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IMPACT OF FINANCIAL LEVERAGE ON FIRM'S PERFORMANCE: A CASE FROM PHARMACEUTICAL SECTOR OF PAKISTAN

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ABSTRACT

The purpose of current study was to analyze the impact of financial leverage on financial performance of pharmaceutical companies, as financial leverages play a vital role in achieving adequate earning or losses. This was empirical study conducted by using E-views for statistical analysis having sample from listed pharmaceutical companies for the era of 10 years. Financial leverage includes debt ratio, debt equity ratio and equity ratio as independent variables and dependent variable financial performance was measured by ROA, ROE, NPM and PE. The study results specified that equity ratio has a significant relationship with dependent variable ROA ; Debt ratio has significant but negative relationship with NPM while Debt to equity and Equity ratio has statistically significant relationship with ROE, though there is no substantial relationship of financial leverage with dependent variable PE. Finally, the study concluded that financial leverage has significant impact on the performance of pharmaceutical firms of Pakistan.

KEYWORDS: Financial Leverage, Performance, Debt, E-views, Pharmaceutical Firms

1. INTRODUCTION

Perhaps the funds are deployed by two critical experts specifically debt and investment. To gear up with plenty of stake holders having imitated finances many organizations donate the essential money, although debt is less expensive. In fact, it plays a pivotal role in negotiating advantage trade off. Whereas, the captivity of any firm totally depends on the earning power. Generally, to reinforce the economic accountability, companies makes additional debt allowances and its benefits rely upon the office and work of an endeavor limit advised the wellness to purchase up capacity from adequate forerunner at adequate time to back the assets, while, adventure estimates the firm's inclination in the work of the assets to boost up the competence. Subsequently, profit capabilities had been investigated to manage ranks, (Vijitha & Nimalathasan, 2014). Debt rate of Firm's A1 depends upon disaster cost and additional obligations, which is previously declared in the budget of torment costs (Ojo, 2012). For more advancement, firms and financial specialists utilizes a mixture of exceptional commercial instruments of obligations and capital. In the negligence of financial results that were given by organizations in the zone of blended funds (Rehman, 2013).

With the aid of borrowed money (Kebewar, 2012), productivity, sales have been raised the financial leverage deliberated to debt to equity cumulative ratio means it is directly proportional to financial leverage. Leverage assessment is being critical while analyzing any firm's capital structure, classify financial leverages. In case of finance leverage, fixed chunk resort against reserve amount. However, the intention to earn more than the actual cost, the leverage of fixed charges have to be raised and after such transactions the impacts of the owner's equity either in loss or accession could be lowered or raised. However, the total leverage of a firm encompasses the higher ratios of both operating and fixed expenses. The grade dubbed as operating leverage used to determine fixed and variable cost of company. Fixed cost or lower fixed cost determines the management also can control the effectiveness of management whereas, the variable cost comprises volume of sales or the services would be incontrollable by the management. In contrast, of higher fixed cost as well as with higher leverage from the impact of

revenues of the firms, profitability reduced due to the operational infirmity. The observations from Sri Lanka (Karunarathne & Rajapakse, 2010 and (Vijitha & Nimalathasan, 2014), reveals the account information of Value Relevance. It seems in some cases that the leveraged firms among the investors a decreased demand of stocks concluded lower market performance and the decline in share prices.

Ali (2014) states that the generation of revenues and assets of a firm are the ways to decide financial performance of a firm Whist with respect to given time, these indicators are used to tie pertinence between firm's financial performances. Therefore, while taking liabilities from banks in the mode of loans, bonds and delayed payables that are singular extent leverage and termed as total liability to equity. Financial liabilities are being bargained in progressive capital markets however, value addition provide edge to firms in operations where inputs and outputs are not perfect. Hence, it is easy to the financial and operational liabilities. Typically, in an equity analysis, the operating and financial liabilities are evenly treated but to relate this scenario, rupees reflect a different impact on balance sheet shows revenues of firms than the rupee taken as financial liability. Therefore, by using different ratios, profitability is measured by the analysis of impact of financial leverage.

1.1 Objective of study

The aim of this study is to explore the link of performance with financial leverages. By enlisting the pharmaceutical companies in Karachi Stock Exchange, performance (dependent variable) will be measured by using five ratio gauges, comparable to property, derive interests after tax, cumulative profits, and return on equity and on capital-employed ratio. The financial leverage (Independent variable) measured by using three ratios alike debt to equity with the contrast of debt ratio and equity ratio solely.

