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The Impact of Leverage on the Firm Performance: A Case of Fertilizers Sector of Pakistan

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ABSTRACT

The main aim of the study is to investigate the impact of leverage on financial performance. To maximize the wealth of the organization or for the shareholders is critical whereas its effects are due to the financial decision of management related to the optimal level. Moreover, managers use debt to maximize the return of shareholders, and if a high amount of debt is used by the manager of the firm it enhances the financial cost and financial risk as well. Therefore, this study examines the impact of leverage on the performance in the case of the fertilizers sector of the firm in which operating leverage, financial leverage, and combined leverage are included. The study includes the sample size from the annual report of five companies with 25 observations. The data was collected from 2016 to 2020. A descriptive study was used as well regression analysis examined the impact of leverage on profitability. The result showed that a company's leverage has significant results with Return on asset as companies should follow the return on asset for measuring the financial performance. While companies do not show significant relation with Return on Equity. It indicates that the debt ratio increased and it will make the lowest profit for companies. Results show negative relation with operating leverage as well as a positive relation with financial leverage and combine leverage of listed firms in the fertilizer sector of Pakistan.

Keywords: financial leverage, operating leverage, combined leverage, financial performance

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I. INTRODUCTION

Enough financial resources are necessary for the progress of a country (Ali and Naeem, 2017; Ali, 2011; Ali, 2015; Ali, 2018; Ali and Bibi, 2017; Ali and Ahmad, 2014; Ali and Audi, 2016; Ali and Audi, 2018; Ali and Rehman, 2015; Ali and Senturk, 2019). Thus, financial performance shows the ability of the firm to attain its objectives and goals (Musah, and Kong, 2019). Kalash and Bilen (2021) explore that the financial performance of the firm depends on the assets of the firm and the utilization of assets that create the business. Moreover, financial performance is the key indicator for any firm's ability to make a profit and increase the wealth of the organization it shows how business is responding and it depended on the business capacity of the firm and business activities as well. On the other side business capacity is described as the competency of financial management to create finance sources. Performance shows the more important component of the financial statement (Mukras, 2015). Maximization of wealth in developing countries is the major objective of a firm for decision making and effective decisions which affect the profitability of the firm (Ali and Zulfiqar, 2018; Ali et al., 2016; Ali et al., 2021; Ali et al., 2021; Ali et al., 2015; Arshad and Ali, 2016; Ashraf and Ali, 2018; Audi et al., 2022; Audi and Ali, 2017; Audi and Ali, 2017; Audi et al., 2021; Audi and Ali, 2016; Audi et al., 2021; Audi et al., 2021; Audi et al., 2021; Haider and Ali, 2015; Kaseem et al., 2019; Roussel et al., 2021; Sajid and Ali, 2018; Senturk and Ali, 2021; Ali et al., 2022; Ahmad et al., 2022; Sulehri and Ali, 2020; Ali et al., 2021; Audi et al., 2020; Alim et al., 2022). For firm growth or return, an expansion firm needs to make accurate decisions for the future and these decisions included short and long-term decisions (Ali, 2020). Moreover, financing which is long term is the path for the decisions of sourcing and dividend while short-term decisions indicate the decisions of liquidity (Javed et al. 2015). The financial manager is accountable for the optimal mix of equity and debt determination which ensures the shareholders' profit maximization (Rehman, 2013). Furthermore, another concern which is primary of management is to maximize the shareholders' return briefly, it can be considered as the profitability of shareholders.

Many researchers have investigated that leverage is one of the important elements among other elements that affect company profitability (Vithessonthi and Jittima Tongurai, 2015; Jermias, 2008). It is tested that majorly managers of the organization use debt finance or fairness financing to finance their assets (Mukras, 2015). Therefore, the right mixture of debt and equity is essential for the managers of the organization. The organizations that do not longer want to

borrow funds for financing their belongings must use completely equity financing to finance their property (Magli and Matteo, 2018). Such companies are unfastened from the payment of any constant amount of costs this means that no financial leverage is associated with that company. Considered if the company takes more debt then it will pay fewer taxes but this included high risk. If interest on debt is less than its return then the firm will take more debt (Tripathy & Shaik, 2020).

