

A Diagnostic Study of Capital Structure and Profitability of Indian Pharmaceutical Sector Companies.

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Abstract

Capital Structure is an intrinsic and essential feature of financial accounting with long lasting implications. This research paper aims to examine the relationship capital structure has with return on equity and degree to which it causes the effect on it. Short term debt to total assets ratio, Long term debt to Total Assets ratio, Total debt to total assets ratio and company size are taken as independent variables. The study encompasses Pharmaceutical sector companies for a period from 2011 to 2020. Suitable statistical techniques have been utilised to analyse the data and improve the results' trustworthiness. According to the findings of the study, short term debt to total assets has positive and very significant relationship with return on equity. Long term debt to total assets too has positive but insignificant relationship with return on equity while company size has negative but significant relationship with return on equity. Total debt to Total Assets ratio is discovered to be ineffective in terms of influencing the return on equity of business enterprises. The study's findings will help academics and businesses make better decisions.

Keywords : Capital Structure, Return on Equity, Pharmaceutical Companies, India
JEL Classifications: G 30, G31

Introduction

Capital Structure, an important aspect of financial accounting, relates to the combination of capital tools utilised by a company over a long period of time. The primary forms of financial capital are debt and equity. Debt contains borrowed funds, such as debentures and long-term loans. Free reserves, paid-up share capital, and share premium are all examples of equity. Each sort of funding, whether debt or equity, comes with a price tag. You must pay interest on mortgages, which is a significant expense considering the available tax shelter. You would pay dividends on shares, which results in a cash outflow. Though the dividend appears below the profit line in the profit and loss statement, it is a cash expense in terms of investing different money. It is also subject to dividend allocation tax in India. In this regard, both debt and equity have the potential to affect the companies' viability. The capital-intensive pharmaceutical industry, as a significant core sector of the economy, is one in which the analysis of capital structure can offer useful insight into understanding its behaviour and

measuring the degree of impact on profitability, which is, in general, a very important goal of the business enterprise.

Literature Review

(Sinha Pankaj, 2013) explores personal taxes' significance in company financial choices and their impact on debt's corporate tax advantage in Indian manufacturing enterprises. From 1989 to 2011, incremental funding decisions were examined using a combined cross section of time series data from 288 companies. Personal tax effects are captured by two different ways: Marginal tax rates are adjusted for income tax penalties in one formulation, whereas in the other, the effect of personal taxes is recorded individually. The findings show that the relative personal tax downside of debt has a significant impact on the leveraging decisions of Indian companies. When personal taxes are factored in, marginal taxes become negligible. The analysis also shows that the specification that takes into account the actual impact of corporate and personal taxation is superior to the one that changes corporate taxes for the personal tax penalty.

(Pandey N. S., 2017) investigates the effect of corporate leverage on the viability of India's pharmaceutical industry. The time span of the analysis is ten years, from 2004-05 to 2013-14. Secondary data were used in the analysis. During the study time, 37 pharmaceutical companies listed on the National Stock Exchange (NSE) are considered for review. There are three independent variables. Financial Leverage (FL), Operating Leverage (OL), and Combined Leverage (CL), as well as three contingent variables Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS) have been used and evaluated statistically using regression and correlation study. The study's results suggest that there is a substantial effect of CL and OL on Profitability (ROA, ROE, and EPS), which is selected by the pharmaceutical industry in India for the study time. Venugopal, Bhanu Prakash Sharma, Reddy Ravindar (2018) examined the effect of capital structure on shareholder value in 77 Indian pharmaceutical firms listed on the BSE from 2007 to 2015, using created shareholder value (CSV) as a shareholder value metric. Using balanced panel data and regression models, it was discovered that in the absence of tax, determinants such as debt-equity ratio, long-term debt ratio, and short-term debt ratio have a positive association with CSV and a negative correlation with total debt ratio.

(Ghosh, 2018) investigates the factors influencing the capital structure of Middle East and North African (MENA) banks using data from 2000 to 2012 and a sample of over 100 banks from 12 MENA countries. Since the data is longitudinal, the panel employs panel data procedures and controls for unobserved bank features that may influence capital structure. According to the results, the conditions affecting book leverage are close to those influencing business leverage. These results contradict the widely held belief that bank capital structure is solely a solution to regulatory conditions, as regulatory considerations may have pushed a wedge between these two leverage initiatives. Second, the recession seems to have had an impact on bank reserves. Third, in terms of ownership, it seems that the crisis-relief policies benefited Islamic banks, boosting their growth prospects. (Pandey, 2019) investigates the relationship between debt servicing, organisation costs, and the success of Indian manufacturing companies. In two stages of panel data estimations, the analysis attempts to log the effect of debt funding on firm results. The study's first step investigates the impact of debt on firm profitability as determined by 'return on equity.' The second step introduces agency expense to try to empirically understand the cause for such an effect. The report, which looked at manufacturing firms trading on the BSE 200 Index from 2009 to 2016, found that debt had a substantial and negative impact on company results. The size of the debt is also seen to have a favourable impact on the agency's cost, as determined by 'general and

