

Impact of Financial Leverage on Firm's Profitability: Evidence from Chemical Sector of Pakistan

MUHAMMAD KAMRAN

Lecturer, City University of Science and Information Technology, Peshawar
researcher21st@gmail.com

KASHIF ROSE

MBA Student City University of Science and Information Technology, Peshawar

WAHID ULLAH

MBA Student City University of Science and Information Technology, Peshawar

MATIULLAH

Assistant SSO, City University of Science and Information Technology, Peshawar

Abstract

The purpose of this study to investigated the impact of financial leverage on firm's profitability by taking a sample of 24 firms in chemical sector that are registered in Pakistan Stock Exchange and data were collected from annual reports of the firms for the year 2010 to 2015. Financial leverage used as explanatory variable and firm's profitability used as a response variable. Further the explanatory was measured by debt to equity ratio, debt ratio, short-term debt ratio and response variable was measured by return on equity ratio (ROA) and return on equity (ROE). In first model debt to equity ratio has positive but insignificant association with ROA. The debt ratio has negative but significant relationship with return on assets. The short-term debt ratio has negative and insignificant relationship with return on asset. A result shows the debt ratio has significant impact on firm's profitability of chemical sector of Pakistan. Negative and significant relationship of debt ratio with firm profitability shows that if firm increases its debt level then firm's profitability level will decrease. This indicates that there is some inverse relationship between debt and firm's profitability. But in second model, it is concluded that debt to equity ratio has negative but significant association with return on equity. The debt ratio has positive but significant relationship with return on equity. The short-term debt ratio has negative and insignificant relationship with return on equity. So, model two indicates that D/E ratio negatively affect the ROE while debt ratio positively affect the ROE it means that if firm increase debt proportion then firm profitability increases.

Keywords: *Financial leverage, Firm's Profitability, Return on equity, Return on assets, Debt to equity ratio, Debt ratio, short-term debt ratio.*

1. Introduction

Businesses deploy a number of strategies to improve profitability, including streamlining processes, outsourcing and integrating new technologies. Financial leverage offers an alternative way to increase profits by financing a portion of the business through loans or by issuing stock. Akhtar (2012) indicates that financial leverage does not guarantee an improvement in profitability, financial leverage is a part of capital structure concept and there are two options with a company to collect or raise funds, debt and equity and from these sources company design their capital structure. Therefore, it is important for a company to take right decision at the right time about collecting funds. Those companies which are totally depends on equity financing and not in favor of borrow funds to run the company operations are not obligated to pay any fixed amount periodically. According to Amalendu (2012) has been described that leverage under financial strategy planning helps to increase the rate of return by generating a greater return on borrowed money. Further, author discussed those Companies that avoid to borrow funds to finance their projects have to rely completely on equity financing. Therefore they are free from any fixed amount of charges to pay which indicates that there is no financial leverage associated with that company.

A number of researchers Miller (1977), Myers (1948) and Sheel (1994) have been discussed that, due to financial leverage cost of capital incurred and as a result firm's profitability and share price decreases. Moreover Mandelker and Rhee (1984) described that, according to trade off theory debt is beneficial for a company because if a company go for debt financing then it will pay less income tax, government provided tax shield to those companies, but on the other side there are financial risk like bankruptcy will be increased.

According to Zeenat (2011) chemical market is divided into four main categories:

- **Daily Routine Products:** consumer products consist on daily routine products like beauty products, household cleaning products, laundry cleanser products and its contribution in chemical market is 10%.
- **Health and Agriculture Products:** It included different health care related products and agricultural base products and its contribution in chemical market is 30%.
- **Special Products:** It includes specific purpose chemical products. Specialty chemicals include electronic chemicals, oil field chemicals, and textile chemicals. It is also referred as effect chemicals.
- **Fundamental Products:** Industries used these products as a raw material and when it passes through manufacturing process then it is available to the general consumer. It includes polymers, metals and plastics etc. Basic chemical contributes 11.20-25% in chemical market.

