

Capital Structure and Profitability: Moderating Role of Firm's Size

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ABSTRACT

The profitability of a firm measures its gains over its operative years. Most managerial decisions are ultimately related to improving their company's profitability. This study attempts to make a rigorous empirical examination of the relationship between capital structure and profitability, and the moderating role of size of firm in this relationship. It develops multiple regression model and assesses the dummy indicator regression of the variables used and discusses the results of the analysis, which indicate that capital structure has no or very little impact on return on equity. Debt ratio has significant positive impact on return on assets while debt-equity ratio has significant negative. Likewise, the size of the firm is not moderating the relationship between capital structure and profitability. While acknowledging that there is no established theory describing the relationship between these two major constructs in finance, this study attempts to provide some of the empirical support that there is a positive association between debt ratio and return on assets while negative between debt equity ratio and return on assets. This paper concludes with a number of implications and research directions for both academics and financial managers, including the need to investigate the comprehensive impact of capital structure on profitability with more rigorous data.

Keywords : Profitability, Debt ratio, Debt-equity ratio, Return on equity, Size of firm

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1. INTRODUCTION

Determining the ideal ratio of debt to equity is extremely difficult for financial managers. Generally speaking, when financing the assets, an appropriate balance of debt and equity capital should be used. The choice of the capital structure is relevant to this problem. A company uses both stock and loan capital to finance its overall assets. According to Chechet and Olayiwola (2014), equity is the owner's capital and consists of common stock, paid-in capital, reserves, surplus, and retained earnings. Debt is defined as a fixed contractual obligation to pay interest on borrowed funds. According to Shubita and Alwawalhah (2012), a capital structure is a combination of debt and equity that is used by a company's operations. The mix of long-term sources of capital is represented by the capital structure, on the other hand. The long-term sources of capital are long-term debt and equity. As a result, long-term debt, preferred stock, and common equity make up a company's capital structure in some combination or proportion (Velnamphy, 2012).

A company's profitability is a measure of its growth during its operational years. The goal of the majority of managerial decisions is to increase the profitability of their business. Profitability of a company is a gauge of how well it is run and managed (Baral, 2004). In addition to owners and managers, creditors are curious about the firm's financial stability. Owners of the business are interested in their returns or profitability, whilst managers are interested in operating effectiveness. Furthermore, it is undeniable that a larger return implies a potential increase in risk (Chechet & Olayiwola, 2014). Returns and related risk are directly impacted by capital structure. The right capital structure helps a company maximize its value and reduce its overall cost of capital by balancing the risks and returns. Leverage causes both reward and risk to grow (Frank & Goyal, 2003). The company delivers the highest return for the owners by using more leverage at the lowest expense. In order to make wise capital structure decisions, it is crucial to assess the relationship between capital structure and business profitability (Sultan & Adam, 2015).

The purpose of using large debt is to maximize profit and achieve tax benefits. One of the most significant benefits of borrowing money is that interest payments are tax deductible, creating a tax shelter for businesses (Huang & Thi, 2003). The more debt is used in the capital structure, the lower the real after-tax cost of capital will be, increasing the firm's value. However, increased loan use may result in rising default risk and bankruptcy costs (Modigliani & Miller, 1963). The existence of a large business size makes it simple to produce external funding for creditors, which will increase the company's capital structure because a firm's size can reflect a company (Wardani & Subowo, 2020). The age of corporate organizations operating in a conventional manner is long gone. Modern businesses are more complex and competitive. So, for a few decades now, corporate sustainability has been a hot topic. Profitability leads to sustainability. The right balance of debt and equity also affects profitability (Nimalathan, 2010). Every business organization places a high value on profitability since it determines an organization's ability to remain viable in the marketplace. Therefore, a financial manager needs to be able to recognize the variables that

can affect an organization's profitability (Barker & Wurgler, 2002).

