An Evaluation of Capital Structure Influencing on Profitability: An Evidence of General Industrial Sector Listed in KSE

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Abstract

The objective of this research paper is to an Evaluation of the Capital Structure Influencing on Profitability regarding General Industrial Sector and to ascertain the association ship and most influential variables that effect on Profitability. Method of sampling was used in Simple Pooled Regression Model technique taking samples of the 9 companies listed (General Industrial Sector) on the Karachi stock exchange for the periods of 11 years (2005-2015). The results showed that Capital Structure (Debt-Equity) has significant influence on Profitability such as (Return on assets, Return on equity, Return on Capital Employed and Net Profit Margin). Association betwixt Capital Structure (Debt-Equity) has negative with profitability (Return on Assets, Return on Capital Employed and Net Profit Margin) and Return on Equity is positive association with Debt-Equity. All variables are influential and significant to the Capital Structure regarding General Industrial Sector. This research paper will assist for the assessment of the capital structure regarding various sectors which is listed in the Karachi Stock Exchange.

Keywords: Capital Structure, Profitability, Karachi Stock Exchange, Simple Pooled Regression

1.0   Introduction

This paper will evaluate the association betwixt capital structure and profitability in the general industrial sector which is listed on Karachi stock exchange. Capital structure plays vital role to manage the business as well as to manage the financial risk. If any company successfully to avoid the financial risk that means that companies or sectors have an immense capability of well knowledge to understand the business environment or in any part of the world rather than they will face a numerous challenge in the future. Debt always depends upon the manageable process because well-known and an understandable financial manager use to right way then it gives the profit of that company but as well as it gives the good profit to the shareholders while in another way huge debt can be harmful for any firm or sector because of bad managed so, that's why managing process very important in any sector either its economical or financial.

According to (Abor, 2005 and Abu-Tapanjeh, 2006) asserts that capital structure is an arguable topic in corporate finance in foreign countries. Its main focus only on debt and equity because both are tools of the finance either debt finance or equity finance while it depends upon the requirement of the companies environment. Debt finance is a risky finance that means it takes funds but not giving up ownership because funds giving back to described date with interest and principal amount while equity finance refers the firm shares selling to the investors increasing capital but earns profit from the investment to the stockholders of the company as well as ownership or right of possession interest in the company.

Saad, (2010) argued that firm investment its asset through capital structure. Basically capital structure is the merging of different parts or joining in which the component elements are individually distinct that means merger of debt, equity and some components of hybrid securities are include that's why the firm investment its assets through capital structure.

Erasmus, (2008) asserts that profitability and liquidity are two important factors to evaluate the prior financial performance as well as it evaluate the current performance of a company. Profitability always corroborate to the firms value because it depends upon the productivity and its sources of the funds which invest into the firm and earns income from the investment capital and in another way liquidity refers to the asset's expertise to sell rapidly in the absence of lessen its price to a significant level.

Ahmad (2012) asserts that decision of capital structure is very necessary because it helps to enhance the profit or return of different companies but as well as influence on firm's value. Capital structure decision is one of the toughest decisions in the running business because financial manager always take a tough decision for the company's progress and its coming facing new challenges but with also important thing is that consistent should be balanced betwixt debt and equity of the company or firm.

This research study evaluates the association betwixt capital structure and profitability of the general industrial sector. In this study capital structure (Debt to Equity) taken as independent variable and profitability (Return on Assets, Return on Equity, Return on Capital Employed and Net profit Margin)as dependent variables. These variables will evaluates the capital structure influence on profitability in the general industrial sector using

the secondary data from the financial report of the nine general industrial sector which is listed on the Karachi Stock Exchange and applied Pooled ordinary Least square Method for regression analysis for the period of 11 years (2005-2015). However, the findings of the results will evaluate and easy to understand the association betwixt capital structure and profitability in the general industrial sector in Pakistan.

2.0   Research Problem
The problem of this research as of the following:
1. Assessment the capital structure and profitability in general industrial sector
2. Evaluate the association betwixt profitability and capital structure in general industrial sector.
3. Evaluate the most significant and influential variable in general industrial sector.

2.1   Research Objective
Objectives of the research as of the following:
1. Identify the capital structure impact on profitability in general industrial sector?
2. Identify the association betwixt profitability and capital structure in general industrial sector?
3. Identify the most significant and influential variable in general industrial sector?

2.2   Research Scope
This research will identify the capital structure influence on profitability in general industrial sector from 2005-2015 (11 years) and also identify the association between capital structure and profitability along with focal point on prior research with the substantiate of capital structure on profitability.