1.2 Problem statement

For efficient financial decisions, very rare researches had been conducted to determine the profitability of firm in pharmaceutical sector of Pakistan from financial leverage. And we are focused here for looking the answers.

1.3 Research methodology

Within the era of 2006 to 2016, the quantitative research data will be collected from 10 registered Pakistani pharmaceutical industrial financial statements.

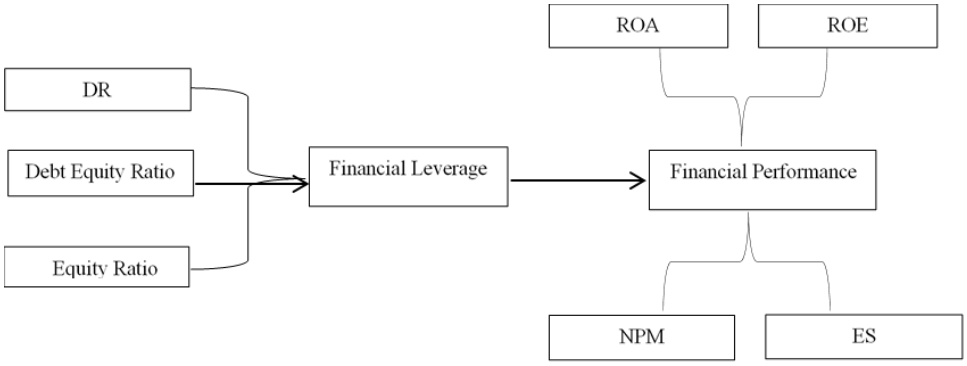

Fig. 1: Visionary plan

2. LITERATURE REVIEW

To investigate the empirical relationship of profitability and leverage from all over the world whereas their conclusions are mixed. Many researches verified that leverage and profitability is negative while other found a positive relationship between them. Kartikasari & Merianti, (2016) worked on public manufacturing companies of Indonesia stock exchange for the period of 2009-2014 with the data of 100 listed manufacturing firms to find out the impact of profitability from size and financial leverage. They established different techniques in this study like a wise leverage analysis from debt ratio, firms size defines total assets, sales and return on assets for profitability. Whist, from the calculated data, the researcher claimed positive influence of debt ratio whereas negative effects of total assets on profitability. The correlation between leverage and firms' profitability in banking industry of Nigeria had been explored by Abubakar (2015). The population size was 23, sample size was 11 within a period of 2005-2013. After investigated, he claimed the significances between the debt-equity ratio and financial performance of firms.

The leverage and profitability of cement sector functioning all over the Pakistan was examined by Ahmad, Salman & Shamsi, (2015) within the era of 2005-2010 of sample size was 18 out of 21 having the 108 observation with a 99% confidence interval found the conciliated inverse relationship between the financial performance and leverages. Mule & Mukras (2015)

conducted another study to analyze the negative effect of financial leverage on profitability from listed firms in Kenya in a time cycle from 2007 to 2011.

In Pakistan from 2006-2013, 20 chemical companies in Karachi stock exchange were targeted by Mohammad Ali need to investigate and concluded the affirmative relationship between financial leverage and financial performance. To dig out the relationship within a period of twelve years 2001-2012, Enekwe, et al. (2014) picked the pharmaceutical industry of Nigeria determined that leverage have no major effect on profitability. To counter this relationship another study was conducted by Gweyi & Karanja, (2014) selected 40 saving and credit co-operatives authority of Nigeria, "Sacco" for three years (2010-2012), need to analyze the strong positive correlation of debt equity ratio with return on equity and debt equity ratio with return on assets and income growth whereas weak profit margin after tax. To evaluated consequence of short and long term effect of financial leverage with performance in real state funds had been explained by Alcock, Baum, Colley & Steiner (2013) as a sample for the period 201-2011 highlighted that fund manager audits financial activities of their lead market.