Review of empirical studies provides different views on the impact of financial leverage on firm's profitability. Some empirical studies predict positive impact of financial leverage on firm's profitability while some empirical studies predict negative impact of financial leverage on firm's profitability. This section therefore provides different empirical studies conducted around the world to determine the impact of

financial leverage on firm's profitability. Fengju et al. (2013) has been observed the relationship between financial profitability and leverage with an emphasis on income smoothing in Iran's capital market. For this purpose researcher selected 60 listed companies which were selected from Tehran Stock Exchange. For analysis data has been selected from 2006-2010 and used simple linear regression and Pearson's correlation test and z-score statistical technique. Further this study suggest that there is no significant effect of financial leverage on profitability.

Akinlo and Asaolu (2012) have been investigated the impact of leverage on profitability evidence from Nigerian firms. Secondary data were used from 1999 to 2007; chi square and ordinary least square (OLS) statistical techniques were used to analyze the results. The outcome of the analysis was negative impact of leverage on profitability. Al-Shamaileh and Khanfar (2014) have been analyzed that financial leverage has a statistically significant impact on the profitability on the tourism companies. In this study profitability was used as a response variable and financial leverage as an independent variable. The data was based on five Jordan companies of tourism sector, which were listed at Amman Stock Exchange. This portion provides some theories that support the relationship between profitability of the firm and financial leverage. The theories included in this section are Pecking Order Theory, Trade-off Theory, and The Agency Theory.

1.1 Pecking Order Theory

Donaldson (1961) first suggested the pecking order theory, later it was modified by Myers and Majluf in 1984. According to this theory, firms select their sources of financing that has minimum cost and equity financing are the last option for a firm to finance their projects. Hence firm first prefer the internal financing and if it is not available the firm used debt financing and if firm cross the optimal debt level and it is also not possible then firm used equity financing. Moreover Myers (1948) has been discussed that the pecking order theory simply states that there are common three sources available to firm's debt finance, equity finance and retained earnings. If a firm chooses first option retained earnings, then it is a best choice because no fixed cost is associated with it. If firm go for debt financing, then firm has to pay fixed cost that is associated with debt and is called interest rate. But if first and second option is not available then firm issue share, which is called equity financing, it is costly and expensive cost like printing cost and pay dividend to the shareholders and increase the firm owners. Retained earnings is better than debt because there is no cost that firm has to pay and debt is better than equity financing, because there is no printing cost involve in debt financing nor bringing more external ownership. Debt financing is also better than equity financing because if provide tax shield to the firm, if possible firm should be used retained earnings to finance their projects (Harris & Raviv, 1990).

1.2 Trade-Off Theory

The trade-off theory explains proportion of debt and equity that company uses to balance the benefits and costs. Myers (1984) assumes that trade-off theory of capital basically settle the debt costs against the debt benefits. Trade-Off theory states that firms are financed by both sources debt and equity. This theory explains the fact that companies

uses partly debt finance and partly equity finance (Kraus & Litzenberger, 1973). Frank and Goyal (2011) explained that there is some advantages and disadvantages associated with debt financing. For examples when firm used debt financing government give them benefit of tax shield for some years and disadvantage is when firm uses debt financing, then firm has to pay the fixed cost associated with debt, bankruptcy costs and non-bankruptcy costs for example, disadvantageous payment terms demanding by suppliers, shareholders and bond holder's infighting. As firm increases the debt level, the marginal benefit level decreases and marginal cost increases. So, the firm maintains the marginal benefits and marginal cost level. The firm optimizes the debt financing level where benefits of debt are more than the cost of debt.

1.3 Objectives of the Study

To investigate whether financial leverage creates an impact on firm's profitability by taking empirical evidence from listed chemical companies of Pakistan and to determine the relationship between firm's profitability and financial leverage.

1.4 Significance of the Study

There are very few researches have been investigated about this problem, the impact of financial leverage on firm's profitability in chemical sector of Pakistan. So, it's an opportunity to determine their relationship. In Pakistan, firms used financial leverage to finance their projects but they didn't know the disadvantage of using financial leverage from its optimal level. This study will help the firms to think that how much their firm can borrow and how they can balance the cost and benefits associated with the debt.