3.0   Literature Review
Prior researchers had been various research regarding capital structure on profitability in various sectors but research theory still unsolved because of various sector's firm performance. Capital Structure is prominent way to evaluate the profitability of any sector whether it's financial or non-financial sectors. The motive of these like researches is to evaluate the desirable capital structure which produces excess profitability but very few study made in general industrial sector. The followings studies are really attentiveness and very handy for our research to understand:

Singh and Singh, (2016) found that significant negative association betwixt debt and profitability that firms with excess debt tend to have low profitability. Based on 10 listed cement companies on Bombay stock exchange had been selected from the financial year 2009-10 to 2013-14 and these companies are 90% of share market of the cement sector.

Mohamed and Tailab, (2014) investigated that total debt has significant negative impact on ROA and ROE of capital structure on profitability regarding American energy firms. Association betwixt capital structure and profitability is pessimistic or negative and also significant to each other found in the study of banking sector (Velnampy & Niresh, 2012).

Inunjariya, (2015) found that capital structure has a negative impact on profitability and also significant evidence get from the food, beverages and tobacco sector which is listed in Colombo stock Exchange from the financial year 2007-2012. In this study the variables were taken T.D and T.E as a capital structure and ROE and ROCE as profitability. In additional, (Arowoshegbe and Idialu, 2013) discovered that significant negative relationship betwixt capital structure and profitability of quoted firms in Nigeria and it's based on panel data set from the financial year 1996 to 2010 consist of non-financial companies.

Ahmad, (2014) indicated that Profitability is significant to the capital structure based on cement sector of Pakistan using panel data of 16 firms listed on Karachi stock Exchange from the period of six (6) years (2005-2010). In additional, (Singh, 2013) studied that association ship betwixt variables of capital structure and variables of profitability such as ROA and ROCE significant to each other while evidence get from the manufacturing listed firms in Bombay Stock Exchange in India for eight years (2004-05 to 2011-12) using the regression analysis and also descriptive statistics such as mean, standard deviation and vice versa.

Abeywardhana, (2015) identified that negative significant association ship betwixt capital structure and profitability of non-financial SMEs in the UK using two stages least square method (2SLS) from the period of 11 eleven years for the financial year 1998 to 2008.

Patel and Bhatt, (2013) indicated that capital structure has significant effect to the profitability based on (30) thirty non-financial firms for a period of (5) five years from 2007-2011 using Pearson's correlation and Pooled ordinary least square model for regression analysis to the variable of Profitability (Net operating) with independent variables of capital structure.

Pahlavan et al., (2015) discovered that capital structure as debt to equity and debt to assets have a significant association with return on assets and return on equity as a profitability variables using panel data with fixed and random effective model based on sample data of 18 public and private banks from 2003-2012.

Shubita and Alsawalhah, (2012) examined that significantly negative association betwixt debt and profitability also suggest equity is main option for financing on profitable firms or companies based on thirty nine (39) industrial companies listed on Amman Stock Exchange for the period of six years (2004-2009) applying the correlations and multiple regression analysis and this study suggest that profitable companies rely on equity option for financing.

Chisti et al., (2013) found that capital structure have significant influence on profitability and debt to equity pessimistic correlated with profitability based on automobile industry comprises of (10) ten companies of data sample for five years.