Leverage can describe as when an investor or business entity lends the borrowed money for the extended business. A more leveraged firm is at risk and if it failed to pay the interest on the debt, it will not be able to borrow in the future. Leverage is not only an important indicator it also enhances the wealth of an organization and also borrowing advantages. For instance, leverage increases the cost of finance is also increased and therefore high cost shows a negative effect due to earnings per share (Ullah, 2019). Every individual needs to give more focus on the financial leverage and its impact on the profitability of the firm. Financial leverage shows how much money an organization borrowed for its financing and its capital structure. Furthermore, briefly, leverage shows the debts of any organization. Either firms use debt or financial leverage or the capital of the owner for the business. Many companies use it for profitable purposes and use it to leverage their debts. Financial leverage expressed the long-term liability. Operating has defined as the formula that a company uses to increase revenue through income. Combined leverage refers to the high profit due to fixed costs. It indicates the risk and benefits for the firm. It means firms increase their assets for increasing their return by using the debt or leverage ratio. Leverage helps to increase the profit for investors if it is available, however, it may also lead to a greater potential of loss specifically when an investment becomes worthless and investors have to pay the amount with interest (Magli and Nobolo, 2018). Thus, it enhances the financial risk which leads to financial loss as well. The degree of this financial risk directly relates to the capital structure of the firm. This study contributes to the literature by helping different other companies and economies to learn how to maximize leverage and how it creates an impact on the return of companies. Findings may help the firm to seek their projects by using the leveraged concept.

If the enterprise uses a greater quantity of debts then it will pay a greater fixed amount of cash related to that debt and if the enterprise uses a much less amount of debt then the organization will pay a less fixed amount of payment. If the

organization borrows extra money then the organization has to pay the extra quantity of cost of debts which is called interest price. As a result, the net profits of the organization decrease, and the profitability of the organization could be decreased. Financial leverage enables growth in the price of return through generating a return on borrowed money. If the return on assets of the organization is extra than before tax interest price then the leverage could be positive. If the organization's return on assets is less than before tax hobby price then the financial leverage could be negative. The main aim of this study is to examine the impact of financial leverage, operating leverage, and combined leverage on profitability.

II. LITERATURE REVIEW

There may be a negative relation between leverage and a company's profitability (Ullah, 2019). Baker (1973) studied the effect of financial leverage on industry profitability. He used the least square method and ordinary least square method for the dimension of the effect of financial leverage through the usage of the least square method moreover he found that there may be a significant negative relationship between financial leverage and industry profitability. By using the ordinary least square method he received the identical result. (Mandelker & Rhee, 1984) tested that the corporations that are worthwhile in lots of industries have the lowest leverage ratio (Iqbal & Usman, 2018). Another study includes the element of capital structure and tested companies having extra financial leverage their profitability can be much less (Tsuruta, 2014). There is the inverse effect of financial leverage on an organization's profitability. When the companies use their income, financial leverage can be much less and subsequently, the profitability of the organization can be extra while the corporation takes capital from outside financial leverage can be extra and profitability can be much less.

Another study revealed the effect of financial leverage on the profitability of the fertilizer sector in India and accrued the statistics from 2006 to 2015 (Magli & Nobolo, 2018). He concluded that there may be a significant effect of leverage on the profitability of the fertilizer region in India (Magli & Nobolo, 2018). Further, the effect of financial leverage on the overall performance of companies in Pakistan and collected 5 years of statistics from 2011 to 2015 (Farooq & Masood, 2016). They used the regression model and correlation evaluation and determined that there may be a negative effect of financial leverage on ROE and a significant positive effect on ROA of textile groups running in Pakistan.

Moreover, the study presents that financial leverage has a negative relationship with return on assets (Ullah, 2019). The study shows the leverage impact on profitability through taking cement organizations. The effects in their study confirmed the affiliation among debt to equity ratio and incomes per share and the effectiveness of the corporation to get finance through the use of debt. These effects depict that leverage had a positive effect on the profitability of the organization and increase and leverage are additionally positively related. They used financial leverage as an impartial variable however profitability does not handiest impact through financial leverage working and mixed leverages additionally affect the profitability of the organization (Tayyaba, 2013).

However, another research that tested the effect of leverage on FMCG return best organizations evaluation depicts that Marico Industries Ltd had a better amount of debt than Britannia Industries Ltd. An organization with high leverage or debt of their capital structure became a proper role to provide better ROE to its stockholders however the return of the organization became the same. Return on equity isn't always the most effective predictor of profitability (Patel, 2014). Financial leverage is an uncertain strategy whereas it analyzed the risk and cost including the financial leverage. Moreover, the study examined the association of risk with leverage but on the other side companies have to bear operating leverage risk, total risk, financial leverage risk, and a combination of financial and operating risk (Iqbal and Ahmad, 2018). The study revealed negative relation between financial leverage and firm performance Chen, (2020) whereas operating leverage has a positive association.