Whereas, Khan, et al (2013) examined the payout policies of pharmaceutical and chemical industry in Karachi stock exchange of Pakistan having 34 listed companies in the period of 2003-2010, concluded that financial leverages were independent from payout policy but profitably have direct positive relationship with payout policy. Hence, Shah Fasih ur Rehman (2013) selected 35 Pakistan sugar industries to show strong positive relationship of return on assets and sales growth. Although the negative contrast of debt equity ratio on EPS, net profit margin and ROE. The study was conducted by Alrjoub et.al, (2012) on 20 firms from fuel and energy sector registered in Karachi stock exchange of Pakistan, claimed a progressive relationship between leverage and performance. However, Ojo, (2012) conducted research for the period of 1993-2005 on some Nigerian organization. This study illustrates noteworthy impacts of debt equity ratio on performance.

Chandra kumara mangalam & Govinda (2010) selected cement industries, tested ascertain relation between financial, operational and combined leverage per share earnings, defines independent from debt in capital structure. Whereas, high earning achieved advantage in tax by using debt capital structure also highlighted in the research outcome conducted by Kharuna & Gupta (2010) in the pharmaceutical companies of India on leverage and profitability. Furthermore, the efficiency of capital structures not only depend on size, growth, leverage likewise profitability and collateral value of assets. Meanwhile 1998 to 2003, Yoon & Jang (2005) was carried out another study on restaurant business which shed lights in establishing relationship between return on equity, size of firm and financial leverage, defines that the larger the size resulting the higher return on equity.

3. METHODOLOGY OF RESEARCH

This quantitative study aimed to explore financial leverage impacts on registered Pharmaceutical firms and Karachi stock exchange in Pakistan.

3.1 Sampling frame

The study in the period of 2007-2016, there are ten pharmaceutical companies were enlisted in Karachi stock exchange but we selected nine firms (sample size) because of the unavailability of data (population size).

3.2 Data collection

The era of this study was 2007-2016, hence the data considered as panel data because it was collected from the database of Karachi stock exchange and also gathered from official websites of the firms (the financial statements of 9 firms).

3.3 Dependent variables

A variable which outcome is based on occurrence of some other variables or factors, in current study financial performance is dependent variable that is based on independent variables. Financial performance is calculated with the help of following Formulas:

3.3.1 Return on assets

ROA is a financial ratio calculated by comparing percentages of net income to total assets, with efficient utilization of all resources by management.

$$Return\ on\ Assets = \frac{Net\ Income}{Total\ Assets}$$

3.3.2 Return on equity

ROE is a ratio which describes the rate of profit earned in respect to the owner's investment (equity). It represents the ability of firm's required to produce profit form stakeholders' investment.

$$Return\ on\ Equity = \frac{Net\ Income}{Total\ Equity}$$

3.3.3 Net profit margin

NPM also known as Gross profit or net margin ratio, NPM calculates the percentage of income earned over total sales generated. Higher net margin shows that company is efficiently converting sales in net profit. It is calculated with the help of following formula;

$$Net\ Profit\ Margin = \frac{Net\ Income}{Net\ Sales}$$

3.3.4 Price earning ratio

PE ratio also known as price to earning ratio shows how much market is ready to pay per share on the basis of its actual earning,

$$Price\ Earning\ Ratio = \frac{Share\ Price}{Earning\ Per\ Share}$$

3.4 Independent variable

Independent variables are variables which are uncontrolled the occurrence of independent variables may produce any dependent variable. In this problem in hand financial leverage is taken as independent variable to calculate the impact on dependent variable (financial performance). Financial Leverage is measured with the help of following formulas;

3.4.1 Debt ratio

Debt ratio known as solvency ratio it explains the ability of the firms to pay off its liability by its resources. A lower debt ratio is better than a high debt ratio. It is calculated with the help of following formula;

$$Debt\ Ratio = \frac{Total\ Liabilities}{Total\ Assets}$$

3.4.2 Debt equity ratio

Debt to equity ratio calculates the ratio between liability and shareholders' equity. It is known as liquidity ratio or balance sheet ratio as both items debt and equity are balance sheet items.

$$Debt\ Equity\ Ratio = \frac{Total\ Liabilities}{Total\ Equity}$$

3.4.3 Equity ratio

Equity ratio is known as solvency ratio or investment leverage helps to measures the ratio of owner's investment in the form of resources financed. Equity ratio explains how much of assets are owned by invertors of the firms and shows the degree of leverage company had with its debt. Formula to calculate total equity with total assets is shown below:

$$Equity\ Ratio = \frac{Total\ Equity}{Total\ Assets}$$

3.5 Regression models

Model-1	$ROA = \propto + \beta * Leverages + \varepsilon$
Model-2	$ROE = \propto + \beta * Leverages + \varepsilon$
Model-3	$NPM = \propto + \beta * Leverages + \varepsilon$
$Model - 4$	$PE = \propto + \beta * Leverages + \varepsilon$

4. DATA ANALYSIS AND RESULTS

The data in hand is panel data that was analyzed with the help of Eviews 6 used to calculate financial leverage by the aid of regression analysis of financial performances.

