Institutional ownership, corporate governance and its impact on external financing decisions: Evidence from select leading Indian manufacturing companies

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Abstract

The study tries to examine the influence of the Non-Promoter Institutional Investors and the impact of corporate governance on capital structure of National Stock Exchange-listed manufacturing companies having a market capitalisation above Rs. 5000 crores. Data analysis has been conducted of a sample of 32 listed companies with the period under study is between 2011-2020 using Panel Corrected Standard Error (PCSE) based OLS estimation. Corporate governance variables used to examine the impact are institutional investor, board size, and board composition whereas dependent variables are debt-equity ratio and long-term debt to total asset ratio. The result reveals that non-promoter institutional equity holdings by Banking (Independent financial institutions) and non-banking sector institutions (Grey financial institutions) are reasonably controls corporate debt financing decisions. Furthermore, Board size detruncates external borrowings, in spite of that intensity of non-executive directors in the composition of the board prefers external source of financing plausibly to mitigate financial risk of the firm and take the opportunity of economies of scale.

Keywords: Institutional Ownership, Board Composition, Financing decisions, Nifty India Manufacturing Index, Panel HPAC, Panel Corrected Standard Error (PCSE) Model.

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Introduction

Since, the global financial crisis and the failure of big corporations, corporate governance was the significant topic. The desire for enhanced corporate governance protocols has been enacted after financial statement fraud.

Corporate Governance is a theory and mechanism which helps in creation of shareholder's value by managing the affairs of the company in the way that ensure the safeguarding of individual as well as collective group of all stakeholders. Effective corporate governance practices may have a significant choice made by a company e.g., external financing, that are taken at board level. As a result, corporate governance variables such as board size, board composition possess a substantial impact on the choice of capital structure. The root cause of the agency problemis the separation of ownership and control of the firm, that can be commonly linked with corporate governance. Agency problem arise between shareholders and manager are based on conflicts of interest within the firm. Similar, conflict arise between minority shareholders and controlling shareholders. Agency cost is one of the factors that affect the capital structure as per the modern corporate finance theories. According to modern corporate finance theories, one factor that determine capital structure is agency cost. The agency cost can be mitigated through corporate governance.

Among various factors, ownership structure one of the critical variables in the corporate governance research, significantly influence the firm's decisions. In ownership structure there are different owner among which institutional ownership has significant influence. Moreover, institutional ownership can be classified into independent institutional owner and grey institutional owner. Independent institutional owner i.e., mutual fund,

venture capital with no business relation with firm have a positive relationship in which they invest. In, contrast, grey institutional owner i.e., bank, insurance companies have business relationship with the firm has a negative relationship.

There is vast quantitative research describing the influence of corporate governance on a business performance and also the relationship between ownership structure on firm value. Nevertheless, there hasn't been much discussion of connection between corporate governance and capital structure. (Bodaghi & Ahmadpour, 2010)

Review of Past Studies and Variable Description

Review of Past Studies

Hasan & Butt, (2009) explain the link between corporate governance and capital structure off the Pakistan listed companies. The study includes 58 randomly selected Karachi Stock Exchange listed non-financial companies between the period 2002 to 2005. Multivariate regression analysis under the fixed effect model approach is used. Corporate governance variable used are board size, board composition, and CEO duality. Effect of shareholding on external financing decision has been studied using managerial shareholding and institutional shareholding. Control variable like firm size and profitability on firms financing is also been examined. The results shows that debt to equity ratio is negatively correlated with board size and managerial shareholding. However, CEO duality and non-executive directors on the board not significantly influence the financing behaviour of the firm. Control variable to have a significant impact on capital structure. Result reveals that board size, board composition, managerial and institutional shareholding plays the crucial role in determining the financial compositions of the firms.Whereas,*Agyei & Owusu, (2014)* examines the interaction between ownership structure and corporate governance on capital structure on listed manufacturing companies based on Ghana. The author could not uncover any clear evidence of any study linked to ownership structure and leverage in Ghana. The study covers the period from 2007 to 2011,

