S.N.	Industry category	Name of the firms	Observation	
1	Hydro	Butwal Power Company Limited	2014/15-2021/22	2 8
2	Hydro	Chilime Hydropower Company Limited	2014/15-2021/22	2 8
3	Hydro	Arun Valley Hydropower Company	2 8	
4	Hydro	Upper Tamakoshi Hydropower Limited	2014/15-2021/22	2 8
5	Hydro	Rasuwaghadi Hydropower Company Limited	2 8	
6	Hydro	Api Power Company Limited	2014/15-2021/22	2 8
7	Hydro	Kalika Power Company	2014/15-2021/22	2 8
8	Hotel	Soaltee Hotel Limited	2015/16-2021/22	2 7
9	Hotel	Taragaun Hyatt Regency Hotel	2015/16-2021/22	2 7
10	Hotel	Oriental/Radison Hotel Limited	2015/16-2021/22	2 7
11	Manufacturing	Unilever Nepal Limited	2015/16-2021/22	2 7
12	Manufacturing	Bottlers Nepal Limited Balaju	2015/16-2021/22	2 7
13	Manufacturing	Bottlers Nepal Limited Terai	2015/16-2021/22	2 7
14	Manufacturing	Himalayan Distillery Limited	2015/16-2021/22	2 7
	105			

List of non-financial firms for the study along with the number of observations

Thus, the study is based on 105 observations.

The model

The model used in this study assumes that determinants of capital structure of non-financial firms depends upon debt level. The dependent variables selected for the study are short term debt ratio and long term debt ratio. Similarly, the selected independent variables are assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age. Therefore, the model takes the following form:

$$\begin{split} \text{LTDR} &= \beta_0 + \beta_1 \text{ ATANG} + \beta_2 \text{ LIQ} + \beta_3 \text{ NDTs} + \beta_4 \text{ FS} + \beta_5 \text{ PROFIT} + \beta_6 \\ \text{TBINQ} + \beta_7 \text{ FA} + e_{it} \\ \text{STDR} &= \beta_0 + \beta_1 \text{ ATANG} + \beta_2 \text{ LIQ} + \beta_3 \text{ NDTs} + \beta_4 \text{ FS} + \beta_5 \text{ PROFIT} + \beta_6 \\ \text{TBINQ} + \beta_7 \text{ FA} + e_{it} \end{split}$$

Where,

LTDR = Long term debt ratio as measured by long term debt to total assets, in percentage.

STDR = Short term debt ratio as measured by short term debt to total assets, in percentage.

ATANG = Assets tangibility as measured by fixed-asset to total assets, in percentage.

NDTs = Non debt tax shield as measured by depreciation expense to total assets, in percentage.

LIQ = Liquidity as measured by cash and cash equivalents to total assets, in percentage.

FS = Firm size as measured by total assets, Rs. in billion.

PROFIT = Profitability as measured by earnings before interest, tax and depreciation to total assets, in percentage.

TBINQ = Tobin's q as measured by market value to total assets, in percentage.

FA = Firm age is defined as the dummy variable which is measured as '0' if the firm is younger than five years, and '1' if the firm is older than 5 years.

The following section describes the independent variables used in this study along with the hypothesis formulation:

Assets tangibility

The most common determinant of capital structure is a firm's assets tangibility. Iltaş and Demirgunes (2020) examined the asset tangibility and financial performance: A time series evidence. The study found that there is a positive relationship between assets tangibility and debt level of firms' proxies by long-term debt and short-term debt ratio. Similarly, Omeresa and Frank (2023) analyzed the firm specific determinants of asset tangibility: AN emphasis on oil and gas multinationals. The study found that assets tangibility has a positive and significant impact on long-term debt ratio. Likewise, Mueller and Sensini (2021) found that assets tangibility has a significant impact on short-term debt ratio. Further, Arilyn (2020) showed that assets tangibility has a positive and significant impact on total debt proxies by long-term debt and short-term debt ratio. In addition, Timilsina (2020) revealed that assets tangibility has a significant impact on total debt proxies by long-term debt ratio. Based on it, this study develops the following hypothesis:

 H_{i} : There is a positive relationship between assets tangibility and debt level

of firms.