administrative expenses. As a result, the detrimental impact of debt on company efficiency is compounded and validated, as debt is often found to increase the firm's agency costs. (Rani Neelam S. Y., 2018) investigates the capital structure determinants and firms' speed of adjustment (SOA) toward their target capital structure. To assess the adjustment pace against target capital structure, the analysis applied the generalised Method of moments (GMM) model and two-stage least squares (TSLS) to a panel data set of 3,310 Indian firms from January 2000 to March 2018. In addition, to shed light on the complex essence of the modification mechanism, the analysis used a completely adapted ordinary least square technique. According to the GMM estimates, Indian companies are changing their capital structure to the target pace of 10.38 percent per year. Similarly, the results of the TSLS forecast indicate a SOA of 15.49 percent per year. The low adjustment speed means that Indian companies have higher adjustment costs. (Bajaj, Kashiramka, Shvetasingh, 2020) investigates the complexities of capital structure for companies in China and India. If and how they adapt their capital strategies to observe trade-off behaviour in terms of various macro-level considerations. The research employs firms that were listed on the National Stock Exchange and the Shanghai Stock Exchange between 2009 and 2018. Because of the use of complex short panel results, the Blundell and Bond (1998) system generalised method of moments is used. As opposed to Chinese companies, Indian firms return to their target debt levels at a faster pace (30 and 20 per cent, respectively). Furthermore, in the case of India, the inflation rate, bond market and stock market growth are major factors influencing leverage, while bond market development is significant in the case of China. These findings are consistent across different concepts of leverage as well as other firm and structural control variables. (Ahuja Bhavna Ranjan, 2021) investigates the effect of macroeconomic factors on the capital structure of manufacturing firms in India. The panel regression methodology (random effects model) is used on a survey of 1,029 classified Indian manufacturing firms separated into two groups - large-size companies and mid-size companies - over the last ten years, from 2008-09 to 2017-18. Two distinct formulas for long-term leverage and overall leverage have been investigated. The results suggest that macroeconomic factors are more important in determining the long-term debt portion of a firm's capital structure than short-term loans. Similarly, macroeconomic factors are considered to be more important in the case of large-size firms than in mid size companies. Market capitalisation and leverage have a negative relationship, as do bank credit and leverage, while money supply has a positive relationship with leverage. (Gurusamy, 2021) investigates the relationship between corporate ownership structure and capital structure in India's BSE-listed manufacturing companies. During the period 2006-2015, the report contained a survey of 357 firms from 16 major industries. Taking into account the complex panel essence of the data related to the capital structure and ownership structure variables. The research takes an innovative approach to investigating the determinants of both single equation and reduced equation models. The F test, the Breusch Pagan LM test, and finally the Hausman Test are used to decide the most suitable model. The fixed effect model outperforms the other two models, pooled OLS and random effect prediction, in estimating the Hausman test result. Scale, danger, and profitability all have a close relationship with leverage, according to the fixed effects results. Meanwhile, the value of growth potential and tangibility is insignificant. According to the findings, the explanatory variables of promoters' control and institutional ownership have a detrimental effect on leverage, while corporate ownership has a favourable impact on capital structure decisions. Person or public ownership has a negative and substantial impact on capital structure, while international ownership has an opposite impact.

Hypothesis Development

In view of literature review mentioned above the following variables have been considered :

1. Short term debt to Total Assets (SDTA)
2. Long term debt to Total Assets (LDTA)
3. Total debt to Total Assets (TDTA)
4. Company size (CS)
5. Return on Equity (ROE)

The hypothesis developed are:

1. Ho: SDTA does not impact ROE
Ha: SDTA impacts ROE
2. Ho: LDTA does not impact ROE
Ha: LDTA impacts ROE
3. Ho: TDTA does not impact ROE
Ha: TDTA impacts ROE
4. Ho: CS does not impact ROE
Ha: CS impacts ROE

Research Methodology

Research Objective

This research paper has the following objectives:

- (1) To understand the relationship of Short term Debt to Total Assets, Long term Debt to Total Assets, Total Debt to Total Assets, Company size with Return on Equity of the business enterprise.
- (2) To comprehend the extent to which Short term Debt to Total Assets, Long term Debt to Total Assets, Total Debt to Total Assets, Company size influence the Return on Equity.

Research Techniques

In this study the researchers have considered only Indian Pharmaceutical sector companies. The variables taken into account are Short term Debt to Total Assets, Long term Debt to Total Assets, Total Debt to Total Assets, Company size. These are taken as independent variables. The Net Profit After Tax to Share holders Fund (ROE) is taken as measure of profitability and is the dependent variable. The voluminous and historical data was collected for a decade and analyzed with appropriate numerical techniques.