According to Babalola & Abiodun (2013), business size-measured in terms of total assets and sales - has a favorable effect on profitability. On the other side, it has been noted by Gill and Mathur (2011) that a bigger board size (more directors) has a detrimental effect on profitability. Similar to this, corporate liquidity and Chief Executive Officer Duality have a beneficial effect on profitability (Negada, 2016). Additionally, (Hallowell, 1996) asserted that customer loyalty and satisfaction have an effect on profitability. According to estimates of the effects of higher customer satisfaction on profitability, an increase in customer satisfaction that is within reach could significantly boost profitability. After doing research again, Balabola (2014) came to the conclusion that, in the particular Nigerian manufacturing firms her study chose, corporate performance is a nonlinear function of capital structure. When internal resources (retained earnings) run out, debt is issued. If debt is insufficient to cover the costs, new stock is the final option for financing (Bokpin & Issahaq, 2008). Internal funds don't have to pay for flotation and don't need to disclose any more confidential financial information, which could lead to stricter market regulation and the potential loss of significant competitive advantages (Rasiah & Kim, 2011).

Coupling the discussions above often put the financial managers into confusion that which is an appropriate variable that has larger impact on profitability. They ask question to themselves that can, due to the contradictory findings, firms witness variation in profitability when there is change in capital structure? If they do so, then what degree of variation does capital structure make on profitability? Empirical evidences (e.g., Babalola & Abiodun, 2013; Gill & Mathur, 2011; Negada, 2016; Hallowell, 1996) also found the firms' sizes moderating the impact of capital structure on profitability. Do we find the same in Nepalese manufacturing companies? Therefore, this study has risen these basic research questions: Does capital structure have an impact on profitability in Nepalese manufacturing companies? Do we find this impact different in firms with different sizes? To answer these questions, the objectives were set as: To examine the degree of impact of capital structure on profitability in Nepalese manufacturing companies. Likewise, to test whether size of firms is moderating this impact in Nepalese manufacturing companies.

2. LITERATURE REVIEW AND HYPOTHESES

2.1 Theoretical Review

Both debt and equity are used to fund the entirety of the company's assets. Common stock, paid-in capital, and retained earnings make up equity capital, which is the owner's capital. There are two types of debt: short-term debt and long-term debt. The combination of common equity, preferred stock, long-term debt, and short-term debt makes up the financial structure. Only a portion of a company's financial structure is its capital structure (Ebaid, 2009). It describes the combination of long-term financing sources, such as long-term debt and equity. According to Nimalathan (2010), a company's capital structure includes its

long-term debt + preferred stock and net worth, which together constitute its permanent financing. A manufacturing company's capital structure decision is the most important one made by the management team in order to optimize earnings and reduce capital costs, which in turn maximizes the wealth of investors. Essentially, there are two primary funding sources. There are two types of finance: external finance, or debt, and internal finance, or equity. The capital structure of most businesses consists of a mix of debt and equity (Rahman et al., 2019).

2.1.1 Optimal Capital Structure

For all financial decision makers, figuring out the best capital structure is a crucial and challenging task. Despite the tax shielding benefits, using exclusively debt in the capital structure can be dangerous due to the possibility of bankruptcy (Huang & Thi, 2003). Issuing just shares is also detrimental to the company since it requires cash to finance new investments; yet, shares may not always create the cash required to cover these costs (Huang & Thi, 2003). Thus, the central claim of is that businesses must choose the best possible balance between debt and equity in order to maximize their total profitability.

Using more debt financing maximizes stockholder earnings per share since debt financing has a lower overall cost and is more constrained. But it also raises the risk to the finances. In order to offset financial risk, it causes stockholders to seek greater required rates of return on their investment. Firms should therefore make an effort to maintain an ideal capital structure (Abu, 2015). A capital structure that reduces capital costs and maximizes business value is considered optimal. Its precise definition is the combination of debt and equity intended to achieve the declared managerial objectives of maximizing the firm's wealth and lowering the total cost of capital (Adekunle, 2010).

2.1.2 Capital Structure Decision

The many methods a company uses to finance its assets are referred to as its capital structure (Bhaduri, 2002). In essence, the company has the option of managing the finances through debt or equity. Every financial decision-maker must carefully consider the financing of assets in order to determine the best financing mix, as this affects earnings before interest and taxes and changes the market value of the company's shares (Negasa, 2016). The financing mix that a company selects for its capital structure is determined by a number of variables, including the firm's attributes, the state of the economy, and managers' perceptions (Brigham & Daves, 2004). Therefore, one of the most crucial choices that public interest entitlements must make is choosing the right capital structure. Any business's fortune has the potential to be derailed by a poor decision. Therefore, it is necessary to take deliberate action in the right direction at the right moment to discover the elements that need to be considered when choosing the optimal funding combination. The choice of capital structure has a big impact on the risk and return of an organization made by managers.

