

Impact of capital structure on firm performance of pharmaceutical industry in India

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ABSTRACT:— One of the really critical strategic choices that financial managers must make is choosing the appropriate capital structure. The capital structure of a company comprises using a set of financial sources to fund projects and financing costs. Over the research period 2012-2021, this research highlights the impact of capital structure on the firm performance of India's pharmaceutical companies. The study made use of secondary data found on the websites of BSE-listed pharmaceutical firms. The variables used in the study are Return on Equity (ROE) measure of financial performance as the dependent variable and Six independent variables, including financial leverage, liquidity, asset tangibility, size of the firm, sales growth rate, and Inflation. The impact of capital structure on the financial performance of pharmaceutical firms in India is studied using regression analysis with WARP PLS.

KEYWORDS: Capital structure, Regression, Firm Performance.

I. INTRODUCTION

During 1969, Indian pharmaceuticals held a 5% portion of the Indian market, while foreign pharmaceuticals held a 95% stake. In 2020, the situation had flipped, with Indian pharmaceuticals accounting for about 85% of the industry and foreign pharmaceutical accounting for 15%. Indian companies were effective in fulfilling domestic demands as well as developing a prominent place in the global pharmaceuticals market during the past fifty years. In the worldwide pharmaceuticals sector, the Indian pharmaceuticals industry is the major player. India is the world's third-largest pharmaceutical manufacturer. The pharmaceutical sector is predicted to be worth \$1.5 trillion by 2023. This growing industry might be an attractive investment opportunity for investors looking for

companies that are in the process of finding cures or developing treatment options for rare diseases. In the last three years, the pharmaceutical business has grown at a tremendous speed. Investing in a growing sector will be a fantastic opportunity for investors. Investors examine the firm's performance before making an investment choice. A firm's capital structure plays a key role in its financial management, affecting its long-term performance.

One of the really important goals of a finance management is to achieve shareholder wealth. It's dependent on various factors such as handling reduced cost of capital, creating tax advantages from debt funding, lowering loan and equity agency expenses, and so on. All of these concerns are assessed and controlled by arriving at a capital structure that is appropriate. As a result, financial advisors work to guarantee that the capital structure of the company has the best combination of debt and equity. Finance and investing are 2 of an organization's most significant decision-making sectors. In a financing decision, the financial management is concerned with identifying the appropriate finance mix or capital structure for a company. All long-term financial resources such as debts, deposits, stocks, and securities are included in the capital structure, which would be comprised of its capitalization. The link among a capital structure of the firm and its financial performance is a major unsettled issue in finance that's been intensively researched both experimentally and theoretically. Many resources are more expensive, but less dangerous, while others are less expensive but riskier. The capital structure choice is significant since it affects the company's financial risk, as well as the firm's cost of capital, value, and managerial attitude. The purpose of capital structure in a performance of the company is to help raise the market value of stock and bonds, that leads to an

increase in the company's value. It also serves as protection from the over and under-capitalization, as well as reducing risk. A capital structure enables managers to boost a company's profitability by providing a larger return to equity owners, resulting in higher earnings per share.

Firm performance is a financial metric which enables a firm to fulfil its aims by combining human and material resources. It indicates a company's capability and ability to effectively employ existing resources to meet goals in accordance with the company's defined objectives, while maintaining the users' needs in mind. Financial performance metrics (FPIs) are quantitative criteria that are used to assess a company's performance. A firm's financial performance should not be defined by a single metric. Investors may learn about a company's overall health by looking at its financial performance. This is a glimpse of the firm's economic health and thus the performance its administration does to give insight into the future, such as whether their activities and profits are on track to increase, as well as the stock's outlook. Financial performance metrics, also known as key performance indicators (KPIs), are measurable metrics which are used to evaluate, analyse, and predict a company's economic health. They are used by both business insiders (such as management and board members) and others (such as research analysts and investors) to assess the company's performance, particularly in comparison to rivals, and to highlight strengths and shortcomings.

II. LITERATURE REVIEW

There are several research on the firm performance. Hung Dinh and Cuong Duc (2020) investigated the effect of the capital structure on the firm performance of the pharmaceutical enterprises which are listed on Vietnam's stock market. The study builds the regression by using Return on Equity (ROE) as the dependent variables and four independent variables including self-financing, financial leverage, long term asset and debt to asset ratio. The least square regression (OLS) is used to investigate the impact of the capital structure capital structure to the firm's performance. The results shows that financial leverage ratio, long term asset ratio and debt to assets ratio have positive relationship with the firm performance and the self-financing have negative affect on return of equity.