Sadiq and Sher, (2016) conclude that capital structure is negatively associated with the profitability whereas this study suggest debt capital increases causes in decreasing in the profitability of the companies based on nineteen (19) companies of automobile sectors listed in Karachi Stock Exchange for the period of seven (7) years (2006-2012) by using the regression analysis and test of correlation with the assist of SPSS (statistical package for social sciences).
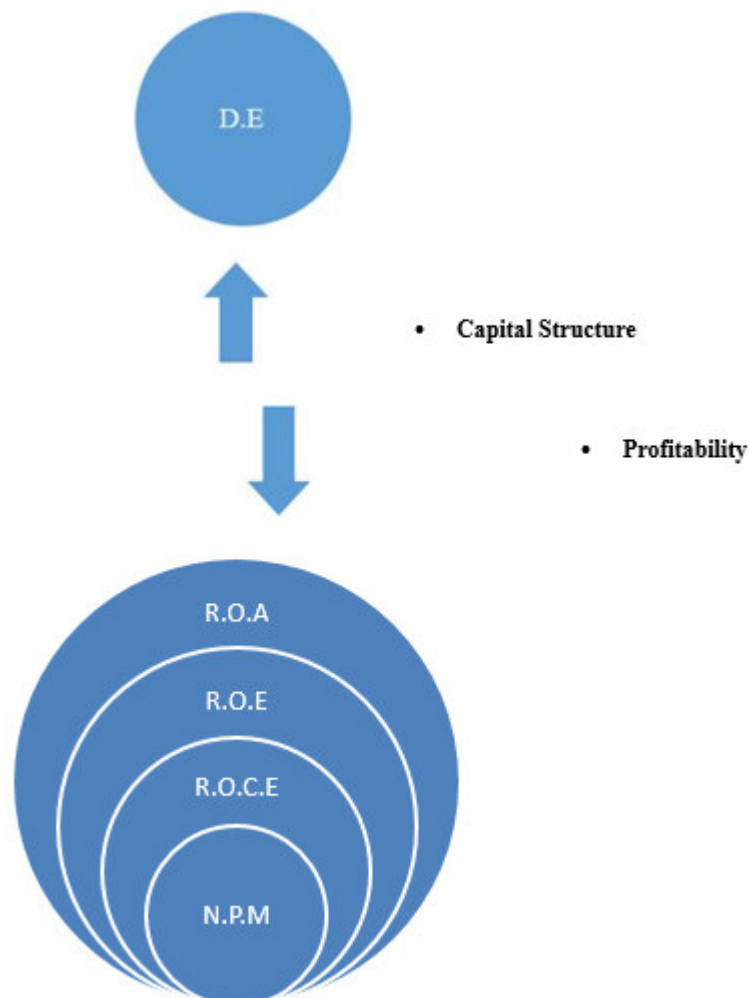
4.0 METHODOLOGY
1 Hypothesis
H1: Debt to Equity significant influence on ROA
H2: Debt to Equity significant influence on ROE
H3: Debt to Equity significant influence on ROCE
H4: Debt to Equity significant influence on NPM

4.1 Data Gathering Method
Data collection (secondary data) quantified from the report of State Bank of Pakistan Joint Stock Companies which is listed of General Industrial Sector in Karachi Stock Exchange and also from the listed each General Industrial Companies websites. Sampling data of nine (9) General Industrial Companies names and their symbols are as follows:

General Industrials Companies	
Symbol	Company Name
CPPL	Cherat Packaging Limited.
ECOP	Ecopack Limited
GHGL	Ghani Glass Mills Limited
MACFL	Macpac Films Limited
MERIT	Merit Packaging Limited
PKGS	Packages Limited
SIEM	Siemens Pakistan Engineering Co. Limited
THALL	Thal Limited
TRIPF	Tri-Pack Films Limited

4.2 Conceptual Framework:

4.3 Setout of Model Research:

R.O.A = ß0 + ß1 (D.E) + e ....(V-1).

R.O.E= ß0 + ß1 (D.E) + e......................................(V-2).

R.O.C.E= ß0 + ß1 (D.E) + e...................................(V-3).

N.P.M= ß0 + ß1 (D.E) + e ....(V-4).

4.4 Dependent Variables and Independent Research Variable, symbols and its proxy formulas:

Profitability as a Dependent Variables	Symbol	Method/Formula/ Proxy
Return on assets	R.O.A	Net Income after taxes/ Total Assets
Return on equity	R.O.E	Net Income after taxes/ Total Equity
Return on capital employed	R.O.C.E	Net profit after taxes/ Average of Total capital employed
Net Profit Margin	N.P.M	Net profit after taxes/ sales
Capital Structure as an Independent Variable		
Debt to Equity Ratio	D.E	Total Debt/ Total Equity

5.0   Analysis of different tests models and discussions

Model-1 of General Industrial Sector:

Vble.	Coft.	S. E	T-S.	P.
C	14.33739	1.359836	10.54347	0.0000
D.E	-2.778203	0.44692	-6.216326	0.0000
R.Sqd.	0.284886	M. Dep.Vr		8.288485
A-R.Sqd.	0.277514	S.D. Dep. Vr		11.11928
S.E.R	9.451294	Akk.Inf.Cri.		7.350176
S.S.R	8664.715	Sch. Crit.		7.402602
Log.l.l	-361.8337	Hn. Qui. Cri		7.371388
F-Sts	38.64271	Dr.-Wt. St.		0.994793
Pr. (F-st.)	0.0000			

Analysis

In this regression model shows that R.O.A (Return on Assets) has significant influence or effect on D.E (Debt to equity). The Probability value is .000 which is less than .05 or 5% that means dependent variable return on assets is influence or effects on debt to equity or D.E or can influence on R.O.A (Return on Assets) only 28.4% and other part of percentage effects on hidden factors which is also part of this model that means exterior factors are influencing on 72.6%. The Prob. (F-statistic) is also significant that is .0099 which is less than 5% or .05 and the Derbin Watson-stat shows .994.