2.1.3 Capital Structure Approaches

Different theories of capital structure have been developed over the period; among them, some are presented in briefly.

a) Net Income Approach

Donaldson (1961) firstly proposed this strategy, which shows that the choice of capital structure affects the firm's valuation. A change in financial leverage will result in a proportional change in the firm's value and cost of capital. The Net Income approach's financial leverage is a significant factor in determining a company's optimal capital structure. An optimal capital structure is one in which the company uses no debt, or zero financial leverage, in which case the overall cost of capital equals the equity capitalization rate. As the degree of leverage approaches one, the weighted cost of capital will decrease and approach the cost of debt (Petersen & Rajan, 1994). The essence of this approach is that the firm can increase its value and lower the overall cost of capital by increasing the proportion of debt in the capital structure (Pandey, 1995). Basic Assumptions of this approach are:

- i) No corporate taxes
- ii) Cost of debt is less than cost of equity ($K_d < K_e$)
- iii) Cost of debt remains constant to acceptable range leverage.

From the above assumption, the overall cost of capital can be presented as:

$$K_o = O/V$$

Where K_o - Overall Cost of Capital

O- Earnings before interest and taxes

V- Total Value

As a company employs a larger percentage of debt, its overall value rises and its cost of capital falls. The weighted average cost of capital (WACC) of the firm is minimum and the firm's value is greatest when determining the optional capital structure. When a company employs 100% debt financing, or as much debt as possible, it will have the maximum value and lowest cost of capital, according to this strategy.

b) Net Operating Income Approach

Durand (1961) also proposed this strategy, which stated that the choice of capital structure has no bearing on the firm's worth. Leverage changes do not affect the firm's value or the total cost of capital. It is anticipated that when leverage increases, the cost of equity will rise linearly. Consequently, the weighted average cost of capital and the firm's total value stay unchanged. The capital structure of the company has no bearing on its overall worth. Any advantages that come from debt financing will be countered by an increase in the cost of equity, meaning that the overall cost of capital stays the same regardless of the level of

financial leverage. As a result, there is no ideal capital structure, and investors don't care whether it changes (Paramasivan & Subramanian, 2009). The following are this approach's fundamental assumptions:

- i) Debt capitalization rate (K_d) remains constant.
- ii) Overall cost of capital (K_o) remains constant.
- iii) Market value of equity is the residual value.
- iv) Overall capitalization rate depends on Business risk and it is independent to the capital structure.
- v) No corporate taxes and income taxes.
- vi) The use of less costly debt funds increases the rises of shareholders. This causes equity capitalization rate (K_e) to increase.

$$K_e = E/S$$

Where K_e - Cost of equity

E- Earning available to equity share holders

S- Market value of stock

c) Traditional Approach

This method states that, up to a particular debt level, a prudent combination of debt and equity capital can lower the weighted average cost of capital, increasing the firm's value. The weighted average cost of capital (WACC) only falls within a tolerable financial leverage range; beyond that, it begins to rise as financial leverage increases. Therefore, a company's ideal capital structure is achieved when its weighted average cost of capital is at its lowest, enhancing the firm's value. A prudent combination of debt and equity can lower the cost of financing or raise the firm's value (Negasa, 2016). There are ways to lower the cost of capital or raise the firm's worth. As expensive equity capital replaces low debt, the weighted average cost of capital (WACC) decreases with a reasonable degree of leverage. The cost of stock will rise as a result of financial leverage and the danger it poses to shareholders. However, conventional wisdom is that at a reasonable level of leverage, the reduced cost of debt more than offsets the increase in equity costs.

d) Modigliani- Miller approach (MM-Approach)

In their original viewpoint, Modigliani and Miller (1958) argued that the net operating income method explains the relationship between leverage and the cost of capital. By providing behavioral justification for the overall cost of capital, which stays constant across all leverage levels, they mount a powerful challenge to the conventional viewpoint. The assumptions are:

- i) Capital markets are perfect.