V.V Tretiakova, M.S Shalneva and A.S Lvov (2021) study investigates and analyzes the relationship of the Key performance indicators Return on Asset (ROA), Return on Invested Capital (ROIC), Change in market capitalization and Price

to book ratio and the capital structure of the company based on the pharmaceutical industry in UK. The study used panel data regression and Wald test to determine and analyze the effect of the capital structure on the financial indicators of the firm's performance. The results shows that equity has negative impact on the price to book ratio and Return on Asset and positive impact on the change in the market capitalization, while long term debt has positive relationship with Price to book ratio and change in the market capitalization. N Narsaiah (2020) study investigates the impact of the capital structure on the firm performance of the Indian manufacturing companies listed on the BSE 100. This study adopted econometric models for panel data analysis and they used pooled OLS estimation, Fixed effect and Random effect methodology along with the Hausman test and Ramsey reset. The results shows that there is negative relationship amongst short term debt ratio, long term debt ratio and Return on Equity.

Mehdi Mohammadzadeha, Farimah Rahimia, Forough Rahimib and Jamshid Salamzadeh (2013) study seeks to examine the relationship between the capital structure and profitability of the pharmaceutical companies in Iran. The indicators of the profitability are net profit margin and capital structure indicator is debt to asset ratio and sales growth is used as the control variable. The results of the study shows that there is significant negative relationship between the profitability and the capital structure which means that pharmaceutical companies have established a pecking order theory and internal financing has led to more profitability. Hieu Thanh and Anh Huu (2020) study investigates the impact of the capital structure on the firm performance in the Vietnam context. This study investigates the impact of the capital structure on the firm performance in state owned and non-state enterprises listed on Vietnam stock market. The Generalized Least Squares (GLS) is used to address econometric issues and to improve the accuracy of regression coefficients. The firm performance is measured by return on equity, return on assets, and earnings per share and capital structure is measured by ratios of short-term liabilities, long term liabilities, and total liabilities to total assets and control variables includes firm sizes, growth rate, liquidity and ratio of fixed assets to total assets. The results of the analyses shows that the capital structure there is significant negative impact on the firm performance and this impact is stronger in the state-owned enterprises than the non-state enterprises in Vietnam.

Tom Jacob and Ajina V S (2020) study investigates the impact of the capital structure on the

financial performance of the pharmaceutical companies in India. Capital structure is measured by Debt equity ratio and firm performance is measured by Return on equity. Regression analyses is used in the research. The results indicates that financial performance has no link with the capital structure which proves the Modigliani and Miller Theory of the capital structure. Dr. Atul A Agwan (2017) study aims to determine the impact of the capital structure on the profitability of the automobile industry. To analyse the financial data, a number of financial and statistical tools are applied. These include ratio analysis and ANOVA, Karl Pearson's coefficient of correlation, and regression analysis. Debt-equity ratios are significantly influenced by the firm's liquidity and growth. As a result, sustainable growth as well as the creditworthiness of the firm influence the debt-equity ratio, which is a measure of financial leverage. Long-term debt and equity securities make up the capital structure of a company, which is usually used to finance its long-term assets.

Studies examining the impact of capital structure on pharmaceutical company performance are primarily conducted in foreign contexts (Hung Dinh and Cuong Duc-2020, V.V Tretiakova, M.S Shalneva and A.S Lvov-2021, Mehdi Mohammadzadeha, Farimah Rahimia, Forough Rahimib, Sayed Mohammad Aarabic and Jamshid Salamzadeh-2013), while studies examining the influence on Indian contexts are much fewer (Tom Jacob and Ajina V S-2021, N Narsaiah-2020). Thus, the core purpose of this paper is to examine the impact of capital structure on firm performance in the Indian pharmaceutical industry. The main objective of the study is:

- To determine whether there is a relationship between capital structure and a firm's performance
- To identify the impact of external financing on the company financial performance.

III. RESEARCH METHODOLOGY

A. Data

The study mostly relies on secondary data. The study covers the period 2012-2021. The data was gathered from annual reports published on the websites of the companies. In the study, the top 20 Pharmaceutical companies listed on the BSE are chosen based on their market capitalization.

