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Corporate ownership structure and performance: An enquiry into India

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Abstract. *Influence of corporate ownership structure on corporate performance and governance has been a matter of debate and investigation in the literature of financial performance, and financial economics. This study explores the nature and extent of the relationship between ownership category and financial performance of the firm in limited manner. It investigates as to how heterogeneity of owners as well as the ownership category of the firm, per se, impacts the corporate performance. Employing panel regression model, the results show ownership structure impacts financial performance but only selectively, and the strength of the impact appears weak. This creates a basis for further analysis to understand the incentives and examine the impact of ownership structure on corporate financial performance across the sectors and the markets.*

Keywords: ownership structure, financial performance, panel data analysis.

JEL Classification: G30, G31.

Introduction

The impact of ownership structure and financial performance has been studied extensively in the theoretical as well as empirical research. Investigations have been carried out to analyse the impact of alignment and entrenchment effects of the owners and the management. Alignment of interest happens when the interests of the owners and the management converge. Often this situation arises when ownership of the owner-cum-manager is dominant. The entrenchment of the management, arising out of typical ownership structure that increases the chances of higher agency cost, risk of funds appropriated unreasonably and made replacement of the management difficult. In such a situation, the management tends to pursue suboptimum value enhancing strategy and focus on short term investment decisions. This leads to sub-optimum performance.

Empirical studies investigating the alignment of interest of the owners and the management and the entrenchment of the management, in the backdrop of the corporate form of organisation, have remained inconclusive. Theory suggests that alignment of interest is likely reduce agency costs and improve corporate performance; while the ability of the management to entrench in the company is likely to increase agency cost and other leakages and hence poses a challenge to monitor them effectively leading to relatively low performance.

Globally, the result of an investigation of the relationship between ownership category and performance has been mixed. Demzets and Lehn (1985) and Morck et al. (1988) tested the thesis of Berle and Means (1932) of the relationship between ownership and performance. La Porta et al. (1999) and Shleiferand Vishny (1997) have given a new perspective to this thesis where a group of owners holding substantial ownership in the firm also manages the firm.

In Indian markets, there has been an only limited and preliminary investigation in this area. Panchali (2000), Mohanty (2003) and Sarkar and Sarkar (2000) have made inquiries in the domain of institutional investors activism and performance, while Balasubramanian and Ramaswamy (2014) has investigated changing the pattern of ownership in India.

This study combines these two aspects and enquires into the concentration of promoters' (owners-cum-management) ownership, dispersal of retail investors' ownership, collective ownership of institutional investors, and their interaction *inter se,* and their impact on performance in Indian stock markets.

This paper explores the nature and extent of the relationship between the ownership category and financial performance of the firm in a limited manner. It further investigates as to how heterogeneity of owners as well as the ownership structure of the firm, *per se*, impacts the corporate performance. This assessment and investigation can be extended across the sectors. Performance variables are selected to represent profitability, operational efficiency, and financial strength. Ownership variables are broadly classified into three categories viz. promoters, institutional investors, public or residual ownership (not covered in the previous two categories).

The rest of the sections of the paper has been organised in the following manner. Section 2 presents review of existing literature on the relationship between ownership structure and financial performance, Section 3 presents data sources and model, Section 4 presents analysis of the result and Section 5 concludes the study with broad policy implications and area of further research.

Section 2. Review of literature

Berle and Means (1932) in their book have first initiated the theory and empirical research on the impact of ownership structure on firm performance. However, the origin of this debate has happened from Adam Smith. The literature on the impact of ownership structure on financial performance focused on how owners and managers are responsible for lower rate of return.

The issue is on what process ownership impacts the performance of a company. The classical theory of managerial firm (like-Galbraith 1967; Williamson, 1964; Marris, 1964; Baumol, 1959) concludes that the performance of the management controlled firm and the owners controlled firm differs each other due to dispersed ownership allows the former to pursue goals different from those of the shareholders (see Leech and Leahy, 1991; McConnell and Servaes, 1990; Morck et al., 1988l; Demsetz and Lehn, 1985).

Most of the existing theoretical and empirical literature on the impact of ownership structure on financial performance is dominated by the model of the Anglo-American firm with dispersed share ownership and wide managerial discretion (see Holl, 1951; Kamerschen, 1968 and Monsen et al., 1968). However, the management controlled firm is not the dominant form of enterprise in India. Ownership is highly concentrated in India relative to some of the developed markets. In the Indian market, the issue is family own substantial ownership and also manages the company. The issue, in Indian corporate sector, is not whether the dispersed ownership structure allows managers to pursue goals different from those of the shareholders but how the owner-cum-manager group (often holding less than majority ownership) along with non-owner-manager group impact the performance of the firm.

In Indian corporate sector, the companies are owned and controlled by shareholders holding higher levels of ownership, which helps to reduce the agency problem between managers and shareholders. On the other hand, this causes the emergence of several conflictual cases between majority and minority shareholders. The high level of ownership shareholders is getting more power and incentives to hold off the expropriation for the benefit of the minority shareholders (La Porta et al., 2002).

There have been several studies investigating the impact of ownership – concentrated or dispersed or insiders against outsiders – on firm performance. Broadly, they offer mixed results. Studies have documented positive, negative, and no relationship between ownership structure and financial performance. They offer various rationale(s) for such a relationship by looking from different perspectives. The positive relationship offers the

following reasons. First, concentrated ownership leads to closer alignment of interest leading to a reduction of agency cost and enhancement of efficiency gains. Second, even in the case of companies managed by professional management, the concentration of ownership makes it easier to monitor them effectively even when owners are not involved in management. Third, the concentration of ownership due to family managed business gives the management higher sector and firm-specific skill and longer investment horizon and low level of agency cost.