employing descriptive, correlation and multivariate regression analysis. Corporate Governance variables like board size, board composition, and CEO/Chair duality were taken into consideration. Also, managerial ownership and institutional ownership were used to examine the impact. Result discloses board size, board composition, managerial and institutional ownership is positively correlated with leverage ratio. However, negatively correlated with CEO/Chair duality. Firm size and return on asset effect on capital structure has a mixed result. Consequently, the finding shows corporate governance and ownership structure are significantly influence firm's capital mix. Conversely, *Kajananthan, R (2012)*investigate the inter relationship between corporate governance and capital structure of the Sri Lankan listed companies. The study includes 28 listed manufacturing companies in Colombo Stock Exchange between the period 2009 and 2011. Corporate governance variable used in the study include board size, board structure, board meeting and proportion of independent non-executive directors. Whereas dependent variable like debt ratio has been used as a proxy for capital structure. Result reveals 34% of the corporate governance variable has an effect on capital structure. Furthermore, *Ahmed Sheikh & Wang, (2012) e*xamine the corporate governance attributes effect on capital structure choices of non-financial firms listed on the Karachi Stock Exchange. The period under study between 2004 to2008. Independent variables used such as board size, outside directors, ownership concentration, managerial ownership, director remuneration and CEO duality. Multiple regression analysis is used to evaluate the relationship. Results reveals that corporate governance attributes such as board size, outside directors, and ownership concentration are positively correlated with the total debt ratio and long-term debt ratio. However, director remuneration is negatively related. Moreover, managerial ownership is inversely correlated to long-term debt ratio. In all regressions CEO duality is found to be highly negligible. Some control variables are found to be negatively related whereas other control variables such as firm size is positively related. Asset tangibility reveals a mixed outcome. The long-term debt and total debt ratio show a positive and a negative relationship. Findings are aligned with

previous studies and shows there is a significant relationship between corporate governance and capital structure of firms in Pakistan. Moreover, *Shhadeh & Al Mwalla, (2015)* investigates the effect of ownership structure and corporate governance on capital structure in Amman Stock Exchange listed companies between period 2005 to 2018. OLS model has been incorporated to find the impact on capital structure. Leverage is the dependent variable whereas corporate governance factors, including institutional shareholdings are the independent variables. Results reveals corporate governance attributes such as board size, board composition and board meetings are positively significantly correlated with external financing. Moreover, largest shareholders have a negative correlation but positive correlation between institutional shareholders and capital structure. Lastly, *Abdul-Qadir et al., (2015)*examines the relationship between institutional holdings and capital structure of 19 non-financial farms. Firm label data between the period 2009 to 2013 has been extracted from Nigerian Stock Exchange. The study has also taken into consideration effect of board size on capital structure. Control variables used are firm size and profitability. The study found that board size and control variables had a favourable and substantial impact on capital structure decision. Result reveals board size, profitability and firms' size are vital in identifying the most appropriate financing mix. Institutional shareholders are found to be insignificant. Therefore, to have a significant impact on capital structure, institutional shareholders need to be independent.

Dependent Variables of the Study

The study uses Debt-Equity Ratio (DER) and Long-term debt to Total Asset Ratio (TD_TA) as a proxy for capital structure which is a dependent variable(Agyei & Owusu, 2014). Optimal capital structure helps the firm in maximizing the firm's value as well as minimize the cost of capital.

Independent Variables of the Study

Firstly, presence of institutional ownership helps firm to raise long term finance in a cost-effective manner. Institutional owners provide long-term debt in the firm where it has significant influence on the board. Secondly,

Institutional owner helps in reducing agency cost. As a result, the firm is able to borrow fund on advantageous term from public and other lenders. Analysing the structure of shareholdings in corporate companies, it is evident that a significant portion of companies share has been acquired by Non-promoter institutional investors and to be more precise that is further categorised into two types viz. firstly recognised Banking and Financial institutions, Central and State governments shareholdings, conversely a major portion shareholding of Non-banking institution(including mutual funds, asset finance companies, venture capitalist and other institutions except individual shareholders). (Hasan & Butt, 2009)This study has divided institutional ownership into Independent institutional owner and Grey institutional owner. Institutional shareholding (IH) is measured as percentage of shareholdings to total holdings.

Secondly, the board of directors is the highest body in the corporate structure and plays a significant role in making strategic decision about employing financial mix. For this reason, the board size as a corporate governance attribute impact on capital structure is taken as an important variable(Hasan & Butt, 2009).The variable board size (BS) is define as no of directors on the board. Lenders consider the firm credit worthy, with the presence of non-executive directors on the firm's board. This signal that firm is being systematically monitored. Furthermore, as far as the financial planning of large listed manufacturing companies is concerned, not only on the change in size of board of directors is responsible for making change in the financial planning but also the board composition (i.e. inclusion and exclusion of non-executive directors) are a major concern for initiating financial decisions(Hasan & Butt, 2009). Board Composition is explained by no of non-executive directors on the board.