- ii) No transaction cost, investors are free to sell and buy the securities and they can borrow without any restriction.
- iii) The absence of corporate and personal taxes are assumed Modigliani and Miller removes this assumption later.
- iv) Expected values of the probabilities distribution of expected operating earnings for all future periods are same as present operating earnings.

e) Proposition-I

According to the Modigliani and Miller Proposition I, a company's market value is unaffected by its capital structure. The rationale is that net operating income is capitalized at a rate appropriate for the firm risk class, which determines the firm's value (Modigliani and Miller, 1958). This claim states that there is no connection between a company's capital structure and its overall value, or cost of capital. The taxes are disregarded in this proposal.

f) Proposition-II

In order to compensate in the form of a premium for taking on greater risk as a result of increased leverage, proposition II stipulates that the cost of equity increases proportionately with an increase in financial leverage. Proposition II reveals that the value of a company rises with each additional unit of financial debt and takes corporate and individual taxes into account. Additionally, theory suggests that having as much debt financing as possible is always preferable because it raises the firm's value by lowering the cost of capital.

2.2 Empirical Review

Myres (1984) established a strong positive correlation between a variable firm's growth and profitability. The study also shows that return on asset and firm size are positively correlated. The results also did not support the hypothesis that a larger fixed asset has a smaller impact on profitability. Furthermore, there is a strong negative correlation between variable liquidity and return on asset. Friend and Lang (1988) and Berger & Wharton (2002) concluded that there was a significant negative correlation between debt and profitability. It was established by Baral (2004) and Rajan and Zingales (1995) that debt and profitability are negatively correlated.

The effect of capital structure on the performance of cement companies listed on the Karachi Stock Exchange was validated by Muhammad et al. (2014). and discovered the connection between a firm's success and its capital structure. The findings suggested that the debt ratio and firm performance variables - gross profit margin, net profit margin, return on assets, and return on equity- were negatively correlated. Similarly, there is a negative correlation between debt-to-equity ratio and firm performance variables (return on assets & return on equity) and a positive correlation between debt-to-equity ratio and gross profit margin & net profit margin.

Akhtar (2005) looked into the relationships between growth and long-term debt, dividends and overall debt of the companies, and the negative correlation between returns and leverage. Mesquita & Lara (2003) found a negative correlation between the long-term debt ratio and the profitability variable, coming to the conclusion that profitability decreased with debt. Nonetheless, there is a favorable correlation between profitability and short-term debt. However, Kyereboah (2007) established a positive relationship between profitability and the debt ratio. Additionally, Abor (2005) concurs. Adeyemi and Oboh (2011) selected 90 firms for primary and secondary data from a sample of 150 respondents. They found a strong positive link between a firm's choice of capital structure and its market value in Nigeria by using descriptive statistics and the chi square test.

Capital structure may have been impacted by asset structure, and it has also been noted that various types of business assets have an impact on capital structure. The type of assets possessed by a corporation is considered to be a contributing factor in most capital structure theories (Booth et al., 2001; Vasiliou et al., 2005). They also affirmed that a company's assets are divided into two categories: tangible and intangible. According to Akhtar's (2005) conclusion, noncurrent assets in particular can be utilized as collateral for debt, meaning that the more physical assets a company possesses, the less risk the debt provider bears. Also tangible assets are associated with higher leverage because they provide better collateral for loans.

Conversely, Chen and Strange (2005) contended that companies possessing a higher percentage of intangible assets are confronted with more severe information asymmetry issues, leading to increased agency costs for the company. Most earlier research revealed a favorable correlation between leverages and the tangibility of assets. On the relationship between leverage and the tangibility of assets, however, conflicting findings were also discovered. According to Bevan and Danbolt (2002) and Booth et al. (2001), there is a negative correlation between leverage and the tangibility of assets.

Coupling the theories and empirical discussions above leads this paper to propose the following hypotheses:

H₁: Profitability would be influenced by capital structure in Nepalese manufacturing companies

H₂: Size of the firm would be moderating the impact of capital structure on profitability in Nepalese manufacturing companies.

