

CAPITAL STRUCTURE AND ITS IMPACT ON FIRMS PERFORMANCE: AN EMPIRICAL INVESTIGATION ON OIL AND GAS SECTOR IN PSE

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ABSTRACT

The present work attempts to single out the relation of capital structure with firm's performance. The firm's performance is restrained by Net Profit, Return on Assets (ROA) and Return on Equity (ROE). Whereas, capital structure dimensions are Debt to Equity ratio (DER) and Debt to Assets Ratio (DAR). The Capital structure is fundamental because it affects the firm's overall operations. The secondary data has been collected by using complete sector of oil and gas as a sample. The statistical techniques such as descriptive statistics and regression are applied for data analysis by using STATA. Return on Assets (ROA), Return on Equity (ROE) and net profit are treated as independent variables while Debt to Assets Ratio (DAR) and Debt to Equity ratio (DER) are dependent variables. The result show that there is a relationship, but the nature of relationship is mixed. The current study will help the company's management to sketch the optimal capital structure to maximize shareholder's wealth.

KEYWORDS: Firm performance, Capital structure, Net profit, Return on assets, Debt ratio

1. INTRODUCTION

Capital structure is a way of directing and managing a firm to enhance its long tenure profitability. By adoption of set of rules and incentives, the shareholders return can be maximized by enhancing firm's performance. Capital structure (CS) is meant as a mixture of company's persistent and sustainable financing represented by debt and stocks. It refers how firms finance their overall operations. Debt comes from bonds, debentures issued whereas equity part consist of common stock, preferred stock. It is not easy to establish an ideal capital structure. Optimal capital structure is the requirement of every organization but it is very difficult for the finance executive to establish the most favorable level of capital structure, which means minimizing the rate of capital and thus make best use of the firm's worth. Notionally debt finance offers low rate of capital due to deduction of tax but the company's risk increases with increase in debt. Thus to formulate an optimal structure, one should consider both debt as well as equity.

Capital structure must put in place of the structure, it ensures that company's operations are focused and controlled in such a way that it increases the shareholder's value by enhancing the organizational performance and checking the manager's performance through accountability process. Firm's performance and capital structure are able to attract a lot of potential investors especially in oil and gas sector as it is a tool of economic development. Capital structure and good firm performance will lead to prospered carried efficient policies in firms. A very limited research has been carried out on capital structure and firm performance relationship topic especially in oil and gas sector in Pakistan. This term is very important in developing economies and researchers are carrying out research at different levels in various sectors. The role of oil and gas sector is significant in the economic growth of any state. It is considered to be the growth engine for a country. Government of Pakistan is giving from last 6 to 7 years a friendly investment surroundings for oil and gas sector to appeal large numbers of national and international shareholders. Over the last years the average oil production was 66,032 barrels per day in 2017 and with a growth of around 13% over the last year. There are total 7 oil Refineries, 6772 petrol stations are operating in Pakistan and 258 oil & gas discoveries and 803 wells penetrated till now. The sector need to be considered by researchers especially in terms of CS role on firm's performance as very little work has been done previously. The present research paper is a challenge to study the relation of capital structure with firm performance.

2. LITERATURE REVIEW

Capital structure decisions are very important because profitability of any firms depends on this assessment. Kajanathan and Nimalthasan (2013) had taken 25 manufacturing firms planned in Colombo stock exchange and they initiate positive relationship between return on equity (firm performance) and debt to assets (capital structure). Modigilaani and Miller (1958) had suggested a model of capital structure in which they came to a conclusion that there is no ideal capital structure because each structure has its own parameters regarding perfect market and no taxes. Aloyniresh (2002) argued that firm financial strategy is based on cost of capital. Brander and Lewis (1986) linked capital structure with market structure. They considered the relationship between market structure and capital structure and they found that market structure affects capital structure and it is possible by inducing the competitive behavior and due to firm's strategy. (Singh 2013) proved in a study that there is a strong relationship between capital structure dimensions and performance measures such as ROA and ROCE. Both have a significant effect on each other. He analyzed Indian manufacturing sector. A significant positive connection was exposed between firm financial leverage and its market value. For this purpose, primary and secondary data was taken in Nigeria (Adeyemi and Oboh 2011). Performance and short term debt has a positive significant association whereas long term liabilities has a negative significant relation. The results gave negative link between total debt and return. It was experienced on Ghanaian listed companies (Addae, Nyarko-Baasi et al. 2013). To examine the capital structure and performance association, companies were chosen from Tehran stock exchange and capital structure variables and ROA (Derayat 2012) has confirmed a positive relation.