Variables(symbols)	Measures of Variables
Corporate Governance	
1. Institutional Shareholding(IH) i) Grey Financial Institutional holdings (IO_GREY) ii) Independent Financial Institutions (IO_IND)	% of shareholding to total holdings % of shares held by non-promoter banks and financial institutions to total institutional investors % of shares held by non-promoter non-banking financial institutions to total institutional investors
2. Board Size (BS)	No. of directors on the board
3. Board Composition (BC)	No. of Non-executive Directors
Capital Structure	
1. Debt-Equity Ratio (DER)	Long-term debt to shareholders fund
2. Long-term debt to Total Assets Ratio(LTDR)	Long-term debt to total assets

Research Gap and Objective

Research Gap Identification

Consequent to review of existing literature it is observed that financing decisions of listed companies are influenced by the pattern of shareholdings, especially the proportion of shares held by the banking and financial institutions and non-banking financial sector institutional investors form a small to greater extent(Hasan & Butt, 2009). Nevertheless, external financial policy is a separate area of corporate financial planning as it is associated with few matters of company's solvency, liquidity and profitability, managers tries to formulate a robust, prudent and dynamic finance procurement policy that can cover up all the above mentioned financial aspects of companies.

Meanwhile, studies conducted in the national and international context on this particular area of corporate financing and ownership structure along with composition of board of directors has identified the interrelationship between them. Notwithstanding, in the Indian context, studies exclusively covering the institutional ownership pattern is different from several studies conducted in the other country-specific international context,as the

regulation and litigation in Indian aspect are distinctive to a certain extent and that has a significant impact on corporate financial decisions as well, thus capturing the institutional ownership pattern along with board composition of listed manufacturing companies is an exclusive area of study that is yet to be explored.

Thus, in this study researchers have initiated to observe distinctively how, and to what extent the financing decisions of listed indexed manufacturing companies are getting influenced owing to change in the pattern of Non-promoter institutional shareholdings concerning the Banking and Government sector, marked as "Independent Institutional Investors" and Non-Banking sector as "Grey Institutional Investors" and at the same time the change in the total no. of director including non-executive directors in the composition of Board of Directors.

Research Objectives

- To identify the influence of the shareholding pattern of Non-Promoter Institutional Investors on the external financing policy of listed manufacturing companies.
- To observe the impact Size and Composition of Board of Directors on external financial decisions.

Data and Methodology:

Data Collection& Sample Selection

Data for conducting the study has been extracted from the authorised database of listed Indian manufacturing companies (listed in NSE) of CMIE-PROWESS. To observe the interrelationship between institutional investors shareholdings, board size and composition Nifty India Manufacturing Index has been selected, as the said index is constituted based on minimum weight (free-float) of 20% to certain manufacturing sectors to gauge the performance of top manufacturing companies in India that are primarily listed in Nifty 100, Nifty Midcap 150 and Nifty Smallcap 50

index(https://www.niftyindices.com/Factsheet/Factsheet_Nifty_India_Manufacturing_Index.pdf).

As far as the sample selection technique is concerned, there are total of 77 companies belong to manufacturing sector is indexed under the Nifty India Manufacturing Index, hence after taking the primary sample from the database researchers has applied a criterion of Market Capitalisation and those companies having market capitalisation over Rs. 5000 crore that has been retained in our sample, and finally that selection results into 32 cross-sections, furthermore a 10 years period under study is taken starting from 31.03.2011 and ending on 31.03.2020, the COVID-19 period till 31.03.2022 is not considered in the study, as it may include certain anomalies and abnormalitiesin the dataset which may leads to produce inconsistent result. Furthermore, 320 observation (including 32 cross sections and 10 years period) are taken to conduct the study.

Empirical Methodology

As far as the objective of the study is concerned, this study is to be conducted basically using panel data methodology as it is bound to be heterogeneous in these units and time variance that explicitly considered observed heterogeneity by allowing for subject-specific variables. (Gujarati et al., 2021). Furthermore, to interpret the results a micro panel is formed [having 32 cross-section (N) units> 10 time periods]. Now, Micro-panel has few distinctive features that in turn may affect the results outcome of the regression models, however the basic pooled OLS estimation is not free from certain factor biases that exclusively observed in a sample having both the cross-section and time variance, moreover the main concern of the researchers in panel data technique is to control time invariant cross-section heterogeneity, random effects in sample panel that may affect the predictability of regression models. (Baltagi & Pesaran, 2007). Three major concerns of HPAC in a liner estimation are autocorrelation with residuals, heteroskedasticity (i.e. unequal variance of error terms) and the problem of contemporaneous correlation (i.e. panel-specific error terms are correlated with each other), and if these are persistent in a model it may give biased

results (Blackwell, J.L.,2005).Moreover, cross-section dependency exists due to unobserved (or unobservable) common factors, non-stationery of panel data is a serious matter in panel data analysis due to cross-sectional dependency, nevertheless, first-generation unit root test fails to capture cross-sectional dependence thus exhibit erroneous outcomes in study results (Baltagi & Pesaran, 2007).