B. Variable Description

Based on the literature review, we developed the following research model (Figure 1). In this study firm performance is the dependent variable and Capital structure is the independent variable. Financial performance can be measured by MBVR, Tobin's Q, Return on Assets, Return on Equity, etc. Finance managers' main aim is to maximize the interest of the shareholders., so we use Return on Equity (ROE) as the firm performance indicator. Return on Equity (ROE) is a performance metric for a company's current performance which represents profit attained in previous accounting periods. Accordingly, this measure is consistent with the works of Hung The & Cuong Duc (2020), Tom Jacob & Ajina VS (2021), N Narsaiah (2020), Hieu Thanh & Anh Huu (2020). The capital structure indicators in the study are financial leverage, liquidity, asset tangibility, size of the firm, sales growth rate and inflation.

Figure 1: Companies selected

SL.NO	Company name	Market Capitalization (Rs. Cr)
1	Sun Pharmaceutical Industries Ltd	207195
2	Divi's Laboratories Ltd.	115517
3	Dr. Reddy's Laboratories Ltd	71,912
4	Apollo Hospitals Enterprise Ltd	64306
5	Piramal Enterprise Ltd	51617
6	Biocon Ltd	47160
7	Alkem laboratories Ltd	3622.45
8	Ipca Laboratories Ltd	24841
9	Fortis Healthcare Ltd	19738
10	Ajanta Pharma Ltd	17059
11	Abbot India Ltd	16470
12	Natco Pharma Ltd	15842
13	Procter and Gamble Health Ltd	7765
14	Granules India Ltd	7516
15	Poly Medicure Ltd	7154
16	Jubilant Pharmova Ltd	7077
17	Torrent Pharmaceuticals Ltd	2845.55
18	Lupin Ltd	773.50
19	Aurobindo Pharma Ltd	720.50
20	Candila healthcare ltd	369.70

Figure 2: Proposed Research model



Dependent Variable

Firm performance is the dependent variable. Return on Equity is taken as an indicator to measure the firm performance. Return on Equity (ROE) is a metric for determining how well a team utilizes capital – or funds given by investors accumulated retained earnings – to generate revenue. The aptitude of a firm to convert capital into net income is measured by return on equity (ROE). The return on equity (ROE) is considerably more than a profitability indicator; it's also a measure of efficiency.

Independent Variables

•Financial leverage: Financial leverage refers to the utilization of external financing to boost revenues and profits. The utilization of huge debt within the firm boosts the income of the owners. Financial leverage is measured by the following ratios:

□ Debt Equity Ratio (DR): The Debt-to-Equity Ratio (D/E) specifies the percentage of the company's assets financed using debt. It's a long-term solvency ratio which shows how well a company's long-term financial strategies are effective.

□ Long Term Debt Ratio (LTDR): The long-term debt to equity ratio indicates how much of a firm's assets are financed by long-term debts. This ratio indicates how well a firm's capital structure is skewed toward debt versus equity financing.

□ Short Term Debt Ratio (STDR): The possibility that a firm would be able to make payments over its outstanding short-term obligations is measured by the short-term debt ratio. Short-term debt is a

company's liabilities which is required to be paid in a year.

•Asset Tangibility (AT): The relationship between asset structure and capital structure is based on variability in corporate asset liquidity. The asset tangibility boosts credit worthiness by making things simpler for creditors to acquire a company's assets.

•Liquidity: Lower equity issuance costs benefit companies with much more liquid stocks. As a result, it is assumed that such companies will choose to have equity in their capital structure. Liquidity is measured by Current ratio (CR) and it measures a firm's ability to meet its short-term debts.

•Firm Size: The firm size is measured by Total assets (TA).

•Inflation: Inflation is a significant aspect to consider while making a financial decision. If a firm uses more debt during period of high inflation, they will have to return the loan with rupees greater than the amount borrowed.

•Sales Growth Rate (GR): Sales growth and stability are indicators of a company's capital structure. If a firm does well, it might acquire a lot of debt, and vice versa.

Hypothesis

H1- The financial leverage of the firm exhibits a significant relationship with firm performance.

H2- Liquidity has a significant relationship to the firm performance.

H3- The size of a firm has a considerable impact on its performance.

H4- The tangibility of an asset has a significant impact on a company's performance.
 H5- The inflation has a significant impact on firm's performance.

H6- Growth has a significant impact on the firm performance.