1.5 Hypotheses of the Study

Alternative hypothesis of the study are

H1: *There is a significant impact of financial leverage on firm's profitability.*

H1a: *Debt/Equity has a significant impact on Return on Equity.*

H1b: *Debt ratio has a significant impact on Return on Equity.*

H1c: *Short-term debt has a significant impact on Return on Equity.*

H2a: *Debt/Equity has a significant impact on Return on Asset.*

H2b: *Debt ratio has a significant impact on Return on Asset.*

H2c: *Short-term debt has a significant impact on Return on Asset.*

1.6 Conceptual Framework

This study explains the impact of financial leverage on firm's profitability of chemical sector of Pakistan listed at Karachi Stock Exchange. The independent variable is financial leverage while the dependent variable is firm's profitability. Financial leverage will be measured by debt to equity ratio. In debt/equity we compare that how much a firm can borrow debt amount or debt capacity of a firm to finance their projects and then divide on firm total assets. Firm's profitability will be measured by return on equity ratio. Return on equity compare that how much firm generated net income and then divide it on firm total assets.

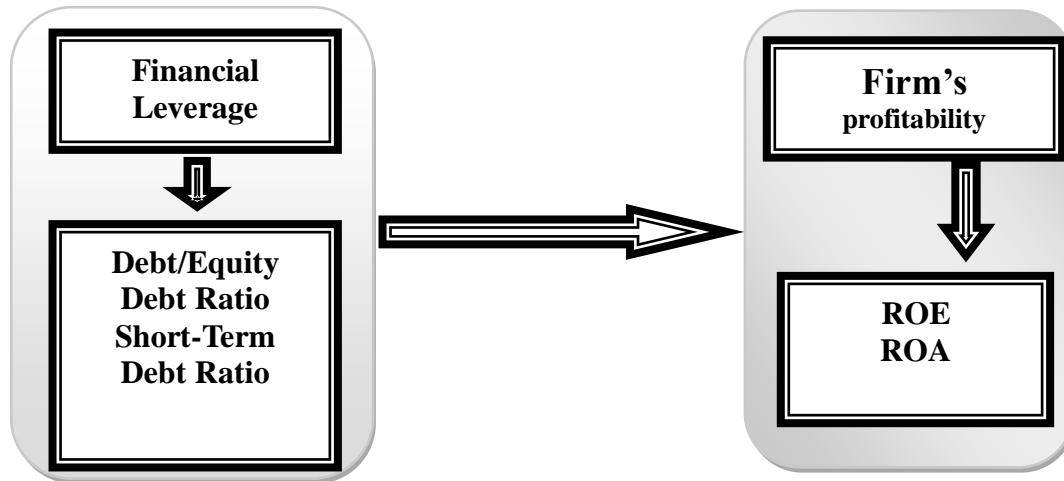


Figure 1: Conceptual Framework

2. Methodology

This portion covers all those concepts and methods which fulfill the requirement of the proposed study. In the present study penal data and E-Views software is used for analysis.

2.1 Data Collection

Present study based on secondary penal data 2010 to 2015, for 24 listed chemical companies, taken from annual reports of listed companies of Pakistan stock exchange.

2.2 Econometric model

Model – I: Return on Asset

$$ROA = \beta_0 + \beta_1 D/E + \beta_2 DR + \beta_3 S/TD + \epsilon_i \quad (2.1)$$

Where:

ROA = Return on Asset dependent variable

D/E = Debt to Equity ratio independent variable.

DR = Debt ratio independent variable.

S/TD = Short – term debt independent variable.

β_0 = intercept term

$\beta_1, \beta_2, \beta_3$ = coefficient for independent variables.

ϵ_i = error term.

Model – II: Return on equity

$$ROE = \beta_0 + \beta_1 D/E + \beta_2 DR + \beta_3 S - TD + \epsilon_i \quad (2.2)$$

Where:

ROE = Return on Equity dependent variable.

D/E = Debt to Equity ratio independent variable.

DR = Debt ratio independent variable.

$S - TD = \text{Short - term debt independent variable.}$

$\beta_0 = \text{intercept term}$

$\beta_1, \beta_2, \beta_3 = \text{coefficient for independent variables.}$

$\epsilon_i = \text{error term.}$

2.3 Variables

Firm's profitability is dependent variable which is measured through Return on Assets and Return on Equity.