2.3 Conceptual Framework

Sultan and Adam (2015) study's findings suggest that capital structure positively influence, in a significant way, on the profitability. Furthermore, profitability has been found different depending on the size of the firm. Thus, based on the reviewed literatures, the research framework for this study is presented as:

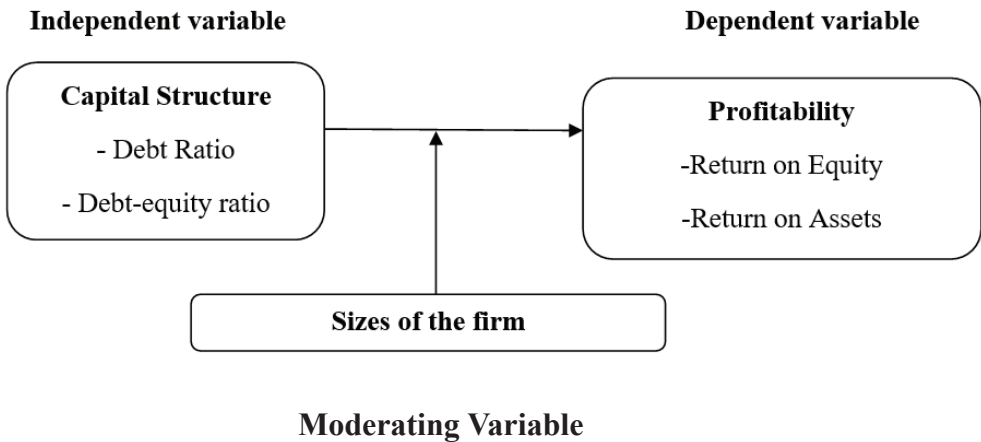


Figure 1: *Conceptual Framework*

2.3.1 Operational Definition of Variables

In this study, capital structure and profitability were the independent and dependent variables respectively; size of the firm has been considered as moderating variable which controls the relationship between capital structure and profitability. To measure the capital structure, debt ratio and debt to equity ratio were used. Likewise, to measure the profitability, return on equity and return on assets were used. Size of firm was taken as moderating variable to see whether the profitability is different in different groups of sizes of firm.

a) Capital Structure

Equity is the owner's capital and is made up of common stock, paid-in capital, reserves, surplus, and retained earnings, according to Chechet and Olayiwola (2014). A definite contractual obligation to pay interest on borrowed money is called debt. A capital structure, according to Shubita and Alwawalhah (2012), is a mix of debt and equity that is employed in the operations of a business. On the other side, the capital structure represents the combination of long-term sources of capital. Long-term debt and equity are the sources of long-term capital. Therefore, in some combination or proportion, long-term debt, preferred stock, and common equity comprise a company's capital structure (Velnamphy, 2012).

b) Profitability

A measure of an organization's growth throughout the course of its operational years is its profitability. Increasing company profitability is the primary goal of most managerial decisions. Profitability is a good indicator of a company's management and operation quality (Baral, 2004). Creditors are as interested in the company's financial stability as owners and management are. While business owners are more concerned with their profits or returns, managers are more concerned with operating efficiency. It's also undeniable that a larger return implies a potential increase in risk (Chechet & Olayiwola, 2014).

c) Capital Structure and Profitability

Returns and related risk are directly impacted by the capital structure. A corporation can optimize its value and reduce its overall cost of capital by implementing a suitable capital structure that balances the associated risks and rewards. Leverage increases both risk and reward (Frank & Goyal, 2003). The company gives the stockholders the highest return by using more leverage at the lowest expense. Making wise capital structure decisions requires understanding the relationship between capital structure and firm performance (Sultan & Adam, 2015).

2.3.2 Moderating Role of Firms' Size on Relationship between Capital Structure and Profitability

Business size, as determined by total assets and revenues, has a moderating role in relationship between capital structure and profitability (e.g., Abor, 2005; Babalola & Abiodun, 2013; Gill & Mathur, 2011; Negada, 2016; Hallowell, 1996). So, this study aimed to examine the moderating effects of firm's size in the impact of capital structure on profitability.

Sampled companies were categorized into three categories according to their fixed capital - small, medium and large. In Nepal, companies having fixed capital up to Rs. 150 million come under small firms, companies having fixed capital exceeding Rs. 100 million but less than Rs. 500 million come under middle- sized firm and similarly, large companies have fixed capital exceeding Rs. 500 million.