Another researcher found that effect on earnings of financial leverage throughout the income approaches. Whereas results revealed through multiple regression data periods was 2002 to 2008 and this seven-year data aimed to find the relation between influence of budget and reaction of profit through wages approach. This company raised money by their value and provide better estimation ways. Degree of financial leverage and unexpected earnings were used as explanatory variables and stock return was taken as a dependent variable (Javed et al. 2015). Taani (2012) examined the impact of financial leverage and working capital management on financial performance. The study shows the approaches of administration and budgetary power on the execution of monetary of Jordan organizations which are measured by ROE and ROA also net income. The sample size consists of 45 companies of Jordanian with 5 years, time period

from 2005 to 2009. Moreover, this study reveals the negative relationship between net income and ROA and a positive association with ROE.

Another study was conducted to examine the effect of leverage on risk management and stock return evidence from Pakistan companies. This paper investigated the influence of power on hazard and stock return in the Pakistan corporate sector. Data were collected from eight commercial enterprises such as cotton, fuel, chemicals so on. Consequently, revealed that many reforms are brought by the government. Cheng and Tzeng (2014) investigated the firm value positively relate to the firm until had been issued with enough debt to achieve the capital structure. The result shows the financial leverage value may affect by other factors like considering the operating leverage and combined leverage or may many other factors. Furthermore, the author observed the relation between debt and ratio of equity with the rate of return on return on asset and return on equity however, it has a negative impact. Consequently, it depicts the debt ratio increases and suggests the various financial institutions including banks financed through short and long-term liabilities according to a study it has a negative and insignificant relationship between ratios (Wabwile et al 2014). Financial performance is the main indicator of finding the firm wealth or maximization of wealth.

Jeleel and Olayiwola (2017) evaluated that leverage is negatively associated with return on stock moreover Iqbal and Ahmad (2018) found a positive relationship between fixed assets and the growth of companies. According to the result, ROA is negatively associated with debt and equity. It may indicate that many bank assets are financed by short-term liabilities. And this shows the negative correlation between earnings per share and debt ratio which may not be significant. Ujah & Brusa (2013) investigated the association of leverage, cash flow instability, and management earnings from 1990 to 2009 for 559 firms in the US. Study shows that firms managed their earnings and this effect the financial leverage with the management of cash flow. The research examined that there is the return on the asset has a positive relationship with the degree of financial leverage DCL and negatively associated with the degree of operating leverage DOL (Tayyaba, 2013). Moreover, Khedkar (2015) evaluate the impact of DCL, DOL, and DFL on firm performance and found a significant relationship. According to Jeleel & Olayiwola (2017), there is a negative and significant relationship between leverage with firm profitability whereas the

author used size, and profitability as independent and firm performance considered a dependent variable.

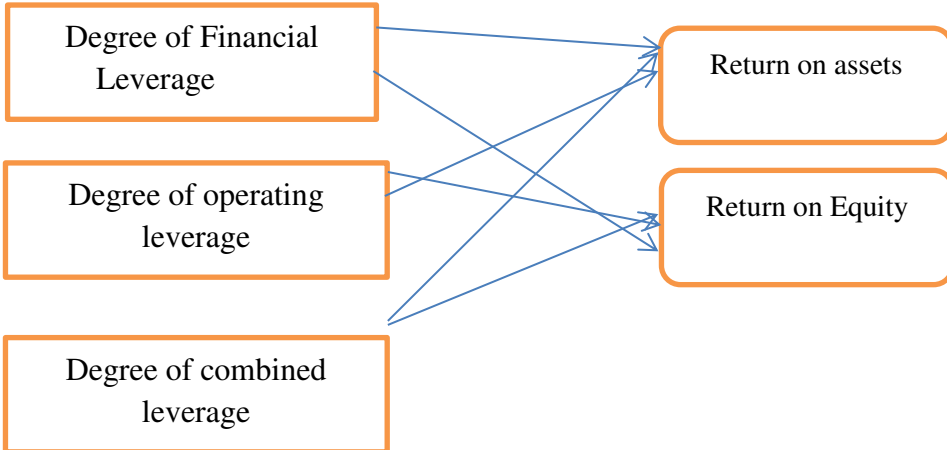
III. METHODOLOGY

The main aim of this study is to examine the impact of leverage on the firm performance of the fertilizer sector of Pakistan. Hence, data was collected from companies in the fertilizer sector whereas simple regression evaluated the impact of leverage on fertilizer profitability. This study uses the panel data and sample size consisting of all companies in the fertilizer sector. The study covers the period between 2016 to 2020 and this period has the most current data which is easily available there are two models used in this study first describe the financial leverage, combined leverage, and operating leverage with ROA on other second model uses financial leverage, combined leverage and operating leverage with ROE.