4.1 Descriptive statistics

The following table presents the descriptive of financial leverage. Debt equity ratio has maximum value 52.65 with standard deviation of 5.6 but it skewness, kurtosis is out of boundary as stated by ALI skewness, and kurtosis should be between ±3.5. On the other hand, equity ratio has 0.024 standard deviation, skewness 0.09 and kurtosis 2.8 that are within cut off values which shows normality of data.

Table 1: Financial Leverage statistical analysis

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
EQUITY_RATIO	0.624984	0.659141	1.310000	0.020000	0.238750	0.088159	2.802715
DEBT_RATIO	0.445197	0.438074	1.418708	0.138378	0.203729	1.382637	7.448251
DEBT_TO_ EQUITY	1.518335	0.570000	52.65000	0.150000	5.563644	8.797606	81.10026

Table 2 presents the descriptive analysis of financial performance as shown price earnings ratio has highest deviation that is 49.9 with maximum value 432.6., while net profit margin has lowest standard deviation 4.4 with skewness 2.39 and kurtosis 7.3. Return on assets has maximum value 35.9 with standard deviation 9.5, skewness 0.9 and kurtosis 2.8.

Table 2: Financial Performance from Statistical study

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
ROA	7.314130	2.045000	35.99000	-8.63	9.509819	0.946662	2.792878
ROE	8.599297	15.40000	51.70000	-380.34	45.58735	-7.205619	60.72536
PE	19.88755	13.82500	432.6400	-130.37	49.91625	6.168225	54.22017
NPM	1.928343	0.100000	17.20000	-0.19	4.416494	2.390721	7.309773

Table 3: Model-i Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.692020	5.414934	-0.312473	0.7554
DEBT_TO_EQUITY	-0.089549	0.195746	-0.457474	0.6485
DEBT_RATIO	3.153969	6.199052	0.508782	0.6122
EQUITY	12.38108	5.274860	2.347187	0.0212

R-sq	0.088290	dependent var.mean	7.314130
Adjusted R-sq	0.056487	S.D.dependent var	9.509819
S.E. of regression analysis	9.237326	Akaike info criterion	7.327809
Sum squared resid	7338.225	Schwarz criterion	7.438911
Log likelihood	-325.7514	Hannan-Quinn critter.	7.372612
F-statistic	2.776097	Durbin-Watson stat	0.174223
Probability (F-statistic)	0.046116		

The above table shows the result of regression analysis between financial leverage and dependent variable Return on assets. The p value shows significant effects of debt to equity or debt ratio on ROA. In simple words p value does not support the propose hypotheses HI & H2 but it support H3 that is Equity ratio has significant relationship with Return on Assets.

Table 4: Model-ii Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.538982	8.091319	0.560969	0.5763
DEBT_TO_EQUITY	-7.708075	0.292496	-26.35280	0.0000
DEBT_RATIO	12.37753	9.262995	1.336234	0.1850
EQUITY	16.40573	7.882012	2.081414	0.0404

R-squared	0.911414	Mean dependent var	8.599297
Adjusted R-squared	0.908324	S.D. dependent var	45.58735
S.E. of regression	13.80297	Akaike info criterion	8.131071
Sum squared resid	16384.88	Schwarz criterion	8.242173
Log likelihood	-361.8982	Hannan-Quinn criter.	8.175874
F-statistic	294.9363	Durbin-Watson stat	0.660946
Prob(F-statistic)	0.000000		

The table-4 presents the analyzed data for impact of financial leverage on return on equity. As shown the value of R square is 0.9 with F-statistics295, while the p value states that debt to equity and equity ratio has significant negative relationship with return on equity. In other words, the p value supports the proposed hypotheses H4 & H6. The P value of debt ratio does not support the hypothesis H5.