- I. Return on Equity measure firm's profitability. Amount of net income divide by shareholder's equity.

$$ROE = \frac{\text{NetIncome}}{\text{Shareholder'sEquity}} \quad (2.3)$$

- II. Return on Assets measure firm's profitability. It shows that how efficiently firm use its assets to generate earnings.

$$ROA = \frac{\text{NetIncome}}{\text{TotalAssets}} \quad (2.4)$$

Financial Leverage is independent variable which is measured through debt to equity ratio, debt ratio and short-term debt.

- I. Debt to Equity Ratio is a leverage ratio that compares firm's total liabilities to its total shareholder's equity.

$$\text{Debt - EquityRatio} = \frac{\text{TotalLiabilities}}{\text{shareholdersEquity}} \quad (2.5)$$

- II. Debt Ratio is another leverage ratio that compares firm's total liabilities to its total assets. If output percentage is low it means that firm is less dependent on leverage and if company using less leverage, then it indicates that firm's equity position is stronger.

$$\text{DebtRatio} = \frac{\text{TotalLiabilities}}{\text{TotalAssets}} \quad (2.6)$$

- III. Short-Term Debt Ratio: In balance sheet, in current liabilities portion there is an account of short-term debt that shows debt amount that must be return within one year.

$$\text{Short - TermDebt} = \frac{\text{Short-TermDebt}}{\text{TotalAssets}} \quad (2.7)$$

2.4 Hausman Test

It is also called Hausman specification test, it detects the endogenous variable (independent variable) in a regression model. The values of endogenous variables are determined by other variables in the system. If there is endogenous regression found in a model then it fails the ordinary least squares estimators, as one assumption for OLS is that there is no correlation between an independent variable and the error term. Before selecting a regression method, first find out that our predictor variables are endogenous, Hausman test task is to check it (David, 2017). There are two types of panel data:

- I. Balanced Panel: Panel data can be balanced when it measured all observations of an individual at the same time periods.
- II. Unbalanced Panel: Panel data can be unbalanced when it does not measure all observations of an individual at the same time points. It measured a missing observation for some individuals for certain points.

2.5 Fixed Effect Model

Fixed effect model is a statistical model that shows the observed quantities in terms of independent variables that are treated as if the quantities are non-random. Fixed effect model is same as linear model.

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon_i \quad (2.8)$$

Where

$Y =$ dependent variable

$X_1 =$ independent variable

$\beta_0 =$ intercept term

$\beta_1 =$ independent coefficients

$\varepsilon_i =$ error term.

2.6 Random Effect Model

Random effect model is a statistical model in which some or all independent variables are treated as if they arise from random causes. The objective of random effect model is to observe all the variables rather than observe only the variables that are used in the study.

$$Y = \beta_0 + \beta_1 X_{ij} + \beta_i + \varepsilon_{ij} \quad (2.9)$$

Where

$Y =$ dependent variable

$X =$ independent variable

$\beta_0 =$ intercept term

$\beta_1 =$ independent coefficients

$\beta_i =$ random effect (influence intercept)

$i =$ no of observation

$j =$ no of repeated measurement of observation

$\varepsilon_i =$ error term.

3. Analysis and Discussion

This chapter presents the results of the data analysis. In this section, we discuss unit root test for stationarity, fixed effect model, random effect model, Hausman test and interpretation of these analysis. In Table (3.1) all the variables tested at level and found that all the variables are stationary at same level. In this case we have two dependent variables and three are independent variables, although there many test which can be used to check the stationarity but we select only two of them known as Levin Lin & Chu t and ADF fisher Chi-square. If one can observed the value of test statistic are greater than -2 and 60 respectively. Also can observed the probability values which are less 0.05 for all variables, so conclude that all the observations are stationary at level.