Table A

Variables	Measured through	References
DFL (Degree of Financial Leverage)	DFL = % change in NI/ % change in EBIT	(Ali, 2020)
DCL (Degree of combined leverage)	DOL = % change in EBIT/ % change in Sales	(Ali, 2020)
DCL = DFL × DOL	DCL = % change in NI/ % change in Sales	(Ali, 2020)

IV. CONCEPTUAL FRAMEWORK



V. THE MODEL

$$ROA = \beta_0 + \beta_1 * DFL + \beta_2 * DOL + \beta_3 * DCL \tag{1}$$

Where

ROA= Return on Asset

DFL= Degree of financial leverage

DOL= Degree of operating leverage

DCL= Degree of Combine Leverage

$$ROE = \beta_0 + \beta_1 * DFL + \beta_2 * DOL + \beta_3 * DCL \quad (2)$$

ROA= Return on Equity

DFL= Degree of financial leverage

DOL= Degree of operating leverage

DCL= Degree of Combine Leverage

VI. EMPIRICAL DISCUSSION

Descriptive analysis shows the average values of data whereas table 1 depicts the descriptive analysis of overall the study. Moreover, the table includes the 5 variables which show the descriptive statistics of the study. The further table represents the total observations, standard deviation, and all average value or median value of variables. Dispersion and variation of data are analyzed through descriptive statistics. Table 1 also shows the maximum and minimum values of the variable. For instance, table 1 shows only ROA descriptive with the independent variables. Table 2 depicts the descriptive analysis of another dependent variable with an independent variable which is ROE.

Table 1: ROA Descriptive Analysis

	ROA	FL	OL	DCL
Mean	5.935080	1.706800	2.519372	6.114412
Median	6.370000	1.460000	0.468000	0.630000
Maximum	15.20000	6.820000	58.86000	119.0000
Minimum	-2.940000	-0.660000	-9.571000	-17.42000
Std. Dev.	5.402012	1.416685	11.99726	25.02470
Skewness	0.002486	1.742849	4.348630	3.940417
Kurtosis	1.994504	7.875824	21.15872	18.11932
Jarque-Bera	1.053174	37.42058	422.2724	302.8138
Sum	148.3770	42.67000	62.98430	152.8603
Sum Sq. Dev.	700.3615	48.16794	3454.424	15029.66
Observations	25	25	25	25

The mean value of ROA in table 1 shows the 5.9% average value with a 15.2% maximum value. 1.5%, 2.5%, and 6.1% are the mean value of the independent

variable respectively. The mean value of FL, OL, and DCL are 1.7%, 2.5%, and 6.1% respectively. The standard value of FL, OL, and DCL are 48.16%, 3454.4%, and 15029.6% respectively. Moreover, the study has 25 observations.

Table 2: ROE Descriptive Analysis

	ROE	FL	OL	DCL
Mean	24.02800	1.706800	2.519372	6.114412
Median	23.69000	1.460000	0.468000	0.630000
Maximum	136.7900	6.820000	58.86000	119.0000
Minimum	-86.64000	-0.660000	-9.571000	-17.42000
Std. Dev.	36.51354	1.416685	11.99726	25.02470
Skewness	0.095392	1.742849	4.348630	3.940417
Kurtosis	7.732655	7.875824	21.15872	18.11932
Jarque-Bera	23.36919	37.42058	422.2724	302.8138
Sum	600.7000	42.67000	62.98430	152.8603
Sum Sq. Dev.	31997.72	48.16794	3454.424	15029.66
Observations	25	25	25	25

Return on equity measured the profitability of companies whereas the mean value of return on equity is 24% financial leverage shows 1.7% mean value operating value is 2.5% and the degree of combined leverage is 6.1%. The standard deviation shows the 31997.7 value of return on equity.