Table 5: Results- Model-iii

Variables	Co efficient	Std. E	t-Stats	Probabilities.
C	6.003903	2.518925	2.383518	0.0193
DEBT_TO_EQUITY	0.019569	0.091057	0.214907	0.8303
DEBT_RATIO	-7.334277	2.883682	-2.543372	0.0128
EQUITY	-1.344153	2.453765	-0.547792	0.5853
R-sq	0.085276	Mean dependent var		1.928343
Adjusted R-squared	0.053367	S.D. dependent var		4.416494
S.E. of regression	4.297030	Akaike info criterion		5.797152
Sum squared residual	1587.944	Schwarz criterion		5.908254
Log likelihood	-256.8718	Hannan-Quinn criter.		5.841955
F-statistic	2.672484	Durbin-Watson stat		0.169152
Prob(F-statistic)	0.052414			

The table-5 presents the analyzed data of impact of financial leverage on Net profit margin. As shown the value of R square is 0.08, F-statistics2.67. The p value states that only debt ratio has significant but negative impact on profit margin, while debt to equity and equity ratio does not support the proposed hypotheses H7 & H9.

Table 6: Model-iv Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.86960	29.55492	0.638459	0.5249
DEBT_TO_EQUITY	-0.351653	1.068390	-0.329143	0.7428
DEBT_RATIO	-12.81074	33.83467	-0.378628	0.7059
EQUITY	11.60859	28.79039	0.403211	0.6878
R-squared	0.014197	Mean dependent var		19.88755
Adjusted R-squared	-0.020192	S.D. dependent var		49.91625
S.E. of regression	50.41769	Akaike info criterion		10.72199
Sum squared resid	218607.1	Schwarz criterion		10.83309
Log likelihood	-478.4894	Hannan-Quinn criter.		10.76679
F-statistic	0.412829	Durbin-Watson stat		2.219865
Prob(F-statistic)	0.744202			

The above table clearly states that this model has no significant relationship as shown p values of all financial leverages are insignificant on the other hand R square is very low that is 0.01 and f statistics is 0.4.

4.2 Co integration test

The ADF unit root test on the residual value of the regression have been conducted in order to check out the unification as well as some results shown significant variables in model were co integrated.

Table 7: Automatic bandwidth selection of Newey-West and Bartlett kernel

Dimensional Alternative hypothesis: common AR coefficients.

	Statistic 1	Prob 1.	Weighted Statistic 2	Prob 2.
Panel v-Statistic	-2.487521	0.9936	-1.978413	0.9761
Panel rho-Statistic	3.309899	0.9995	2.751486	0.9970
Panel PP-Statistic	-3.525015	0.0002	-3.464914	0.0003
Panel ADF-Statistic	-0.986853	0.1619	-2.320297	0.0102

Alternative hypothesis: individual AR coeffs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	3.809809	0.9999
Group PP-Statistic	-6.184662	0.0000
Group ADF-Statistic	-2.704779	0.0034

Cross-sectional specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
1	First Dropped from Test				

2	-0.269	4.720246	1.259414	8.00	9
3	-0.561	6.26E-05	1.52E-05	8.00	9
4	-0.511	0.813701	0.176668	8.00	9
5	-0.390	2.03E-05	2.03E-05	0.00	9
6	-0.365	0.541902	0.588882	1.00	9
7	Second Dropped from Test				
8	-0.454	3.87E-05	3.58E-05	1.00	9
9	Third Dropped from Test				

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
1	Dropped from Test				
2	-0.269	4.720246	0	0	9
3	-0.561	6.26E-05	0	0	9
4	-0.511	0.813701	0	0	9
5	-0.390	2.03E-05	0	0	9
6	-0.365	0.541902	0	0	9
7	Dropped from Test				
8	-0.454	3.87E-05	0	0	9
9	Dropped from Test				

5. CONCLUSION & RECOMMENDATIONS

The aim of the study is to gather outcomes on the performances of firms of Pakistan in financial leverage listed pharmaceutical firms, as financial performance leads to achieve ultimate goal of the company. To rectify the relationship and its nature between financial performance and financial leverage statistical analysis was conducted to evaluate the association and nature of association between independent and dependent variables. As per result presented and analyzed on the basis of regression models; a significant relationship was reported. The positive impacts have found with equity on ROA and ROE; whereas debt and debt to equity ratio have significant negative signs on NPM and ROE respectively. On behalf of these results we conclude that financial leverage in pharmaceutical firms listed in Karachi, Pakistan significantly affects the performance of industry, in other words injecting more leverage may lead to a raised in firm's profitability in pharmaceutical industry.

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