3. RESEARCH METHODOLOGY

Correlational research design was adopted in which multiple regression analysis was performed to measure the degree of impact of capital structure on profitability and achieve research objective and test first research hypothesis. In the similar research conducted by (Velnampy & Aloy, 2012), had used regression analysis to find out the association between the variables. Similarly, Abor (2005) used regression analysis in estimation of functioning relation of return on equity (ROE) with measures of capital structure. Gill, et al. (2011) had used correlation and regression analysis to estimate the functions relating to profitability (measured by return on equity) with measures of capital structure. Sultan and Adam (2015) had used correlation and regression analysis in their research. Dummy variable regression analysis under inferential statistic was performed to test the second hypothesis. Abor (2005) had confirmed the moderating impact of size of the firm on profitability in his empirical research.

Population for this study is particularly not very large and consists of the entire 18 manufacturing companies listed in the NEPSE, out them, 5 manufacturing enterprises (samples) that have been regularly traded in line with the regulation of NEPSE have been selected for collecting the data from. Therefore, purposive sampling technique has been adopted. In the similar research conducted by Wardani and Subowo (2020) had also used

purposive sampling technique. Regularly traded in line with the regulation of NEPSE manufacturing companies are Bottler Nepal limited, Unilever Nepal limited, Himalayan distillery limited, Bottler Nepal limited (Terai) and Nepal Lube Oil Limited.

Data used in this study were secondary and sourced through internet and annual published reports collected by visiting websites of concerned organization. In the similar research by Mahdaleta, Muda, and Nasir (2016), secondary data were used from the financial statements of 46 companies published in the Indonesia Stock Exchange. This study employed the data collected from five manufacturing companies in Nepal for five consecutive fiscal years (2075/76-2079/80).

Secondary sources were extensively used in this investigation and most of data were gathered from financial and governmental data base. The most secondary data were collected from audited financial statement of manufacturing companies in Nepal. Along with this, websites of the related firms, websites of the regulatory bodies were also used to gather the required financial information and data. The information from firm's annual reports can extensively be dependent on as they are audited by external experts or reputed.

The collected raw data were first cleaned up and organized for the processing. Once the data were cleaned up, they were put in the IBM SPSS Statistics 23 as inputs. Then, the data inputted to the computer were processed and outputs were calculated for analysis.

4. RESULTS

4.1 Relationship between Capital Structure and Profitability

Pearson's Correlation Coefficients are calculated; the results on these coefficients are presents in Table 4.1.

Table 1 Descriptive Statistic

	Mean	SD	DR	DER	ROE	ROA
DR	39.844	21.321	1			
DER	106.126	84.863	0.878**	1		
ROE	28.644	16.845	-0.143 (p=.496)	-0.294 (p=.154)	1	
ROA	13.859	11.605	-0.185 (p=0.376)	0.472* (p=0.017)	0.897** (p=0.0023)	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output

As indicated by the results presented in Table 1, debt ratio has negative relationship with ROE and ROA, but the relationship is not significant since p-values are greater than 0.05. Similarly, debt-equity ratio has negative relationship with ROE, this relationship is not significant since p-value is greater than 0.05, while it has significant negative relationship with ROA at 0.05 level. Regression analysis takes into consideration the entire relationship, taking into account many factors and their interactions, whereas correlation examines the linear association between two variables. Even if there is little or no correlation between two particular variables when considered separately, a variable may nevertheless make a substantial contribution to the dependent variable's prediction when paired with other variables in a regression. In essence, the relationship may be seen more clearly when the larger picture of the complete model is taken into account (Moore, et al., 2021). Therefore, regression analysis of variables having no significant correlation is also processed.

4.2 Impact of Capital Structure on Profitability

To achieve the second research objective and test the first research hypothesis, multiple regression model was used; the results are presented in following tables

The results on coefficient of multiple determinations (R square) are presented in Table 2. This shows the total variation in ROE and ROA explained by DR and DER.

Table 2 Variation in ROE and ROA explained by DR and DER

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.198	0.039	0.048	17.24473
2	0.516	0.267	0.200	10.3810
a. Predictors: (Constant), Debt ratio, Debt-equity ratio				
b. Dependent Variable: Return on equity, Return on Assets				

Source: SPSS output

As shown in Table 2, the value of coefficient of multiple determination is 0.039. This implies that the variation in ROE can be explained by DR and DER is 3.9%. Due to very low value of R square, which shows very less variation of ROE explained by DR and DER, the analysis of impact of DR and DER on ROE was not processed further in this study. However, the value of coefficient of multiple determinations in case of ROA is 0.267, which implies that the variation in ROA explained by DR and DER is 26.7%.