Table 4: Correlation Matrix ROA

Variables	ROA	FL	OL	DCL
ROA	1.000000			
FL	-0.645769	1.000000		
OL	0.147395	-0.177724	1.000000	
DCL	0.330912	-0.191682	0.313506	1.000000

Table 5: Correlation Matrix ROE

Variables	ROE	FL	OL	DCL
ROE	1.000000			
FL	-0.523271	1.000000		
OL	0.027832	-0.177724	1.000000	
DCL	0.084841	-0.191682	0.313506	1.000000

Table 4 and 5 shows the correlation matrix of all variables in the study. The study needs to check the correlation of variables whereas if the explanatory variable in the study is highly correlated then it will create a multicollinearity

issue among the variables. For perfect multicollinearity explanatory variables coefficient and the standard error are infinite. If there is less multicollinearity the coefficient and regression are determined but they cannot evaluate accurately. According to (Gujrati, 2012) 0.8% is considered the highest value for correlation and creates a multicollinearity issue. Moreover, the basic aim of correlation analysis is to determine how many variables are correlated with each other. It investigates the multicollinearity problem among variables.

Table 6: Regression Analysis of ROA

Dependent Variable: ROA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.103610	1.475716	5.491306	0.0000
FL	-1.817562	0.624663	-2.909667	0.0102
DCL(-1)	0.068548	0.035132	1.951148	0.0688
OL(-1)	0.073867	0.073322	1.007429	0.3287
R-squared	0.552017	Mean dependent var		5.755050
Adjusted R-squared	0.468020	S.D. dependent var		5.521438
S.E. of regression	4.027170	Akaike info criterion		5.800861
Sum squared resid	259.4895	Schwarz criterion		6.000008
Log likelihood	-54.00861	Hannan-Quinn criter.		5.839737
F-statistic	6.571870	Durbin-Watson stat		1.322800
Prob(F-statistic)	0.004198			

Tables 6 and 7 are showing the regression analysis of the study. Whereas in table 3 dependent variable is the return on asset and the coefficient of the explanatory variable are showing negative values. Financial leverage and combined leverage have significant P values but operating leverage has no significant results. The further result shows leverage has significant results with a return on the result.

Financial leverage has a negative relationship with return on assets. Whereas operating leverage has a positive relationship with return on assets moreover it shows negative relation with financial leverage. A further degree of combined leverage shows a positive relation with return on an asset but negative relation with financial leverage and positive relation with operating leverage. As the values of the correlation matrix of table 6 show financial leverage have a negative value with return on equity, operating leverage has a positive relation with financial leverage, and negative relation with financial leverage.

Table 7: Regression Analysis of ROE

Dependent Variable: ROE				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	48.04043	11.20194	4.288583	0.0003
FL	-13.78127	4.907858	-2.808002	0.0105
OL	-0.208127	0.598991	-0.347463	0.7317
DCL	0.005527	0.287934	0.019196	0.9849
R-squared	0.278210	Mean dependent var		24.02800
Adjusted R-squared	0.175097	S.D. dependent var		36.51354
S.E. of regression	33.16311	Akaike info criterion		9.986400
Sum squared resid	23095.63	Schwarz criterion		10.18142
Log likelihood	-120.8300	Hannan-Quinn criter.		10.04049
F-statistic	2.698116	Durbin-Watson stat		1.619133
Prob(F-statistic)	0.071838			

VII. CONCLUSIONS AND RECOMMENDATIONS

This study examines the impact of leverage on firm performance. The main aim of this study is to find the effect of different types of leverage on the performance of firms. The sample size consists fertilizer sector which has listed 5 companies and the period covers from 2016 to 2020. The study includes the types of leverage such as degree of financial leverage, degree of operating leverage, and degree of combined leverage. Whereas, the firm performance of companies is measured by ROA and ROE. For conclusions, regression analysis was measured and two models were tested first with ROA and second with ROE. According to the nature of the data panel data was used moreover correlation matrix and descriptive statistics were measured. A finding shows that financial leverage, operating leverage, and combined leverage have a significant relation to ROA. As financial leverage has significant relation whereas operating leverage is not significant even on the first lag and financial leverage shows significant relation with firm performance on the first lag. This study suggests leverage has no significant impact on the financial performance of firms. Companies should follow the relation with ROA. Therefore, if companies measured their performance with ROE and increased their debts then it will make their profits low. It is also can better be explained through the assumption in firms can usually use their debts for financing but it reduces their profit and enhances their liabilities. The study showed that there is a negative relationship between debt equity ratio, debt ratio, and return on assets ratio. Therefore, if a

firm wants to make more profits it has to reduce the amount of debt used in its capital structure. Also, there are some following limitations that it may imply when companies come for investment and are using their retained earnings before moving towards the debts. And it may imply when the dividend payout of the firm is independent.

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