Analysis of Monte Carlo technique Estimates sampling variability that are very accurate, even in complicated panel error structures. Panel error Correction process considers the contemporaneous correlation of the errors. Furthermore, the presence of serial correlation of the errors should be extruded before the panel-corrected standard error computation. Variance due to heteroscedasticity in the panel data set is computed based on two-half estimation, and the covariance matrix of this multivariate distribution has been created using all pairs of units that were equally correlated, with the requisite degree of correlation. Thus this technique generated the errors of the independent variables freely (Beck & Katz, 1995).

The primary model under the presence of HPAC framework is-

$$y_{i,t^l} = \beta_0 + \beta_1 x_{i,t} + e_{i,t^l} \ldots . (1)\ i= 1,2,..,N\ ;\ t= 1,2,...T;\ l= 1,2,...,L$$

A covariance and variance matrix was made to estimate the HPAC of the NT error terms (i = 1, …, N; t = 1, …, T; l = 1, …, L) according to the studied model. (A superscript (1) denotes a specific replicate.) The errors were always generated as zero-mean N*T variate normal, with standard deviations chosen so that estimated coefficients were roughly twice their standard errors, where both were fixed at 10 (Beck & Katz, 1995).

In a panel regression, to check the equality of standardized regression coefficients, the Wald test of coefficient restriction (Klopp, E. 2019) technique considers the panel normalized restrictions as zero (0). Furthermore Hausman Test provides systematic coefficient difference which is included in the error term (https://www.statisticshowto.com/hausman-test), this test that is commonly used to initiates the decisions among which fixed effect or random effect is persistent in the model

(https://spureconomics.com/lagrange-multiplier-test-testing-for-random-effects).

Contemporaneous error correlation is induced by random time effects (Herwartz, H. 2006). The B-PLM test of Contemporaneous correlation helps to decide between a random effects regression and a simple OLS regression, considering the null hypothesis in the LM test is that variances across entities are zero. There is no significant difference across units (i.e., no panel effect). A test for heteroskedasticity in the fixed effect model states the null hypothesis is that variance of error term is homogenous. Moreover, Serial correlation causes the coefficients' standard errors to be smaller than they are and higher R-squared, and the null has no serial correlation (Wooldridge, 2002).The null hypothesis in the B-PLM test of independence is that residuals across entities are not correlated (Torres-Reyna, 2007).

Below are the two basic panel models considering cross-section heterogeneity, random error and idiosyncratic error have been formed to interpret the study results-

$$DER_{it} = \beta_0 + \beta_1 * Io\_GREY_{it} + \beta_2 * IO\_IND_{it} + \beta_3 * BS_{it} + \beta_4 * BC_{it} + \beta_5 * Ln\_size_{it} + u_{it} + \varepsilon_{it} \ldots\ldots (2.1)$$

$$LTDR_{it} = \beta_0 + \beta_1 * IO\_GREY_{it} + \beta_2 * IO\_IND_{it} + \beta_3 * BS_{it} + \beta_4 * BC_{it} + \beta_5 * LN\_SIZE_{it} + u_{it} + \varepsilon_{it} \ldots\ldots (2.2)$$

Where, DER and LTDR are dependent Vaiables; β_0 = Intercept of companies; $\beta_1, \ldots, \beta_5$ = coefficient of explanatory variables; u_{it} = erroer due to crosssection heterogenity; ε_{it} = idiosyncratic error; i= 1,2,…jth no. of cross-section (i.e. companies) ; t=1,2,….kth time periods(i.e. financial year).

However, PCSE regression usually considers the basic OLS parameter estimation and creates variance covariance matrix for cross-sectional time series model where disturbance terms are assumed to be heteroskedastic across panels(Torres-Reyna, 2007). The OLS estimation model is-

$$DER_{it} = \beta_0 + \beta_1 * IO\_GREY_{it} + \beta_2 * IO\_IND_{it} + \beta_3 * BS_{it} + \beta_4 * BC_{it} + \beta_5 * Ln\_SIZE_{it} + \varepsilon_{it} \ldots (3.1)$$

$$LTDR_{it} = \beta_0 + \beta_1 * IO\_GREY_{it} + \beta_2 * IO\_IND_{it} + \beta_3 * BS_{it} + \beta_4 * BC_{it} + \beta_5 * Ln\_SIZE_{it} + \varepsilon_{it} \ldots (3.2)$$

Where, DER and LTDR are dependent Vaiables; β_0 = Intercept of companies; $\beta_1, \ldots, \beta_5$ = coefficient of explanatory variables; ε_{it} = error term of individual panels over t time; i= 1,2,…jth no. of cross-section (i.e. companies) ; t=1,2,….kth time periods(i.e. financial year).