For the goodness-of-fit of regression analysis, analysis of variance test was made. The results of this test are presented in Table 3

Table 3: Goodness of Fit of Regression

Model		Sum of Squares	Mean Square	F	Sig.
2	Regression	861.535	430.767	3.997	0.033
	Residual	2370.86	107.766		
a. Dependent Variable: Return on asset					
b. Predictors: (Constant), Debt ratio, Debt-equity ratio					

Source: SPSS Output

As indicated in Table 3, the alternative hypothesis was accepted since p-value was significant (0.033). This implies that DR and DER contribute to the ROA.

The constant value and regression coefficients for the analysis of regression are calculated; the results of these values are presented in table 4.

Table 4: Regression Analysis of ROA on DR and DER

Model	B	Unstandardized Coefficients		Sig.
		Std. Error		
2	(Constant)	12.406	4.879	0.019
	Debt ratio	0.429	0.220	0.046
	Deb-equity ratio	-0.147	0.055	0.014
a. Dependent Variable: Return on assets				

Source: SPSS Output

As indicated in Table 4, the constant value is found to be 12.406, which is the Y intercept. This implies the ROA that we expect when DR and DER are zero. The slopes of regression line of DR and DER are 0.429 and -0.147 respectively. This implies that, as DR increases by 1%, ROA would be increased by 0.429% and vice-versa. Similarly, as DER increases by 1%, ROA would be decreased by 0.147% and vice-versa. The regression coefficients of both debt ratio and debt-equity ratio are significant since p-values - 0.046 and 0.014 - are less than 0.05. Thus, the regression equation of ROA on DR and DER in line with the equation $Y = a + b_1X_1 + b_2X_2$ is given by:

$$ROA = 12.406 + (0.429) DR - (0.147) DER$$

Where,

Y = Dependent Variable (ROA)

X_1 = Independent Variable (DR)

X_2 = Independent Variable (DER)

a = Constant

B_1 = Slope of the regression line

B_2 = Slope of the regression line

4.3 Moderating Role of Firms’ Size on Impact of Capital Structure and Profitability

To test whether the size of the firms is playing moderating role on impact of capital structure on profitability in terms of return on assets, dummy or indicator variable regression analysis in was performed. The results on this are presented in subsequent tables.

Table 5 Variation in Roa explained by Dr and Der (size of the firms wise)

Size of the Firm	R	R Square	Adjusted R Square	Std. Error of the Estimate
Small	1	0.940 ^a	0.883	1.51272
Medium	1	0.949 ^a	0.901	4.50000
Large	1	0.565 ^a	0.319	9.64016

a. Predictors: (Constant), DER, DR

Source: SPSS Output

As shown in Table 5, the values of coefficients of multiple determination for small, medium and large sized firms are 0.888, 0.901, and 0.319 respectively. This implies that the variation in ROA explained by DR and DER is different in different sizes of the firms.

For the goodness-of-fit of regression analysis, analysis of variance test was made. The results of this test are presented in Table 6.

Table 6: Goodness of Fit of Regression

Size of Firm			Sum of Squares	Df	Mean Square	F	Sig.
Small	1	Regression	34.623	2	17.312	7.565	0.117 ^b
		Residual	4.577	2	2.288		
		Total	39.200	4			
Medium	1	Regression	369.500	2	184.750	9.123	0.099 ^b
		Residual	40.500	2	20.250		
		Total	410.000	4			
Large	1	Regression	521.586	2	260.793	2.806	0.100 ^b
		Residual	1115.192	12	92.933		
		Total	1636.779	14			

a. Dependent Variable: ROA

b. Predictors: (Constant), DER, DR

Source: SPSS Output

As indicated in Table 6, the alternative hypotheses were rejected since p-values were insignificant in all sizes – small (0.117), medium (0.099) and large (0.100) – of firms. This implied that there was no significance difference between sizes of firms when it came the capital structure to have impacted on profitability. This didn’t show the size of firms as moderating variable on impact of capital structure on profitability.