Liquidity

Grobety (2018) examined the government debt and growth: The role of liquidity. The study found that liquidity has a negative impact on total debt proxies by long-term debt and short –term debt ratio. Similarly, Nindiani and Arilyn (2019) analyzed the factors in capital structure and its influence on total debt ratio of automotive industry. The study showed that liquidity has an influence partially on total debt measured by short-term debt ratio. Likewise, Christopoulos *et al.* (2019) revealed that there is a positive and significant relationship between liquidity and long-term debt ratio. Further, Reschiwati *et al.* (2020) showed that liquidity has a positive impact on short –term debt ratio. Based on it, this study develops the following hypothesis:

H_2 : There is a positive relationship between liquidity and debt level of firms. Non-debt tax shields

Gruskin *et al.* (2018) examined the Shareholders valuation of longterm debt and decline in firms' leverage ratio. The study found that there is a positive and significant association between non-debt tax shields and total debt proxies by long-term debt ratio. Similarly, Nasimi (2016) revealed that non-debt tax shields has a positive impact on short-term debt ratio. Likewise, Khan and Akhtar (2018) showed that there is a positive correlation between non-debt tax shields and total debt measured by long-term debt ratio. Further, Lisboa (2017) revealed that there is a positive and significant association between non-debt tax shields and long-term debt ratio. In addition, Nunes and Serrasqueiro (2017) showed that non-debt tax shields has a positive impact on both long-term debt ratio and short-term debt ratio. Likewise, Akinlosotu and Okmuoma (2019) found that non-debt tax shields has a positive impact on both long-term debt ratio and short-term debt ratio. Based on it, this study develops the following hypothesis:

 H_3 : There is a positive relationship between non-debt tax shields and debt level.

Profitability

Muscettola and Naccarato (2016) examined the casual relationship between debt and profitability: the case of Italy. The study found that profitability has a positive impact on total debt. Similarly, Korkmaz (2016) analyzed the effects of profitability ratios on debt ratio: the sample of the manufacturing industry. The study found that profitability has a positive and significant impact on long-term debt ratio. Likewise, Islam and Ullah (2020) investigated the debt and profitability: Evidence from Bangladesh. The study revealed that profitability has a positive impact on total debt proxies by long-term debt and short-term debt ratio. Further, Asare and Angmor (2015) found that there is a positive association between profitability and total debt proxies by long-term debt ratio. Based on it, this study develops the following hypothesis:

H_4 : There is a positive relationship between profitability and debt level of firms.

Firm size

Lumapow (2018) examined the influence of managerial ownership and firm size on debt policy. The study found that firm size has a positive and significant impact on total debt proxies by long-term debt ratio. Similarly, Ayuba *et al.* (2019) revealed that firm size has a positive impact on short-term debt ratio. Likewise, Muigai and Muriithi (2017) showed that firm size has a positive and significant impact on short-term debt ratio. Further, Ahmed *et al.* (2023) found that firm size has a significant impact on long-term debt ratio. In addition, Doan (2020) revealed that firm size has a statistically positive impact on total debt proxies by long-term debt ratio and short-term debt ratio. Based on it, this study develops the following hypothesis:

H_{s} : There is a positive relationship between firm size and debt level of firms. Firm's age

Soesetio *et al.* (2023) examined the debt ratio, return on asset, firm size and earnings management: age moderation. The study found that there is a positive relationship between firm's age and long-term debt ratio. Similarly, Gherghina *et al.* (2020) analyzed the impact of CEO and firm-specific characteristics on capital structure: An evidence from Romanian firms. The study revealed that firm's age has a significant impact on total debt proxies by short-term debt ratio. In contrast, Hatem (2017) showed that firm's age has a negative impact on total debt proxies by long-term debt ratio. Khataybeh (2020) found that there is a positive relationship between firm's age and long0term debt ratio. Based on it, this study develops the following hypothesis:

H_6 : There is a positive relationship between firm's age and debt level of firm. Tobin's q

Prempeh and Nsiah (2016) examined the effect of debt policy on firms' performance: Empirical evidence from listed manufacturing companies on the Ghana stock exchange. The study found that Tobin's q has a positive impact

on long-term debt ratio. Similarly, Appiah *et al.* (2020) revealed that there is a positive relationship between Tobin's q and total debt proxies by short-term debt ratio. Likewise, Almajali and Shamsuddin (2019) revealed that Tobin's q has a positive and significant impact on total debt measured by long-term debt ratio. Further, Ajibola *et al.* (2018) showed that there is a positive and significant relationship between Tobin's q and total debt proxies by longterm debt ratio and short-term debt ratio. Based on it, this study develops the following hypothesis:

 H_{τ} : There is a positive relationship between Tobin's q and debt level of firm.