Empirical Results

Descriptive Statistics

Table:2 Descriptive Statistics

	DER	LTDR	IO_FREY	IO_IND	BS	BC	LN_SIZE
Mean	0.222	0.086	0.207	0.264	2.006	1.945	9.863
Median	0.076	0.040	0.173	0.220	2.079	1.946	9.552
Maximum	1.499	0.388	0.814	0.954	3.091	2.833	13.268
Minimum	0.062	0.012	-0.070	0.048	1.099	0.693	7.348
Std. Dev.	0.291	0.096	0.148	0.193	0.323	0.312	1.244

Above table 2 describes the basic statistical characteristics of the data set. It is evident from the above table that among dependent variables mean of DER(0.222) is higher; IO_IND (0.264) has greater mean value than that of IO_GREY (0.207), conversely mean value of BS (2.006) is higher. Furthermore, min value and maximum value of all the variables are bound within a specified range. Standard deviation of all the variables are under tolerable range as it remains below 2.

Panel Unit Root

Table: 3.1 Levin-Lin-Chu unit-root test			**Table:3.2 Fisher-type unit-root test (Augmented Dickey-Fuller test)**		
Ho: Panels contain unit roots			Ho: All panels contain unit roots		
Ha: Panels are stationary			Ha: At least one panel is stationary		
AR parameter: Common			AR parameter: Panel-specific		
Panel means: Included			Panel means: Included		
Time trend: Included			Time trend: Included		
ADF regressions: 1 lag			Newey-West lags: 1 lag		
Variable	Adjusted-t	p-value	variable	Modified inv. chi-squared	p-value
DER	-26.719	0.000**	DER	15.914	0.000**
LTDR	-36.769	0.000**	LTDR	17.971	0.000**
IO_GREY	-14.465	0.000**	IO_GREY	7.026	0.000**
IO_IND	-18.034	0.000**	IO_IND	7.747	0.000**
BS	-5.917	0.000**	BS	2.734	0.003**
BC	-12.705	0.000**	BC	7.314	0.000**
LN_SIZE	-12.869	0.000**	LN_SIZE	5.424	0.000**

Note:** p-value significant at 5% level

Above table 3.1 and 3.2 exhibit the results of panel unit root test under different AR conditions. In table 3.1 the unit root has been tested based on common AR parameter having ADF 1 lag of sample and considering the effect of time trends as well. Conversely in table 3.2 Fisher type ADF test has been conducted having Newey-West 1 lag, where unit root presence is checked under panel specific AR parameter. Nevertheless, results of unit root test are found stationery under both the tests as null hypothesis are rejected at the 5% level of significance. Therefore, the variables under study are found free from unit root.

Wald test of Co-efficient Restrictions

Table: 4 Wald Test of Coefficient Restrictions		
Null Hypothesis: Normalized Restriction (= 0)		
Null Hypothesis Summary		
Independent Explanatory variable	Value	Std. Err.
IO_GREY	-0.392	0.103
IO_IND	-0.347	0.077
BS	-0.020	0.079
BC	-0.006	0.078
LN_SIZE	0.111	0.013
Test Statistic	Value	Probability
F-statistic	25.227	0.000**
Chi-square	126.137	0.000**

Note:** p-value significant at 5% level

Above table 4 shows the results of Wald test of coefficient restrictions of independent variables under null hypothesis of having normalised restrictions= 0, Standard Error of coefficients are found under tolerable range and result of F-statistic and Chi-square both are indicating that coefficients under study don't have normalised restrictions therefore, all the variable taken under the study has significant effect on the independent variables.

Test for Randomness and Heterogeneity

Test for Random Effect

Table: 5.1 Breusch and Pagan Lagrangian multiplier test for random effects					
	var	sqrt(var)		var	sqrt(var)
DER	0.0844	0.2906	LTDR	0.0093	0.0964
e	0.0178	0.1333	e	0.0016	0.0396
u	0.0465	0.2156	u	0.0050	0.0705
H0: Var(u) = 0 (cross-section effects are not random)			H0: Var(u) = 0 (cross-section effects are not random)		
chibar2(01)		596.41	chibar2(01)		653.41
Prob > chibar2		0.000**	Prob > chibar2		0.000**

Note:** p-value significant at 5% level

Above table 5.1 shows the existence of cross-section randomness in the dataset, the results of both the DER [sqrt.(var)u=0.2156] and LTDR [sqrt.(var)u=0.075] models indicate that panel regression have effect due to cross-section randomness. Furthermore, the Test statistic of both the modelsare found significant at 5% level of significance that clearly states randomness persistent in both the models are significant too.