Table 3.1: Unit root test for stationary

variables	Statistic for Levin Lin & Chu t/ ADF Fisher Chi square	Levin Lin & Chu t (Prob.)	ADF Fisher Chi-square (Prob.)
ROA	-9.07/87.54	0.0000	0.0004
ROE	-8.09/71.07	0.0000	0.0169
D/E	-66.47/80.29	0.0000	0.0024
DR	-85.18/94.76	0.0000	0.0001
Short term debt	-6.86/88.48	0.0000	0.0000

3.1 Fixed effect model for return on asset (ROA)

The result shows the ROA (dependent variable) association with independent variables which are debt to equity, debt ratio, and short-term debt. The first independent variable debt to equity ratio showing positive 0.011541 coefficient and insignificant association with dependent variable return on assets because probability value 0.1599 is greater than 0.05. The second independent variable debt ratio showing negative -0.357694 coefficient and significant association with dependent variable ROA because probability value 0.0104 is less than 0.05. The third independent variable short-term debt ratio showing negative -0.090505 and highly insignificant association with dependent variable ROA because probability value 0.6519 is greater than 0.05. R-squared 0.53 showing 53% change in dependent variable (ROA) due to independent variables (debt to equity, debt ratio, short-term debt). F-statistic value 5.100964 is greater than prob. (F-statistic) value 0.000000 which indicate that overall model is good fit.

Table 3.2: Fixed effect model test ROA with D/E, DR, STDR

Variable	Coefficient	t-statistic	Prob.	
Std.Error				
DebtToEquityRatio	0.011541	0.00	1.414387	0.1599
DebtRatio	-0.357694	0.13	-2.604346	0.0104
ShortTermDebt	-0.090505	0.20	-0.452270	0.6519
C	0.244274	0.06	3.707496	0.0003
Effects Specification				
Cross section fixed (dummy variables)				
R-squared	0.531297	Mean depende		0.024301
Adjusted R-squared	0.427141	S.D depen		0.184381
S.E of regression	0.139557	Akaike info		-0.933331
Sum squared resid	2.278694	Schwarz criteric		-0.376491
Log likelihood	94.20003	Hannan-Quinn		-0.707061
F-statistic	5.100964	Durbin Wa		2.935881

Prob(F-statistic)	0.000000
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3.2 Fixed effect model test for return on equity (ROE)

The result shows the ROE dependent variable association with independent variables which are debt to equity, debt ratio, short-term debt. The first independent variable debt to equity ratio showing negative -0.144345 coefficient and significant association with dependent variable return on equity because probability value 0.0000 is less than 0.05. The second independent variable debt ratio showing positive 1.895838 coefficient and significant association with dependent variable ROE because probability value 0.0000 is less than 0.05. The third independent variable short-term debt ratio showing negative -0.899308 and highly insignificant association with dependent variable ROE because probability value 0.1306 is greater than 0.05. R-squared value 0.35 showing 35% change in dependent variable (ROE) due to independent variables (debt to equity, debt ratio, short-term debt). F-statistic value 2.454309 is greater than prob(F-statistic) value 0.000587 which indicate that overall model is good fit.

Table 3.3: Fixed effect model test ROE with D/E, DR, STD

Variable	Coefficient	t-statistic	Prob	
Std.Error				
DebtToEquityRatio	-0.144345	0.02	-5.991933	0.0000
DebtRatio	1.895838	0.40	4.675701	0.0000
ShortTermDebt	-0.899308	0.59	-1.522275	0.1306
C	-0.794118	0.194	-4.082692	0.0001
Effects Specification				
Cross section fixed (dummy variables)				
R-squared	0.352919	Mean depende		0.067643
Adjusted R-squared	0.209123	S.D depen		0.463273
S.E of regression	0.411995	Akaike info		1.231748
Sum squared resid	19.85953	Schwarz criteric		1.788588
Log likelihood	-61.68585	Hannan-Quinr		1.458016
F-statistic	2.454309	Durbin Wa		2.084572
Prob(F-statistic)	0.000587			

3.3 Random effect model for return on asset (ROA)

The result shows that ROA (dependent variable) association with independent variables which are debt to equity, debt ratio, short-term debt. The first independent variable debt to equity ratio showing positive 0.000762 coefficient and insignificant association with dependent variable return on assets because probability value 0.8972 is greater than 0.05. The second independent variable debt ratio showing negative -0.158113 coefficient and significant association with dependent variable ROA because probability value 0.0165 is less than 0.05. The third independent variable short-term debt

ratio showing negative -0.258694 and insignificant association with dependent variable ROA because probability value 0.0512 is greater than 0.05. R-squared value 0.14 showing 14% change in dependent variable (ROA) due to independent variables (debt to equity, debt ratio, short-term debt). F-statistic value 7.727265 is greater than probability (F-statistic) value 0.000082 which indicate that overall model is good fit.