IV. EMPIRICAL RESULTS ANALYSIS

Table 1: Regression Analysis Results

Variable	Coefficient	P Value
DE	0.15	0.01
STDR	0.38	0.01
LTDR	-0.13	0.03
AT	0.14	0.02
CR	0.13	0.03
GR	0.10	0.07
TA	-0.32	0.01
INF	0.12	0.04

The regression analysis has been done by using the WARP PLS software. The results from the analysis (Table 3) shows that financial leverage has significant impact on the firm performance. Debt to equity and short-term debt to equity has positive relationship (with coefficients 0.15 and 0.38) but long-term debt ratio has negative relationship (with coefficient -0.13). This positive relationship supports the results of Hung The & Cuong Duc (2020), It means that when debt to equity and short-term debt increases by 1 unit the firm performance also increases by 0.15 and 0.38 units. and when there is increase in the long-term debt then the firm performance decreases. It means that when there is increase in the external financing but that is short term then it would cause the increase in the firm's performance and an increase in the long-term external financings would decrease the firm's performance.

Tangibility has positive relationship (with coefficient 0.14) and significant impact on the firm's performance. This means that when there is 1 unit increase in the asset tangibility the firm performance increases by 0.14 units. While securing a debt, companies use tangible assets as collateral, associated with long term debts. As lenders observe tangible assets of the borrowed companies as collateral, they feel at ease. As a result, lenders are more ready to extend loans to businesses with more fixed assets as collateral.

Liquidity has positive relationship (with coefficients 0.10) and significant impact on the firm performance. This result supports the results of (N Narsaiah 2020). This result means that when there is

1 unit increase in the liquidity the firm performance increases by 0.10 units. When the liquidity increases it increases the company's ability to meet their short-term debts by using their liquid assets and so the firms can pay off its short-term debts thereby increasing the firm performance.

Inflation has positive relationship (with coefficients 0.12) and it has significant impact on the firm performance. This result means that when there is increase in the inflation by 1 unit it would cause increase in the firm performance by 0.12 units. Pharmaceutical industry's firm performance increases with increase in inflation as medicine is a basic necessity, even though when there is rise in the price of the medicine there is always demand for the medicine thereby increasing the revenue and the firm performance and which would enable the firm to repay the debts. Impact of the sales growth is not statistically significant. The results of the study shows that the sales growth rate does not have significant impact on the firm's performance.

Firm size has negative relationship (with coefficients -0.32) but have significant impact on the firm's performance. The result means that when there is increase in the firm size by 1 unit then the firm performance decreases by 0.32 units. When the size of the firm increases then there is higher demand for the funds which means the firms rely on external financing mainly long-term debts which has negative impact on the firm performance and so increase in the size of the firm would cause decrease in firm performance.

From the analysis, the results shows that Hypothesis 1, Hypothesis 2, Hypothesis 3, Hypothesis 4 and Hypothesis 5 that there is

significant relationship between the financial leverage, liquidity, size of the firm, tangibility and inflation is supported while Hypothesis 5 that there is significant relationship between the growth and firm performance is not supported.

IV. CONCLUSION

The choice of capital structure is vital in all firms. Within today's dynamic business environment, these actions play a vital role on enhancing corporate profits. This research explores the relationship between capital structure and firm's performance of the Pharmaceutical Industry in India. This research reveals the capital structure has a major influence on business performance, so the capital structure increases firm performance and boosts investors' confidence. Leverage does have a positive influence here on pharmaceutical industry's financial performance, and that in order to improve financial performance, firms must raise financial leverage through altering debt and equity. Firms must have provisions in place to utilize those cash wisely considering the type of long and the short debt. Pharmaceutical industry can enhance their financial leverage by altering their debt and equity in enhancing their firm performance. Due to the obvious shorter payback period, firms should concentrate to short-term borrowing. A limitation of the study is that it is restricted to 20 companies based on their market capitalization, which does not allow for a generalization of the industry. Another key obstacle was indeed the paucity of data. Annual statements of numerous pharmaceutical companies were difficult to obtain, particularly in recent years and much of the company's data was lacking. Some of the data was hard to gather as a result of this. Future study could be done with a larger sample of firms and even more quantitative metrics of firm performance to see whether there is a more obvious link between capital structure and firm performance. And as result, this present research may be improved upon in a number of ways, potentially deepening the knowledge of the relationship between capital structure and firm performance.

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