Velnampy (2005) noticed that each organization invested money in numerous projects and success of any project will be based on its capability to generate profit. Ebid (2009) undertaken research on debt structure with bank financial working, his study was to examine the relation between debt level and firm performance. He had taken the firms listed in Egyptian Stock Exchange and his observation time period ranges from 1997 to 2005. As a measure of performance he used return on assets, return on equity and net profit he came to know that debt level and firm performance has a negative relationship. There is a negative significant relation between capital structure and firm performance while growth in sales, return on asset and earning before tax are measures of firm performance. The high proportion of debt in the capital structure is the source of lower performance of a firm (Gleason, Mathur et al. 2000). According to the (Krishnan and Moyer 1997) there is a negative and significant influence of debt to equity ratio on return on equity. Velnampy (2006) mentioned that financial and business units should utilize their profits in enhancing their business. (Fareed, Aziz et al. 2014) examined the influence of capital structure on firm performance and they found that there had a negative relation of leverage (DER) with profitability.

Titman and Wessel (1988) tested a negative relation of profitability with capital structure. (Shubita and Alsawalhah 2012) tested the capital structure and profitability relationship on Amman Stock Exchange listed companies. A negative significant association was revealed between debt and profitability. He suggested that profitable entities depend more on shareholder's equity. (Ferati and Ejupi 2012) analyzed the Macedonian companies to explain the influence on performance due to capital structure. 150 firms were utilized for this purpose. The output indicated that return on assets is positive correlated with short term liability whereas negative with non-current debt. In a study where non-financial sector of Pakistan was the target, an inverse relation was recognized between capital structure measures and ROA and ROE. For net profit margin, this impact was insignificantly positive with all independent variables (Bokhari and Khan 2013). (Shah, Hijazi et al. 2004) discovered a strong link between leverage and profitability. A negative relation was found by taking non-financial listed firms in Pakistan. To check the said relation, top 30 pharmaceutical Iranian firms were taken as a sample. Output gave an inverse significant association between net profit and debt to asset ratio which mean that internal finance is better for return (Mohammadzadeh, Rahimi et al. 2013). A lot of researchers in the world struggled to establish the dimensions of CS and their impact on the firm performance in different sectors like manufacturing, textile, non-financial, chemical sector etc. Lack of the empirical evidences on capital structure and its relation with firm performance in oil and gas sector in Pakistan motivated us to study this topic more in detail.

2.1 Conceptualized model

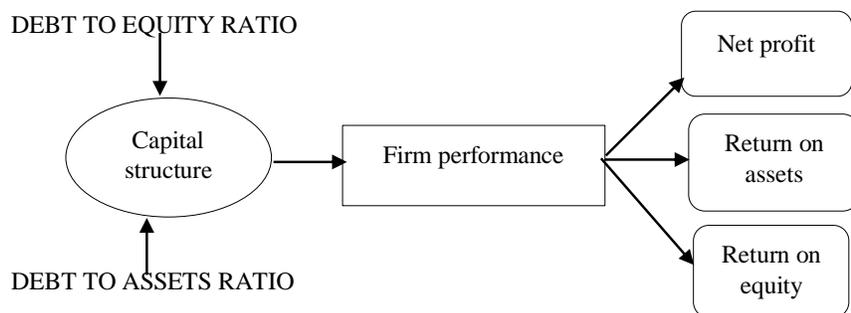


Fig. 1: Conceptualized model

The model depicting the research topic is formulated and given in the above figure. Five variables have been taken to generate this model. The parameters of firm’s performance are ROA, ROE and Net Profit. Capital structure dimension is debt to equity ratio (DER) and debt to assets ratio (DAR).

2.2 Study objective

- To analyze the relationship of capital structure with the dimensions of profitability.
- To study the influence of the dimensions of capital structure on the dimensions of firm performance.

2.3 Hypothesis

H1: There is a positive relation between capital structure and return on asset (ROA).

H2: There is a positive relation between capital structure and net profit (NP).

H3: There is a positive relation between capital structure and return on equity (ROE).

3. DATA AND METHODOLOGY

A methodology is a set of choices from which we select particular methods to solve particular problems. A methodology is not a basic formula. The methodology adopted in this study is similar to the methodology used in the earlier research work on this issue. Data is collected from secondary sources, from the official websites of KSE, from oil and gas sector (annual reports) publications. Panel data has been used for this purpose. This section describes the data sources and its collection, tabulation, analysis and interpretation.