Table 3.4: Random Effect Model ROA with D/E, DR, STD

Variable	Coefficient	t-statistic	Prob
DebtToEquityRatio	0.000762	0.00	0.129396
DebtRatio	-0.158113	0.06	-2.427145
ShortTermDebt	-0.258694	0.13	-1.967016
C	0.156915	0.040747	3.850971
Effects Specification			
		S. D	Rho
Cross section	random	0.096306	0.3226
Idiosyncratic		0.139557	0.6774
Weighted Statistics			
R-squared	0.142061	Mean dependent var	0.012376
Adjusted R-squared	0.123677	S.D depend	0.149484
S.E of regression	0.139935	Sum square	2.741451
F-statistic	7.727265	Durbin Wats	2.633178
Prob(F-statistic)	0.000082		
Unweighted statistics			
R-squared	0.193760	Mean dependent va	0.024305
Sum squared resid	3.919699	Durbin Watson stat	1.841654

3.4 Random effect model for return on equity (ROE)

The result shows that ROE (dependent variable) association with independent variables which are debt to equity, debt ratio, short-term debt. The first independent variable debt to equity ratio showing negative -0.055702 coefficient and significant association with dependent variable return on equity because probability value 0.0000 is less than 0.05. The second independent variable debt ratio showing negative -0.032169 coefficient and insignificant association with dependent variable ROE because probability value 0.7690 is greater than 0.05. The third independent variable short-term debt ratio showing positive 0.032932 and highly insignificant association with dependent variable ROE because probability value 0.8962 is greater than 0.05. R-squared value 0.11 showing 11% change in dependent variable (ROE) due to independent variables (debt to equity, debt ratio, short-term debt). F-statistic value 6.008180 is greater than prob. (F-statistic) value 0.000702 which indicate that overall model is good fit.

Table 3.5: Random Effect Model ROE with D/E, DR, STD

Variable	Coefficient	t-statistic	Prob
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Std.Error				
DebtToEquityRatio	-0.055702	0.01	-4.410863	0.0000
DebtRatio	-0.032169	0.10	-0.294279	0.7690
ShortTermDebt	0.032932	0.25	0.130730	0.8962
C	0.164361	0.07067	2.325707	0.0215
Effects Specification				
			S. D	Rho
Cross section		random	0.000000	0.0000
Idiosyncratic			0.411995	1.0000
Weighted Statistics				
R-squared	0.114062	Mean dependent va		0.067643
Adjusted R-squared	0.095077	S.D depen		0.463273
S.E of regression	0.440700	Sum squar		27.19030
F-statistic	6.008180	Durbin Wa		1.986923
Prob(F-statistic)	0.000702			
Unweighted statistics				
R-squared	0.114062	Mean dependent va		0.067643
Sum squared resid	27.19030	Durbin Watson stat		1.986923

3.5 Hausman test for return on asset (ROA)

In the below table Hausman test summary shows probability value 0.2885 which means that result is not significant. So, our probability value 0.2885 is greater than 0.05 so our null hypothesis insignificant and alternative hypothesis is significant. So, based on the result of Hausman test random effect model is appropriate.

Ho: Random effect model is good fitted

H₁: Random effect model is not good fitted

As the null hypothesis is insignificant so we accept Ho and reject H₁. Ho say that random effect model is good fitted.