Test for Heterogeneity

Table: 5.2 Hausman test for coefficient difference								
Ho: difference in coefficients not systematic (i.e. random effect persist)								
variable	DER				LTDR			
	fe(b)	re(B)	diff.(b-B)	prob.	fe(b)	re(B)	diff.(b-B)	prob.
IO_GREY	-0.0809	-0.1800	0.0991	0.0025	-0.0323	-0.0628	0.0305	0.0007
IO_IND	0.2370	0.1331	0.1039	0.0217	0.0833	0.0532	0.0302	0.0155
BS	0.0655	0.0743	-0.0088	0.5802	0.0291	0.0299	-0.0008	0.8538
BC	-	-	0.0031	0.685	-	-0.0060	0.0001	0.963

Table: 5.2 Hausman test for coefficient difference								
Ho: difference in coefficients not systematic (i.e. random effect persist)								
	0.0145	0.0177		7	0.0059			0
LN_SIZE	-0.0003	0.0322	-0.0325	0.0135	-0.0020	0.0080	-0.0101	0.0063
	chi2(5)		37.08		chi2(5)		20.93	
	Prob>chi2		0.0000**		Prob>chi2		0.0008**	

Note:** p-value significant at 5% level

From the above table 5.2 it is evident that coefficient difference under Fixed Effect and Random effect is significantly different for IO_GREY, IO_IO_IND at 1% level for both the models, and as far as the whole model is concerned prob. value of chi2 statistic of Hausman test exhibits that the difference is systematic, thus Fixed Effect model may give consistent regression results over the random effect model.

Test for Contemporaneous Correlation, Heteroskedasticity *and*

Table: 6.1 Breusch-Pagan LM test of Contemporaneous Correlation of residuals	
H0: Residuals across entities are not correlated	
DER	chi2(496) = 1212.455, Pr = 0.0000**
LTDR	chi2(496) = 1173.976, Pr = 0.0000**

Autocorrelation(HPAC)

Note: ** p-value significant at 5% level

Above table 6.1 shows result of contemporaneous correlation exists in the panel OLS regression. Thus, null of having no correlation of panel unit level residuals is rejected under 5% significance level for both the models. Hence, existence of contemporaneous correlation in the model is evident.

Table: 6.2 Modified Wald test for groupwise heteroskedasticity			
DER		LTDR	
chi2 (32)	5.20E+05	chi2 (32)	1.10E+05
Prob>chi2	0.0000**	Prob>chi2	0.0000**

Note:** p-value significant at 5% level

Above table 6.2 shows Wald test result of panel heteroskedasticity exists in the fixed effect regression. Thus null of having homogenous variance of

standard error is rejected under 5% significance level for both the models. Hence, existence of group-wise heteroskedasticity in the model is evident.

Table: 6.3 Wooldridge test for autocorrelation in panel data			
H0: no first order autocorrelation			
DER		LTDR	
F(1, 31)	9.843	F(1, 31)	42.33
Prob > F	0.0037**	Prob > F	0.004**

Note:** p-value significant at 5% level

Above table 6.3 shows Wooldridge test of first order autocorrelation in panel data model. Thus null of having no serial autocorrelation in OLS estimation with standard errors is rejected under 5% significance level for both the models. Hence, existence of autocorrelation in the model is clear.

Test for Cross-sectional Dependence

Table: 7Pesaran's test of cross sectional independence		
H0: residuals are not correlated		
Model	Stat	Prob.
DER	-1.353	0.1759
LTDR	-1.072	0.2835

Note: ** p-value significant at 5% level

Above table 7 shows Pesaran's test of cross-sectional dependency in panel data model. Thus null of having no unit level cross sectional dependence with the residual in OLS estimation with standard errors is accepted under 5% significance level for both the models. Hence, no presence of cross-sectional dependency confirms the validity of first generation unit root that is the pre-requisite of Best Liner Unbiased Estimation (BLUE) of minimum variance due cross-sectional to error term in panel-OLS estimation.