Results and Discussions

1. Table 1 depicts the standardised regression co-efficients of independent variables with associated values. As mentioned in this Table-1, the standardized β (SDTA) + 0.361 suggests that SDTA has positive relationship with ROE. And its significance level of 0.003 makes it technically relevant. The statistical evidences, therefore suggest that null hypothesis H_0 (SDTA) be rejected and alternate H_a (SDTA) be accepted. This clearly means SDTA impacts ROE.
2. LDTA, as stated in the said table, has positive association with ROE as the standardised β (LDTA) stands at 0.229. The significance level of β (ICR) being 0.293; β (LDTA) is technically irrelevant. The evidences aptly suggest that null hypothesis H_0 (LDTA) be accepted and alternate hypothesis H_a (LDTA) be rejected. This points out that β (LDTA) does not influence ROE in Pharmaceutical sector companies.

3. As mentioned in Table 1 β (TDTA) is -0.159 indicating that β (TDTA) bears inverse association with ROE. In addition significance level of TDTA stands at 0.503 making this value β (TDTA) technically irrelevant. The empirical analysis aptly advocate that H_0 (TDTA) be accepted and H_a (TDTA) be rejected. This means TDTA does not exerts substantial influence on ROE.

4. The β (CS) as stated in Table -1 is - 0.197 meaning thereby existence of negative association of β (CS) with ROE. In addition β (CS) has the significance level of 0.050 rendering this high value β (CS) technically very relevant. The empirical evidences aptly point out that H_0 (CS)be rejected and H_a (CS) be accepted. This suggests that Company size impacts ROE.

5. The result stated in Table- 2 points out that $F = 6.776$ with significance level of 0.000 having df (4,95). This suggests that all regression coefficients will be non-zero.

6. The matrix of co-efficients of correlation placed at Table -3 and VIF statistics given in Table -1 have been used to verify the presence of multicollinearity amongst the independent variables. No independent variable has value larger than ± 7.0 . In addition each of the VIF is far less than 10 and each VIF centers around its mean. This points out absence of multi collinearity.

The results mentioned at point no. (5) and (6) give substantial dependability to the results obtained. The mathematical model emerges as under:

$$\text{ROE} = 0.378 + 0.361(\text{SDTA}) + 0.229(\text{LDTA}) - 0.159(\text{TDTA}) - 0.197(\text{CS})$$

The coefficient of determination i.e. adjusted R^2 is 0.189. This points out that the above stated model can justify 18.9% variations in ROE.

7. Table-4 provides mean and standard deviation of all the variables. The above model may give better predictive value if the enterprises to be analysed have similar data pattern.

8. In Table-5 The Durbin-Watson statistic is less than two this indicates a positive correlation.

Conclusion and Future Research Directions

This research has made it crystal clear that out that SDTA has positive and very significant relationship with ROE of the pharmaceutical companies. LDTA too has positive but insignificant relationship with ROE while CS has negative but significant relationship with ROE. TDTA is found to be irrelevant in terms of influencing the ROE of business enterprises. Thus the corporates need to pay more attention LDTA and TDTA for improving the profitability of the company.

This research paper has the potential to provide academia and industry with recommendations for successful policy formulation and the creation of suitable control mechanisms. Only companies in the pharmaceutical industry were considered for this paper. It can, however, be repeated in other business segments. A global analysis encompassing Pharmaceutical industry firms in both developing and industrialised countries should be undertaken to create a better understanding of capital structure behaviour and its relationship to profitability.

Table-1 Coefficients

		Standardized				95.0% Confidence		Collinearity	
		Unstandardized	Coefficients			Interval for B		Statistics	
		Std. Error				Lower Bound	Upper Bound	Tolerance	VIF
Model	B		Beta	t	Sig.				
1 Constant	0.378	0.158		2.389	0.019	0.064	0.691		

SDTA	0.499	0.161	0.361	3.096	0.003	0.179	0.819	0.603	1.658
LDTA	0.166	0.157	0.229	1.058	0.293	-0.145	0.476	0.175	5.721
TDTA	-0.104	0.155	-0.159	-0.672	0.503	-0.412	0.204	0.146	6.851
CS	-0.034	0.017	-0.197	-1.987	0.050	-0.067	0.000	0.832	1.202

a. Dependent Variable: ROE

Table - 2 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.262	4	0.065	6.776	0.000
Residual	0.917	95	0.010		
Total	1.178	99			

a. Dependent Variable: ROE

b. Predictors: (Constant), CS, LDTA, SDTA, TDTA

Table - 3 Coefficient Correlations

Particulars	CS	LDTA	SDTA	TDTA
CS	1.000	.017	.264	.057
LDTA	.017	1.000	.421	-.901
SDTA	.264	.421	1.000	-.528
TDTA	.057	-.901	-.528	1.000

a. Dependent Variable: ROE

Table – 4 Mean and Standard Deviation

Particulars	Mean	Std. Deviation
ROE	0.179	0.109
SDTA	0.182	0.078
LDTA	0.218	0.150
TDTA	0.388	0.167
CS	8.465	0.639

Table - 5 Model Summary

Table 3 Model Summary										
Mode l	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin- Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.471 ^a	0.222	0.189	0.0982	0.222	6.776	4	95	0.000	1.038

a. Predictors: (Constant), CS, LDTA, SDTA, TDTA

b. Dependent Variable: ROE

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