This model tells that return on assets has significant influence on debt to equity that means Capital structure has significant influence on Profitability in the general industrial sector which is listed in Karachi Stock Exchange. After the test of regression model and equation (V-1) mentioned above are as follows:

R.O.A= 14.33 - 2.77*D.E + ε

Model-2 of General Industrial Sector:

Vble.	Coft.	S. E	T-S.	P.
C	-22.25472	18.79094	-1.184333	0.2392
D.E	21.38862	6.175785	3.463304	0.0008
R.Sqd.	0.110047	M. Dep.Vr		24.31414
A-R.Sqd.	0.100872	S.D. Dep. Vr		137.7344
S.E.R	130.603	Akk.Inf.Cri.		12.6022
S.S.R	1654544	Sch. Crit.		12.65462
Log.l.l	-621.8088	Hn. Qui. Cri		12.62341
F-Sts	11.99447	Dr.-Wt. St.		1.887725
Pr. (F-st.)	0.000796			

Analysis:

In this regression model shows that R.O.E (return on equity) has significant influence or effect on D.E (Debt to equity). The Probability value is .000 which is less than .05 or 5% that means dependent variable (R.O.E) return on equity is influence or effects on debt to equity or D.E or can influence on R.O.E (Return on Equity) only 11.00% and other part of percentage effects on hidden factors which is also part of this model that means exterior factors are influencing on 89.00%. The Prob. (F-statistic) is also significant that is .000 which is less than 5% or .05 and the Derbin Watson-stat shows 1.88.

This model tells that return on equity has significant influence on debt to equity that means Capital structure influence on Profitability in the general industrial sector which is listed in Karachi Stock Exchange. After the test of regression model and equation (V-2) mentioned above are as follows:

R.O.E= -22.25 + 21.38*D.E + ε

Model-3 of General Industrial Sector

Vble.	Coft.	S. E	T-S.	P.
C	23.22998	2.467549	9.41419	0.0000
D.E	-3.698714	0.810979	-4.560802	0.0000
R.Sqd.	0.176577	M. Dep.Vr		15.17687
A-R.Sqd.	0.168088	S.D. Dep. Vr		18.80321
S.E.R	17.15026	Akk.Inf.Cri.		8.541899
S.S.R	28530.75	Sch. Crit.		8.594326
Log.l.l	-420.824	Hn. Qui. Cri		8.563111
F-Sts	20.80091	Dr.-Wt. St.		0.762687
Pr. (F-st.)	0.000015			

Analysis:

In this regression model shows that R.O.C.E (Return on Capital Employed) is significant influence or effect on D.E (Debt to equity). The Probability value is .000 which is less than .05 or 5% that means dependent variable return on capital employed is influence or effects on debt to equity or D.E or can influence on R.O.C.E (Return on Capital Employed) only 17.65% and other part of percentage effects on hidden factors which is also part of this model that means exterior factors are influencing on 82.35%. The Prob. (F-statistic) is also significant that is .0000 which is less than 5% or .05 and the Derbin Watson-stat shows .762.

This model tells that return on capital employed has significant influence on debt to equity that means Capital structure has significant influence on Profitability in the general industrial sector which is listed in Karachi Stock Exchange. After the test of regression model and equation (V-3) mentioned above are as follows:

R.O.C.E= 23.22 – 3.69*D.E + ε

Model-4 of General Industrial Sector

Vble.	Coft.	S. E	T-S.	P.
C	15.02987	1.931313	7.782204	0.0000
D.E	-4.281826	0.634741	-6.745785	0.0000
R.Sqd.	0.319325	M. Dep.Vr		5.707172
A-R.Sqd.	0.312308	S.D. Dep. Vr		16.18678
S.E.R	13.42325	Akk.Inf.Cri.		8.051848
S.S.R	17477.8	Sch. Crit.		8.104275
Log.l.l	-396.5665	Hn. Qui. Cri		8.07306
F-Sts	45.50562	Dr.-Wt. St.		1.52711
Pr. (F-st.)	0.0000			

Analysis:

In this regression model shows that N.P.M (Net Profit Margin) has significant influence or effect on D.E (Debt to Equity). The Probability value is .000 which is less than .05 or 5% that means dependent variable net profit margin is influence or effects on debt to equity or D.E or can influence on N.P.M (Net Profit Margin) only 31.93% and other part of percentage effects on hidden factors which is also part of this model that means exterior factors are influencing on 68.07%. The Prob. (F-statistic) is also significant that is .0000 which is less than 5% or .05 and the Derbin Watson-stat shows 1.52.