3. Results and discussion

Descriptive statistics

Table 2 presents the desscriptive statistics of selected dependent and independent variables during the period 2014/15 to 2021/22.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 14 Nepalese non-financial firms listed in Nepal Stock Exchange (NEPSE) for the study period of 2014/15 to 2021/22. The dependent variables are LTDR (Long term debt ratio as measured by long term debt to total assets, in percentage) and STDR (Short term debt ratio as measured by short term debt to total assets, in percentage). The independent variables are ATANG (Assets tangibility as measured by fixed-asset to total assets, in percentage), NDTs (Non debt tax shield as measured by depreciation expense to total assets, in percentage), LIQ (Liquidity as measured by cash and cash equivalents to total assets, in percentage), FS (Firm size as measured by total assets, Rs. in billion), PROFIT (Profitability as measured by earnings before interest, tax and depreciation to total assets, in percentage), TBINQ (Tobin's q as measured by market value to total assets, in percentage), and FA (Firm age is defined as the dummy variable which is measured as '0' if the firm is younger than five years, and '1' if the firm is older than 5 years).

Variables	Minimum	Maximum	Mean	S.D.		
LTDR	0.000	1.422	0.450	0.345		
STDR	0.001	0.510	0.073	0.113		
ATANG	0.096	2.427	0.90	0.433		
NDTs	0.000	0.049	0.013	0.015		
LIQ	0.000	0.191	0.026	0.035		
FS	11.000	694.00	143.87	185.671		
PROFIT	0.001	0.140	0.045	0.037		
TBINQ	0.005	29.002	4.431	8.350		
FA	1	1	1.00	0.000		

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and results are presented in Table 3.

Table 3

Pearson's correlation coefficients matrix

This table shows the bi-variant Pearson's correlation coefficients of dependent and independent variables of 14 Nepalese non-financial firms listed in Nepal Stock Exchange (NEPSE) for the study period of 2014/15 to 2021/22. The dependent variables are LTDR (Long term debt ratio as measured by long term debt to total assets, in percentage) and STDR (Short term debt ratio as measured by short term debt to total assets, in percentage). The independent variables are ATANG (Assets tangibility as measured by fixed-asset to total assets, in percentage), NDTs (Non debt tax shield as measured by depreciation expense to total assets, in percentage), LIQ (Liquidity as measured by cash and cash equivalents to total assets, in percentage), FS (Firm size as measured by total assets, Rs. in billion), PROFIT (Profitability as measured by earnings before interest, tax and depreciation to total assets, in percentage), and FA (Firm age is defined as the dummy variable which is measured as '0' if the firm is younger than five years, and '1' if the firm is older than 5 years).

Variables	LTAT	STAT	TANGF	NDTS	LIQ	FSIZE	PROFIT	TBINQ	Age
LTDR	1								
STDR	0.286	1							
ATANG	0.502**	0.243	1						
NDTs	0.161	0.165	0.018	1					
LIQ	0.193	0.045	0.046	0.159	1				
FS	0.572**	0.039	0.432**	0.393**	0.088	1			
PROFIT	0.615**	0.187	0.124	0.103	0.134	0.286	1		
TBINQ	0.067	0.179	0.081	0.602**	0.197	0.295	0.105	1	
FA	-0.446**	-0.387	0.355*	0.218	0.079	0.375*	0.027	0.150	1

Note: the asterisk signs (**) and (*) indicate that coefficients are significant at one percent and five percent levels of respectively.