3.1 Regression model

$$ROA = \beta_0 + \beta_1 \text{DAR} + \beta_2 \text{DER} + e$$

$$NP = \beta_0 + \beta_1 \text{DAR} + \beta_2 \text{DER} + e$$

$$ROE = \beta_0 + \beta_1 \text{DAR} + \beta_2 \text{DER} + e$$

Explanation:

Abbreviations	In detail	Formulas
ROA	Return on asset	Net income / total asset
ROE	Return on equity	Net income / total equity
DAR	Debt asset ratio	Total liabilities/ Total asset
DER	Debt to equity ratio	Total liabilities/ Total equity
NI	Net Income	
e	Error term	

3.2 Type of the Study

The nature of the study is an empirical type aimed to establish the relation of structure of the capital with performance of the firm. This study yields the time period from 2013 to 2017 in which 11 large oil and gas firms listed in Pakistan Stock Exchange have been taken for this study.

3.3 Independent variables

Capital structure comprising debt to equity ratio (DER) and debt to asset ratio (DAR) are independent variables. These measures are used as independent variables in the paper (Shubita and Alsawalhah 2012, Singh 2013)

3.4 Dependent variables

Firm’s performance comprised of ROA, ROE and net profit. We are taking these dimensions as dependent variables as evidenced from past study (Derayat 2012 Ferati and Ejupi 2012, Shubita and Alsawalhah 2012, Singh 2013).

4. RESULTS AND DISCUSSION

Table 1: Descriptive statistics

Obs	Sum of Wgt.	Mean	Std. Dev.	Variance	Skewness	Kurtosis
55	55	-.6162573	.4853065	.2355224	-.7055146	2.977381

In the table 1, the descriptive statistics used on variables to find out mean, standard deviation, skewness, and kurtosis values. The mean of all variables is -.6162573. The value of skewness and kurtosis shows that the data is normal as their values lead to the reference values. Because the skewness value should be near to ‘0’ and kurtosis value should be near to ‘3’.

Table 2: Regression result between capital structure variable (DR)(DER) AND performance variables(ROA)

logReturno~A	Coef	St. Er.	T	p> t	[95% Conf. Interval]
logDER	.4324063 -	.0904312	4.78	0.000	.25077 .6140427
logDR	1.686421	.1862671	-9.05 21.69	0.000	-2.060549 -1.312293
_cons	-4.959593	.2286693		0.000	5.418889 -4.500297

Prob > F= 0.0000, R-squared = 0.7644, Adj R-squared= 0.7444

The coefficient value of DER tells us one percent increase in DER will increase 0.43 percent in ROA. The one percent increase in DR will decrease 1.69 % ROA. The p>|t| values tells us there is significant impact of DER and DR on return on assets as these values are less than 0.05. The value of R – squared is 0.7644 that tells the 76% variation in return on assets which is due to this model. The value of Adj R-squared tells us after controlling all included variables the model is best fitted. If more variables are added to the model that have strong relation with predicted one, the value of adjusted R squared will increase otherwise it will decrease.

Table 3: Regression result between capital structure variable (DR)(DER) and performance variables (EPS)

logEarnings	Coef.	Std_Err.	T	p> t	[95% Conf.Interval]
LogDR	-2.088123	.3202079	-6.52 0.36	0.000	-2.73128 -1.444967
logDER	.056632	.1554583	35.36	0.717	-.2556152 .3688792
_cons	13.90184	.3931007		0.000	13.11227 14.6914

Prob > F=0.0000, R-squared= 0.5109, Adj R-squared= 0.4913

The coefficient value of DR explains that one percent increase in DR will alter net income by 2.08 percent in opposite direction. The one percent increase in DER will result 0.06 percent increase in net income. The p>|t| value 0.000 shows the significant impact of DR on net income as its value is less than 0.05. The p>|t| value 0.717 enlightens the insignificant influence of DER on earnings as its value is greater than 0.05. The value of R – squared demonstrates the 51% variation in earnings due to this model. The value of Adj R-squared tells that after controlling the included variables the model is best fitted.