4.4 Hypotheses Testing

H₁: Profitability would be influenced by capital structure in Nepalese manufacturing companies.

For testing the first hypothesis, multiple regression model was performed. The regression equation of ROA on DR and DER showed that debt ratio has significant positive impact on return on assets while debt-equity ratio has significant negative impact. This test implied that, as companies increase their debt ratio, they will have their return on assets increased. The same result companies witness with decreasing the debt-equity ratio. So, the proposed hypothesis was accepted.

H₂: Size of the firm would be moderating the impact of capital structure on profitability in Nepalese manufacturing companies

Referred to table 6, size of the firms was not moderating the impact of capital structure on profitability measured by ROA, which rejected the proposed hypothesis.

5. DISCUSSION

The aims of this study were to assess the impact of capital structure on profitability and confirm whether size of the firm moderates this impact. The test of first hypothesis revealed that capital structure has no or very little impact on return on equity, however, debt ratio and debt-equity ratio have respectively significant positive and negative impact on ROA. In the similar research, Rahman et al. (2019), revealed significant negative impact of DR on ROA. The finding is also supported by Frank and Goyal (2003). According to them, capital structure carried direct impact on returns and associated risk as well. The finding of this study regarding impact of debt ratio on ROA was inconsistent with the finding of Rahman et al. (2019). It might be because of differences in context of research, industrial policies, national economies, nature of sampled organizations, however, the finding regarding impact of debt-equity ratio on ROA was consistent. These detections were made by using the multiple regression analysis.

The test of second hypothesis confirmed that the size of firm is not playing the moderating role in the impact of capital structure on profitability measure by ROA. The similar test done by Abor (2019) also confirmed the same. Babalola and Abiodun (2013), however, observed that firm size, both in terms of total assets and total sales, has influence on impact of capital structure on profitability. Gill and Mathur (2011) stated that larger board size (large number of directors) moderating the impact of capital structure on profitability. It is simply because, in many situations, the impact of size of the firm on profitability is paramount; as a result, profit earning capacity varies from firm to firm. Generally, firms with larger size seem to have higher earning power due to larger market share, sound management, efficient utilization of resources, etc. Similarly, Chief Executive Officer Duality and corporate liquidity positively impact the profitability (Negada, 2016). Arjal (2017) confirmed that there is no established theory explaining the exact linkage between capital structure and profitability, only empirical studies have verified this. Therefore, though this study made some empirical

support regarding the relationship between capital structure and profitability, it was also acknowledged that the concern of rejecting or accepting the theory based on the findings of this paper was unable to figure out.

5.1 Conclusion and Implication

This study aimed to analyze the impact of capital structure on profitability in Nepalese manufacturing companies listed on NEPSE taking data for the fiscal year of 2075/76 to 2079/80. The study posits that capital structure has very little or no impact on return on equity, however, debt ratio and debt-equity ratios have respectively significant positive and negative impact on ROA. Similarly, the size of the firm does not moderate the relationship between capital structure and profitability.

This study has seen the implications from managerial and future research perspectives. First, this study suggests the managers to fix optimal appropriate portion of debt and equity to achieve high level of profitability. Now, financial managers can assess the portion of debt and equity to increase the profitability. Financial managers can know that ROA can be increased by increasing the debt and lowering the equity. Thus, to have the positive impact on profitability with the use of capital structure as an important means, this study is important to managers. Second, the results of this study are useful for investors, lenders, as well as corporate houses. It will also help the financial managers to identify their appropriate capital structure in order to maximize the value of the firm.

Likewise, the recommendations to the future researcher vis-à-vis the limitations of this study in terms of scope, methodology and assumption can be drawn. The future study can focus on a larger group of companies or it can be industry-specific so that, unlike to the manufacturing companies, other industries can also see the impact of capital structure on profitability. The data used for the study were of only 5 years. Future researchers can go for taking more year data than only 5 years. Longitudinal research is especially more desirable concerning profitability as profitability of the organizations are found to be increasingly affected by many external environmental factors. So, future researchers can conduct longitudinal research for the confirmation of findings of this research. Last but not the least, the future researchers can use sales, capital employed, net worth, total assets, raw material, power consumed, and number of employees employed etc. to determine the size of firm.

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