Table 3 shows that assets tangibility has a positive relationship with long-term debt ratio. It indicates that increase in assets tangibility leads to increase in long-term debt ratio. Similarly, non-debt tax shields has a positive relationship with long-term debt ratio. It indicates that increase in non-debt tax shields leads to increase in long-term debt ratio. Likewise, liquidity has a positive relationship with long-term debt ratio. It indicates that higher the liquidity, higher would be the long-term debt ratio. Further, firm size has a positive relationship with long-term debt ratio. It indicates that higher the firm size, higher would be the long-term debt ratio. In addition, profitability has a positive relationship with long-term debt ratio. It indicate that higher the firm size, higher would be the long-term debt ratio. It indicate that higher the profitability, higher would be the long-term debt ratio. It indicate that higher the has a positive relationship with long-term debt ratio. It indicates that increase in Tobin's q leads to increase in long-term debt ratio. In contrast, firm age has a negative relationship with long-term debt ratio. It indicates that the older the firm, lower would be the long-term debt ratio.

Similarly, assets tangibility has a positive relationship with short-term debt ratio. It indicates that increase in assets tangibility leads to increase in short-term debt ratio. Similarly, non-debt tax shields has a positive relationship with short-term debt ratio. It indicates that increase in non-debt tax shields leads to increase in short-term debt ratio. Likewise, liquidity has a positive relationship with short-term debt ratio. It indicates that higher the liquidity, higher would be the short-term debt ratio. Further, firm size has a positive relationship with short-term debt ratio. It indicates that higher the firm size, higher would be the short-term debt ratio. In addition, profitability has a positive relationship with short-term debt ratio. It indicates that higher the profitability, higher would be the short-term debt ratio. It indicates that higher the profitability, higher would be the short-term debt ratio. It indicates that higher the profitability, higher would be the short-term debt ratio. It indicates that higher the profitability, higher would be the short-term debt ratio. It indicates that increase in Tobin's q leads to increase in short-term debt ratio. In contrast, firm age has a negative relationship with short-term debt ratio. It indicates that the older the firm, lower would be the short-term debt ratio.

Regression analysis

Having analyzed the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4 and Table 5. More specifically, it presents the regression results of assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age on long-term debt ratio.

Table 4

Estimated regression results of assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age on long-term debt ratio

The results are based on panel data of 14 non-financial firms listed in Nepal Stock Exchange (NEPSE) leading to a total of 105 observations and the model is $LTDR = \beta_0 + \beta_1 ATANG + \beta_2 LIQ + \beta_3 NDTs + \beta_4 FS + \beta_5 PROFIT + \beta_6 TBINQ + \beta_7 FA + e_u$ where, the dependent variable is LTDR (Long term debt ratio as measured by long term debt to total assets, in percentage). The independent variables are ATANG (Assets tangibility as measured by fixed-asset to total assets, in percentage), NDTs (Non debt tax shield as measured by depreciation expense to total assets, in percentage), LIQ (Liquidity as measured by cash and cash equivalents to total assets, in percentage), FS (Firm size as measured by total assets, Rs. in billion), PROFIT (Profitability as measured by earnings before interest, tax and depreciation to total assets, in percentage), as measured by market value to total assets, in percentage), and FA (Firm age is defined as the dummy variable which is measured as '0' if the firm is younger than five years, and '1' if the firm is older than 5 years).

Model	Intercept	Regression coefficients of								CEE	E I
		ATANG	LIQ	NDTs	FS	PROFIT	TBINQ	FA	R_bar ²	SEE	F-value
1	0.185 (1.916)	0.015 (0.885)							0.020	0.316	0.783
2	0.134 (0.900)		0.078 (1.989)*						0.070	0.316	0.044
3	0.091 (1.469)			0.019 (0.212)					0.007	0.316	0.045
4	0.118 (2.116)*				0.070 (1.962)*				0.070	0.316	0.091
5	0.899					0.086 (3.767)**			0.080	0.301	14.189
6	0.095 (2.205)*						0.001 (0.255)		0.070	0.316	0.065
7	0.155							-0.068 (1.376)	0.060	0.314	1.894
8	0.225 (1.247)	0.015 (0.895)	0.012 (2.258)*						0.090	0.317	0.422
9	0.227 (1.079)	0.015 (0.874)	0.012 (2.256)*	0.002 (0.021)					0.016	0.318	0.280
10	0.230 (1.088)	0.014 (0.844)	0.011 (0.227)	0.003 (0.039)	0.001 (2.258)*				0.023	0.319	0.225
11	1.156 (3.806) **	0.026 (1.569)	0.018 (2.387)*	0.031 (0.444)	0.001 (0.289)	0.097 (4.052)**			0.083	0.302	3.484
12	1.157 (3.797) **	0.028 (1.646)	0.020 (1.424)	0.030 (0.426)	0.001 (2.332)*	-0.097 (4.037)**	0.001 (0.516)		0.078	0.303	2.932
13	1.151	0.027	0.008	0.005	0.002	0.095	0.001 (0.354)	-0.053	0.078	0.303	2.651

Notes:

i. Figures in parenthesis are t-values.

- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Long-term debt ratio is the dependent variable.

Table 4 shows that the beta coefficients for assets tangibility are positive with long-term debt ratio. It indicates that assets tangibility has a positive impact on long-term debt ratio. This finding is consistent to the findings of Iltas and Demirgunes (2020). Similarly, the beta coefficients for liquidity are positive with long-term debt ratio. It indicates that liquidity has a positive impact on long-term debt ratio. This finding is similar to the findings of Christopoulos et al. (2019). Likewise, the beta coefficients for non-debts tax shields are positive with long-term debt ratio. It indicates that non-debts tax shields has a positive impact on long-term debt ratios. This finding is similar to the findings of Gruskin et al. (2018). Further, the beta coefficients for firm size are positive with long-term debt ratio. It indicates that firm size has a positive impact on long-term debt ratio. This finding is similar to the findings of Lumapow (2018). In addition, the beta coefficients for profitability are positive with long-term debt ratio. It indicates that profitability has a positive impact on long-term debt ratio. This finding is similar to the findings of Muscettola and Naccarato (2016). Similarly, the beta coefficients for Tobin's q are positive with long-term debt ratio. It indicates that Tobin's q has a positive impact on long-term debt ratio. This finding is similar to the findings of Prempeh and Nsiah (2016). Furthermore, the beta coefficients for firm

age are negative with long-term debt ratio. It indicates that firm age has a negative impact on long-term debt ratio. This finding is similar to the findings of Hatem (2017).

Table 5 shows the estimated regression results of assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age on short-term debt ratio.

Table 5

Estimated regression results of assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age on short-term debt ratio

The results are based on panel data of 14 non-financial firms listed in Nepal Stock Exchange (NEPSE) leading to a total of 105 observations and the model is $STDR = \beta_0 + \beta_1 ATANG + \beta_2 LIQ + \beta_3 NDTs + \beta_4 FS + \beta_5 PROFIT + \beta_6 TBINQ + \beta_7 FA + e_{ii}$ where, the dependent variable is STDR (Short term debt ratio as measured by short term debt to total assets, in percentage). The independent variables are ATANG (Assets tangibility as measured by fixed-asset to total assets, in percentage), NDTs (Non debt tax shield as measured by depreciation expense to total assets, in percentage), LIQ (Liquidity as measured by cash and cash equivalents to total assets, in percentage), FS (Firm size as measured by total assets, Rs. in billion), PROFIT (Profitability as measured by earnings before interest, tax and depreciation to total assets, in percentage), as measured by market value to total assets, in percentage), and FA (Firm age is defined as the dummy variable which is measured as '0' if the firm is younger than five years, and '1' if the firm is older than 5 years).