Table 4: Regression result between capital structure variable (DR) and performance variable (ROE)

logROE	Coef.	Std_Err.	T	p> t	[95% Conf.Interval]
logDR	3.182304	1.831887	1.74	0.088	-.4936464 6.858255
logDER	11.89017	.903609	13.16 -4.45	0.000	10.07695 13.7034
_cons	-10.27254	2.306634		0.000	-14.90114 -5.643942

Prob > F= 0.0000, R-squared= 0.7797, Adj R-squared= 0.7712

The 3.18 tells that one percent change in DR will alter ROE by 3.18% in similar direction. The one percent increase in DER will increase ROE by 11.89%. The p>|t| value 0.088 explains insignificant impact of DR on return on equity as its value is greater than 0.05. The p>|t| value 0.000 tells the significant impact of DER on return on equity, as its value is less than 0.05. The Prob>F value is less than 5 percent shows the significance level of model. The value of R – squared tells the 78% change in return on equity is due to in this model.

5. CONCLUSION AND RECOMMENDATION

This research paper observes the relation between capital structure and firm’s financial performance. Parameters of firm’s performance are ROA, ROE and NP while capital structure has two parameters such as DAR and DER. Descriptive stats and OLS regression analysis is used to determine the results. Capital structure (DR and DER) has significant impact on ROA. The results show that ROA is positively related to DER and negatively associated to DAR. The results also tell us that there is significant impact of DR on earnings and insignificant impact on return on equity. The DER has significant impact on return on equity and insignificant impact on earnings. The results findings are inconformity with previous research results of R.Kajananthan and P.Nimalthasan(2013) and Brander and Lewis(1986).The results suggested that firms should utilize their own finances to improve their financial position rather than using large quantity of leverage and firms should try to obtain the optimum CS to increase the its performance .

6. LIMITATION AND FUTURE RESEARCH

The present research is limited to eleven oil gas sector firms listed in Karachi Stock Exchange and data used for a period of five years from 2013 to 2017. Small sample size has been taken to conduct this study. The future research on this topic should be extended to other sectors including industrial and manufacturing firms etc. listed in Stock Exchange.

REFERENCES

- Abor, J. (2005), "The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana *Journal of Risk Finance*, 6 pp, 438-47.
- Addae, A. A., et al. (2013). "The Effects of Capital Structure on Profitability of Listed Firms in Ghana." *European Journal of Business and Management* 5(31): 215-229.
- Adeyemi, S. B. and C. S. Oboh (2011). "Perceived relationship between corporate capital structure and firm value in Nigeria." *International Journal of Business and Social Science* 2(19): 131-143.
- Ali I (2011), "Capital structure of non financial firms registered on Karachi Stock Exchange", *Social Science Research Network*.
- Babalola, Y. A. (2012). "The effects of optimal capital structure on firms' performances in Nigeria." *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 3(2): 131-133.
- Bokhari, H. W. and M. A. Khan (2013). "The Impact of Capital Structure on Firm's Performance (A case of Non-Financial Sector of Pakistan)." *European Journal of Business and Management* 5(31): 111-137.
- Brick, I. E., and S. ARavid,. (1985), "On the Relevance of Debt Maturity Structure", *Journal of Finance* 40,pp 1423-37.
- Chowdhury A and PS Chowdhuy (2010). Impact of capital structure on firm's value: evidence from Bangladesh, Peer review ed and open access journal, Vol. 3 (3), pp 111-115.
<http://www.ukessays.com/essays/economics/analysis-of-descriptive-statistic-economics-essay.php>
<http://www.ukessays.com/essays/finance/regression-analysis-of-pakistans-top-five-banks-finance-essay.php>
- KajanathanR , and P. Nimalthasan(2013) "capital structure and its impact on firm performance" :A study of Sri lankan manufacturing firms.*Merit Research Journal of Business and Management* Vol. 1(2) pp037-044.
- Khan, Abdul Ghafoor.(2012)"The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan", *International Journal of Accounting and Financial Reporting*.
- Krishnan, V. S. and R. C. Moyer (1997). "Performance, capital structure and home country: An analysis of Asian corporations." *Global Finance Journal* 8(1): 129-143.
- Modigliani F and M Miller (1958). "The cost of capital, corporation finance,and the theory of investment", *American Economic Review* 48, 261-297.
- structure on firm's value: evidence from Bangladesh, Peer review
- Titman S, andWessels R (1988). "The determinants of capital Structure Choice", *The J. Fin.* 43, 1-19.
- Velnampy T (2005). "A Study on Investment Appraisal and Profitability".*J. Bus. Studies*, 2, 23-35.
- Velnampy T (2006). "An Empirical study on Application of Altman Original Bankruptcy Forecasting Model in Sri Lankan Companies", *Journal of Management*, Sai Ram Institute of Management, SaiRam Engineering College, India.
- Velnampy T, Niresh JA (2012). "The Relationship between Capital Structure and Profitability.*Glo.J. Bus. Manag.Res.* 12(13)".