Fixed Effect Model and Panel Corrected Standard Error (PCSE) Model Regression

Table: 8.1 Fixed-Effects (Within) Regression					**Table: 8.2 Correlated Panels Corrected Standard Errors Regression (PCSEs)**			
Model: DER	Coefficient	Std. Err.	t	P>|t|	Coefficient	Panel-corrected Std. Err.	z	P>|z|
IO_GREY	-0.0809	0.0964	-0.84	0.402	-0.392	0.0695	5.63	0.000**

Table: 8.1 Fixed-Effects (Within) Regression					**Table: 8.2 Correlated Panels Corrected Standard Errors Regression (PCSEs)**			
Model: DER	Coefficient	Std. Err.	t	P>|t|	Coefficient	Panel-corrected Std. Err.	z	P>|z|
IO_IND	0.2370	0.1065	2.23	0.027**	-0.347	0.0534	-6.49	0.000**
BS	0.0655	0.0611	1.07	0.284	-0.020	0.0532	-0.38	0.001**
BC	-0.0145	0.0551	-0.29	0.770	-0.006	0.0497	-0.11	0.076*
LN_SIZE	-0.0003	0.0225	-0.01	0.991	0.111	0.0166	6.67	0.008**
C	0.0752	0.2385	0.32	0.753	-0.644	0.1339	-4.81	0.012**
	test specifications					*test specifications*		
	R-squared			0.0426		R-squared		0.2866
	corr(u_i, Xb)			-0.1422				
	rho			0.8008		rho		0.0527
	F Statistics			25.61		Wald chi2(5)		154.24
	Prob > F			0.000		Prob > chi2		0.0000

Note: ** p-value significant at 5% level, * p-value significant at 10% level

Above table 8.1 exhibits the panel fixed effect regression result of DER model.Only IO_IND variable is significant at 5% level of significance, it denotes that due to 1% change in the value of IO_IND the DER will be changed by 23.7% and the relationship is positive. However, none of other variables are found significantly affecting the DER. Moreover, standard error of the explanatory variables are relatively higher (as it ranges from 0.0551 to 0.1065).The predictability of the model is too low as the value of R-square is only 4.26%, correlation with standard error is persistent and it is negative (-0.1422) as well, rho (0.8008) value is also greater than 0.50, so a very high degree of cross-section heterogeneity effect in error term is evident. Nevertheless, the fitness of the fixed effect model is good as the value of F-Statistic is significant at 5% level.

Conversely, (in above table 8.2) as far as the PCSE model is concerned, IO_GREY, IO_IND and BS are found significant at 5% level, however, BC is found significant at 10% level. Furthermore, all the explanatory variables are negatively associated DER, however, coefficient values of IO_GREY, IO_IND, BS, BC showthat due to 1% change in the respective values the DER will be changed by 39.2%, 34.7%,2% and 0.6% respectively. Moreover, panel corrected standard error of the explanatory variables are relatively lesser (as it ranges from 0.0497 to 0.0695) as compared to fixed effect model. Moreover, the predictability of the model is quite better as the value

of R-square is 28.66%;rho(0.0527) value of coefficient is also very low, it denotes OLS estimation is not hardly affected due to panel specific standard error. And evidentially the fitness of the PCSE OLS model is good as the value of Wald-chi2 is significant at 5% level as well.

Table: 8.3 Fixed-Effects (Within) Regression

Model: LTDR	Coefficient	Std. Err.	t	P>|t|
IO_GREY	-0.0323	0.0286	-1.13	0.260
IO_IND	0.0833	0.0316	2.63	0.009**
BS	0.0291	0.0250	1.60	0.110
BC	-0.0059	0.0236	-0.40	0.689
LN_SIZE	-0.0020	0.0067	-0.30	0.763
C	0.0443	0.0709	0.63	0.532
	test specifications			
	R-squared			0.0697
	corr(u_i, Xb)			-0.1935
	rho			0.8427
	F Statistics			32.88
	Prob > F			0.000

Table: 8.4Correlated Panels Corrected Standard Errors Regression(PCSEs)

Coefficient	Panel-corrected Std. Err.	z	P>|z|
-0.137	0.0253	-5.42	0.000**
-0.115	0.0178	-6.44	0.000**
-0.034	0.0181	2.29	0.022**
0.019	0.0148	1.55	0.122
0.039	0.0056	2.95	0.003**
-0.208	0.0451	-2.01	0.044**
test specifications			
R-squared			0.3082
rho			0.0068
Wald chi2(5)			172.81
Prob > chi2			0.000

Note:** P-value significant at 5% level, * p-value significant at 10% level

Above table 8.3 exhibits the panel fixed effect regression result of LTDR model. Only IO_IND variable is significant at 5% level of significance, it denotes that due to 1% change in the value of IO_IND the DER will be changed by 8.33% and the relationship is positive. However, none of other variables are found significantly affecting the LTDR. Moreover, standard error of the explanatory variables are relatively higher (as it ranges from 0.0236 to 0.0316).The predictability of the model is too low as the value of R-square is only 6.97%, correlation with standard error is persistent and it is negative (-0.1935) as well, rho (0.8427) value is also greater than 0.50, so a very high degree of cross-section heterogeneity effect in error term is evident. Nevertheless, the fitness of the fixed effect model is good as the value of F-Statistic is significant at 5% level.