This model tells that net profit margin has significant influence on debt to equity that means Capital structure has significant influence on Profitability in the general industrial sector which is listed in Karachi Stock Exchange. After the test of regression model and equation (V-4) mentioned above are as follows:

N.P.M= 15.02 – 4.28*D.E + ε

Table of Descriptive Statistics (General Industrial Sector)

	R.O.A	R.O.E	R.O.C.E	N.P.M	D.E
Mean	8.288485	24.31414	15.17687	5.707172	2.177273
Median	7.24	17.74	14.21	6.71	1.79
Maximum	39.94	1063.52	58.69	61.7	15.61
Minimum	-18.26	-746.71	-33.41	-75.39	0.12
Std. Dev.	11.11928	137.7344	18.80321	16.18678	2.13623
Skewness	0.47008	2.748452	0.100624	-1.53533	3.025377
Kurtosis	3.236883	43.88538	2.761169	12.05019	17.73742
Jarque-Bera	3.877552	7020.05	0.402358	376.7564	1046.938
Probability	0.14388	0	0.817766	0	0
Sum	820.56	2407.1	1502.51	565.01	215.55
Sum Sq. Dev.	12116.55	1859135	34648.95	25677.16	447.221
Observations	99	99	99	99	99

Analysis

In this table number of count observation is 99 and mean of DE is 2.17 and rest of other variables means of ROA, ROE, ROCE and N.P.M (8.22, 24.31, 15.17 and 5.70) which is the average of the total count observations. Median is the mid value of total observations so the median of ROA, ROE, ROCE, NPM and DE is (7.24, 17.74, 14.21, 6.71 and 1.79). Maximum value of this data set of DE is 15.61, 39.94 of ROA, 58.69 of ROCE, 61.7 of NPM and 1063.52 of ROE and also minimum value of DE is 0.12, ROA is -18.26, ROE is -746.71, ROCE is -33.41 and NPM is -75.39 but standard deviation of DE is 2.13, ROA is 11.11, ROE is 137.73, ROCE is 18.80 and NPM is 16.18 that means these all variables data is deviate to the mean or close to the mean.

Correlation Model (General Industrial Sector):

	R.O.A	R.O.E	R.O.C.E	N.P.M	D.E
R.O.A	1	0.241333	0.895313	0.738249	-0.53375
R.O.E	0.241333	1	0.273415	0.334456	0.331733
R.O.C.E	0.895313	0.273415	1	0.6559	-0.42021
N.P.M	0.738249	0.334456	0.6559	1	-0.56509
D.E	-0.53375	0.331733	-0.42021	-0.56509	1

Analysis

R.O.A is correlated with R.O.C.E and N.P.M is .8953 and .7382 which is strong association to each other as far as concern association betwixt D.E and R.O.A is negative which is -.5337. When R.O.E is correlated with D.E that is positive but its only .3317 it shows relatively moderate and other remaining variables associated with R.O.E is positive also seems to be moderate. When R.O.C.E is correlated with R.O.A and N.P.M is strong associated to each other but association betwixt D.E and R.O.C.E is negative which is -.420 meanwhile N.P.M is also negative correlated with D.E that is -.565 and rest of vice versa.

Overall Results of Association ship betwixt Capital structure and Profitability:

In this correlation model tells that association ship betwixt Capital Structure and Profitability is negative so that means D.E is negative correlated with R.O.A, R.O.C.E, and N.P.M and only optimistic sign with R.O.E.

6   Conclusion

Capital structure does not focus only on debt to equity of a firm or companies financial leverage but also focus on managerial operation of a firm. Balanced of process should be exist betwixt debt and equity of any firm that should be assist for any firm or organization profitability.

In this research paper, we focus on specifically General Industrial Sector which is listed on the Karachi Stock Exchange based on (99) ninety nine observations for the period of (2005-2015) using simple Pooled Least Square Method. In this study verified that Capital structure has significant influence on Profitability in the General Industrial Sector and association ship betwixt Capital Structure has negative to the profitability and all variables are influential and significant.

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