Table 3.6: Hausman Test for ROA with D/E, DR, STD

Correlated Test	Random cross-section	Effects-Hausman random	Test effects		
Test summary		Chi sq.	statistic	Chi-Sq.d.f	Prob.
Cross-section random			3.760336	3	0.2885
Cross section random effects test comparisons					
Variable	Fixed	Random	Var(Diff)	Prob.	
DebtToEquityRatio	0.011541	0.00	0.000032	0.0565	
DebtRatio	-0.357694	-0.15	0.014620	0.0988	

ShortTermDebt	-0.090505	-0.258694	0.022748	0.2648
Cross-section random effects test equation				
Dependent-Variable R O A				
Variable	Coefficient	Std.Error	t-statistic	Prob
C	0.244274	0.065887	3.707496	0.0003
DebtToEquityRatio	0.011541	0.00	1.414387	0.1599
DebtRatio	-0.357694	0.13	-2.604346	0.0104
ShortTermDebt	-0.090505	0.200112	-0.452270	0.6519
Effects Specification				
Cross section (dummy variables)				
R-squared	0.531297	Mean dependent va		0.024305
Adjusted R-squared	0.427141	S.D depen		0.184385
S.E of regression	0.139557	Akaike info		-0.933334
sum squared resid	2.278694	schwarz		-0.376494
log likelihood	94.20003	Hannan-Qui		-0.707065
F-statistic	5.100964	Durbin-Wa		2.935884
Prob(F-statistic)	0.000000			

3.6 Housman test for Return on Equity (ROE)

In the below table Hausman test summary shows probability value 0.0000 which means that result is significant. So, our probability value 0.0000 is less than 0.05 so our null hypothesis is significant and alternative hypothesis is insignificant. So, based on the result of Hausman test fixed effect model is appropriate.

Ho: Random effect model is good fitted

H₁: Random effect model is not good fitted

As our null hypothesis is significant so we reject Ho and accept H₁. H₁ say that random effect model is not good fitted.

Table 3.7: Hausman Test for ROE with D/E, DR, STD

Correlated Test	Random cross-section	Effects-Hausman random	Test effects	Chi sq.	Chi-Sq.d.f	Prob.
Test summary						
Cross-section random			34.14005	3	0.0000	
Cross section random effects test comparisons						
Variable	Fixed	Random	Var(Diff)	Prob.		
DebtToEquityRatio	-0.144345	-0.05	0.000421	0.0000		
DebtRatio	1.895838	-0.03	0.152453	0.0000		
ShortTermDebt	-0.899308	0.032932	0.285546	0.0811		

Cross-section random effects test equation				
Dependent-Variable R O E				
Variable		Coefficient	t-statistic	Prob
Std.Error				
C	-0.794118	0.194508	-4.082692	0.0001
DebtToEquityRatio	-0.144345	0.02	-5.991933	0.0000
DebtRatio	1.895838	0.40	4.675701	0.0000
ShortTermDebt	-0.899308	0.590765	-1.522275	0.1306
Effects Specification				
Cross section (dummy variables)				
R-squared	0.352919	Mean dependent va		0.067643
Adjusted R-squared	0.209123	S.D depen		0.463273
S.E of regression	0.411995	Akaike info		1.231748
sum squared resid	19.85953	schwarz		1.788588
log likelihood	-61.68585	Hannan-Quir		1.458016
F-statistic	2.454309	Durbin-Wa		2.084572
Prob(F-statistic)	0.000587			

4. Conclusion

The study is conducted to investigate the impact of financial leverage on firm's profitability. After data analysis, it is concluded that debt to equity ratio has positive but insignificant association with ROA. The debt ratio has negative but significant relationship with return on assets. The short-term debt ratio has negative and insignificant relationship with return on asset. It means only the debt ratio has significant impact on firm's profitability of chemical sector of Pakistan. Negative and significant relationship of debt ratio with firm profitability shows that if firm increases its debt level then firm's profitability level will decrease. There is opposite relationship between debt and firm's profitability. The results of this study are consistent with the results of previous studies conducted by Kunga (2015), Akinlo and Asaolu (2012), Mohamed (2016). In model two ROE with independent variables, it concluded that debt to equity ratio has negative but significant association with return on equity. The debt ratio has positive but significant relationship with return on equity. The short-term debt ratio has negative and insignificant relationship with return on equity. The results of this study are consistent with the results of previous studies conducted by Al-Otaibi (2015). So, model two indicates that D/E ratio negatively affect the ROE while debt ratio positively affect the ROE it means that if firm increase debt proportion then firm profitability increases.

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