Model	Intercept	Regression coefficients of								SEE	E value
		ATANG	LIQ	NDTs	FS	PROFIT	TBINQ	FA	R_bar ²	SEL	r-value
1	0.129 (1.153)	0.019 (0.696)							0.040	0.360	0.485
2	0.227 (1.326)		0.008 (0.140)						0.070	0.364	0.020
3	0.178 (2.492)*			0.031 (3.391)**					0.060	0.364	0.153
4	0.065 (1.037)				0.011 (2.520)*				0.030	0.356	6.349
5	-0.074 (0.289)					0.030 (4.090)**			0.010	0.363	1.188
6	0.143 (2.921)**						0.004 (1.583)		0.010	0.361	2.506
7	0.193 (3.626)**							-0.013 (0.235)	0.070	0.364	0.055
8	0.147 (0.706)	0.013 (0.687)	0.006 (0.103)						0.010	0.365	0.246
9	0.080 (0.331)	0.015 (0.788)	0.000 (0.002)	0.045 (3.538)**					0.016	0.366	0.259
10	0.046 (0.194)	0.011 (0.585)	0.014 (0.256)	0.002 (2.023)*	0.011 (2.425)*				0.010	0.359	1.672
11	0.188 (0.520)	0.014 (0.723)	0.012 (0.225)	0.009 (1.109)	0.010 (2.280)*	0.024 (2.860)**			0.010	0.360	1.483
12	0.186 (0.517)	0.004 (0.220)	0.019 (0.356)	0.014 (2.165)**	0.011 (2.434)*	0.025 (2.879) **	0.004 (1.691)		0.030	0.357	1.730
13	0.185 (0.513)	0.004 (0.208)	0.021 (0.371)	0.011 (1.118)	0.011 (2.368)*	0.025 (3.865) **	0.004 (1.680)	-0.007 (0.108)	0.020	0.359	1.473

Notes:

- i. Figures in parenthesis are t-values.
- ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
- iii. Short-term debt ratio is the dependent variable.

Table 5 shows that the beta coefficients for assets tangibility are positive with short-term debt ratio. It indicates that assets tangibility has a positive impact on short-term debt ratio. This finding is not consistent to the findings of Mueller and Sensini (2021). Similarly, the beta coefficients for liquidity are positive with short-term debt ratio. It indicates that liquidity has a positive impact on short-term debt ratio. This finding is similar to the findings of Nindiani and Arilyn (2019). Likewise, the beta coefficients for non-debts tax shields are positive with short-term debt ratio. It indicates that non-debts tax shields has a positive impact on short-term debt ratios. This finding is similar to the findings of Nunes and Serrasqueiro (2017). Further, the beta coefficients for firm size are positive with short-term debt ratio. It indicates that firm size has a positive impact on short-term debt ratio. This finding is similar to the findings of Doan (2020). In addition, the beta coefficients for profitability are positive with short-term debt ratio. It indicates that profitability has a positive impact on short-term debt ratio. This finding is similar to the findings of Ullah (2020). Similarly, the beta coefficients for Tobin's q are positive with shortterm debt ratio. It indicates that Tobin's q has a positive impact on short-term debt ratio. This finding is similar to the findings of Ajibola et al. (2018). Furthermore, the beta coefficients for firm age are negative with short-term debt ratio. It indicates that firm age has a negative impact on short-term debt ratio. This finding is not similar to the findings of Gherghina et al. (2020).

4. Summary and conclusion

Capital structure is a well-documented phenomenon and can be defined as a combination of a debt and equity to finance a firm. Capital structure generally focuses on how firms decide to finance their assets between many sources. There are many theories that guide how a firm's capital structure should be. For instance, Pecking Order theory suggests that firms ought to follow a hierarchy starts from internal sources to debt and finishes with issuing equity. On the other hand, Trade off theory explains capital structure as a balance between various pros and cons of debt and equity. The management of a firm is responsible to make vital decisions about setting capital structure in a way that the firm's value is maximized. Financial distress may be emerged through a wrong decision even it may lead to bankruptcy. Even though there is a little consensus about making the optimal capital structure decision for firms, this question mark is one of the deeply researched areas in corporate finance. The decision about the capital structure of a firm is determined by many factors that can be grouped mainly under main three categories which are firm specific, industry specific and country specific factors; these factors include size of the firm, profitability, corporate tax, bankruptcy costs, industry type, internal policies of the firm.

This study attempts to examine the determinants of capital structure: A case of Nepalese non-financial firms. This study is based on the secondary data 14 non-financial firms listed in Nepal Stock Exchange (NEPSE) leading to a total of 105 observations.

The major conclusion of this study is that assets tangibility, liquidity, non-debt tax shields, firm size, profitability, Tobin's q and firm's age on long-term debt ratio have positive effect on long-term debt ratio and shortterm debt ratio. Likewise, the study concluded that profitability followed by liquidity is the most influencing factor that explains the changes in the longterm debt ratio in the context of Nepalese non-financial firms. Similarly, the study also concluded that non-debt tax shields followed by profitability is the most influencing factor that explains the changes in the short-term debt ratio in the context of Nepalese non-financial firms.

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