Conversely,(in above table 8.4) as far as the PCSE model is concerned, IO_GREY, IO_IND and BS are found significant at 5% level, however, BC is found insignificant. Furthermore, all the explanatory variables are negatively associated LTDR except BC, however, coefficient values of IO_GREY, IO_IND,

BS, BCshow that due to 1% change in the respective values the LTDR will be changed by 13.7%, 11.5%, 3.4% and 1.9% respectively. Moreover, panel corrected standard error of the explanatory variables are relatively lesser (as it ranges from 0.0148 to 0.0253) as compared to fixed effect model. Moreover, the predictability of the model is quite better as the value of R-square is 30.82%; rho (0.0068) value of coefficient is also very low, it denotes OLS estimation is not hardly affected due to panel specific standard error. And evidentially the fitness of the PCSE OLS model is good as the value of Wald-chi2 is significant at 5% level as well.

Discussions of Empirical Results

From the empirical test results obtained it is evident that due to presence of cross-section heterogeneity, contemporaneous correlation, heteroskadasticity and serial autocorrelation in both DER and LTDR Fixed effect models, PCSE model exhibit much consistent result as compared to fixed effect regression model as this OLS based estimation is capable to provide comparatively unbiased and consistent results and takes care of standard errors occurred due to presence of panel unit level standard errors that certainly affects the OLS estimation.

Thus, regression outcome of PCSE model explains that, Non-banking institutional holding have more influence on the both companies' Debt-Equity Ratio & Long-term Debt funded assets ratio though inversely related, this is probably because this type of institutional investors have much scope to invest in the equity holdings gives them a long-term stake to the company, prolonged time of getting better return on their investments as these firms have good prospect and past performance, hence lesser chance of business risk gives the investors much confidence, thus manufacturing companies require less external funds to procure long-matured fund, conversely Banking and Government institutions equity investment negatively influencing the companies external financing as this apex institutions instead of giving long-matured funds to the manufacturing companies , a constant deployment of equity funds gives them better return, and the firms are also able to generate constant revenue seamlessly as well.

Furthermore, as far as the Board Structure and composition of the companies are concerned, rise in the total no of directors and inclusion of more non-executive directors in the boards probably detruncate external source of financing, plausibly they are much concerned to mitigate financial risks of the companies from all probable aspects, another reason for depending much on owners fund is that the manufacturing firms have a uniform market return, established market give them to generate a consistent revenue, and very large scale of production also helps them to get the benefits of economies of scale, which in turn may enable them to quote a competitive price even after keeping a sufficient profit margin. Thus, a situation of procurement of long-matured external fund hardly arises, notwithstanding the companies use borrowed funds usually to deploy short-matured funds (mainly in working capital investments) as a constant source of cash-flow, substantial institutional shareholdings extends the scope of less usage of internal fund as working capital as solvency of the firm is not even an issue for such manufacturing companies.

Nevertheless, the startling fact of a positive relation between Board Composition and LTDR is evident for select manufacturing companies. Lenders consider the firm credit worthy, with the presence of non-executive directors on the firm's board and hence probably, the board is focussed on to enjoy few short-term benefits of companies such as cost of capital, tax-benefits and others associated to long-period debt funded asset financing etc.

Concluding Comments

Manufacturing sector listed companies are very much rely on the equity investments for procurement of long-matured funds, however, for working capital they rely mostly on short-mature debt. However, major non-promoter institutional equity holdings by Banking and Non-banking sector institutions are reasonably controls corporate debt financing decisions. Furthermore, Board size detruncates external borrowings, in spite of that proportion of higher non-executive directors in the board, expands the

pathway of external financing to enjoy the benefit derived from usage of more quantum of debt in the corporate capital structure.

Limitations and Future Scope

In this study, the researchers have exclusively initiated to make an interrelationship between shareholding patterns of Institutional Investors along with the board size and its composition. However, the other parameters of companies' Ownership Structure, Corporate Governance in relation to their external financing policy formulation, modification need to be studied thoroughly which is not captured in exhaustively in this paper. Thus, particular area of corporate finance and corporate governance study is much more dynamic, hence future researchers may explore further new insights not yet recognised. Moreover, a shortcoming of the study is that the Covid-19 period is not covered due to having irregular variation in the dataset.

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