Studies are revealing negative relationship offer the following reasons. First, an intermediate level of concentration of ownership reduces the probability of takeover and increases entrenchment possibility and hence adversely affects efficiency and performance. Second, the companies are owned and managed by section of family increase the chances of appropriation of corporate funds for the family. Third, the concentration of the family ownership brings culture and legacy of family which may or may not always good for the company, and also often leads to either risk aversion or assuming high risk in investment decision leading to adversely impacting the performance.

There is also evidence that shows no relationship between ownership structure and financial performance. They found endogeneity between ownership structure and firm performance and hence argues for no significant impact. Secondly, an efficient market will lead to an optimal ownership structure, given the company and industry-specific characteristics.

Thus, the rationale for and outcome of the impact of ownership structure and financial performance has been summarised in Table 1.

Table 1. *Reasons for impact of corporate ownership structure on performance*

	Positive	Negative	No significant impact
1	Concentrated ownership by insiders improves corporate performance due to the alignment of interests reducing agency cost (Jensen and Meckling, 1976)	Intermediate level of concentration reduces the probability of takeover and entrench less efficient management (Stulz 1988; Barclay and Holderness (1989)	Because of endogeneity between ownership structure and financial performance. (Demsetz and Villalonga, 2001; Demsetz and Lehn, 1985).
2	Block shareholders are efficient to monitor the professional management, although they are not connected in management (Shleifer and Vishny, 1986)	Family cum Managers ownership may lead to high risk of appropriation (Morck et al., 1988)	In a given firm as well as industry specific characteristics, an efficient markets will lead to an optimal ownership structure.
3	Family owned firms, perhaps, make more efficient investment decisions than their counter parts due to more firm-specific knowledge, less agency cost, and longer horizons of investment (Stein, 1998)	The high concentration of family ownership may lead to concern for family legacy, risk aversion, forgoing profitable merger opportunities and hence adversely impact performance (Morck et al., 2000)	

Performance variables in most of these studies are investigated through four types of variables. They are:

a. Financial leverage or capital structure choices represented by either debt to equity or debt to total assets.
b. Market-based valuation represented by Tobin q or excess market returns.
c. Profitability measures, like, Return on capital employed or Return on equity.
d. Operational efficiency measures related to turnover.

Variables of ownership structure are, one, promoters, non-promoters, institutional investors, and non-promoter - institutional investors.

A snapshot of empirical evidence related to ownership and a variety of performance variables is summarized in Table 2.

Table 2. *Evidence from impact of ownership structure on performance*

	Financial leverage	Market performance	Accounting measures of performance
1	Globally, the results are mixed.	The ownership structure is endogenous, and hence there is no relationship with market-based performance (Demsetz and Lehn, 1985)	Studies do not find a significant relationship between ownership and accounting-based measures of performances such as ROA, RONW, etc.
2	Negative relationship exists between financial leverage and ownership structure (Holderness and Sheehan, 1988).	Low and high levels of ownership increase alignment and hence are associated with higher levels of valuation ratios or market performance	The above inconsistency may arise out of the inability of researchers to employ econometric methods appropriately (Coles et al., 2007)
3	Kim and Sorensen (1986) find a level of financial leverage increases with insider ownership.	Intermediate level of ownership increases entrenchment and hence is associated with lower levels of market performance.	
4	Andersen and Reeb (2003) and King and Santor (2008) find insider ownership whether by managers or families, does not affect capital structure choices.		

The review of literature also suggests different methodological issues. The classical proposition of inverse relationship between ownership structure and financial performance has been objected by Demsetz (1983), and supports the endogeneity of ownership structure. McConnell and Servaes (1990) find an *inverted* U shaped association between performance and insider ownership. Hermalin and Weisbach (1991) find a non-monotonic relation between ownership structure and financial performance. Short and Keasey (1999) observe, in their sample of UK firms, a similar cubic association (Morck et al., 1988) between profitability and managerial ownership. Chung and Pruitt (1996) used a simultaneous equation model to study this relationship. Palia and Lichtenberg (1999) observe a positive relationship between managerial ownership and total factor productivity. Loderer and Martin (1997) employ a simultaneous equations model to find endogeneity of ownership structure and negative relationship between ownership and performance. Cho (1996) however, in a simultaneous regression model with cross-section data in 1991, reveals that performance is a positive predictor of insider ownership and not vice versa. In the context of a panel data model, Himmelberg et al. (1999) find that managerial ownership has a positive relationship with firm size and a negative relationship with the firm's idiosyncratic risk. Hermalin and Weisbach (1987) and Morck, Shleifer, and Vishny (1988) both used a piece-wise linear regression to investigate this impact. Applying Demsetz and Villalonga (2001) model to Australian listed firms, Welch (2003) finds limited evidence of a non-linear relationship between managerial share ownership and firm performance. More recently, Villalonga and Amit (2004) conclude that family ownership creates value only when it is combined with certain forms of control and management. Finally, Sheu and Yang (2005) in the Taiwan market, find that insider ownership has no influence on total factor

productivity. Besides, studying ownership and performance linkages, these studies have experimented with different methodological issues that guide further research in this area. This study experiments and employs cross-section data and panel regression model to analyse this linkage.

Given inconclusive evidence globally, and the dearth of empirical study in the Indian context, this study attempts to investigate into linkages between ownership and performance in a limited manner. It develops on cross-section data and employs panel regression to observe the significance or otherwise.

Section 3. Data panel models

Data

We source all annual data from the Centre for Monitoring Indian Economy (CMIE) – Prowess. This is company data base of Indian companies. The study considers ownership data of promoter, non-promoter institution and non-promoter non-institution to represent ownership structure and financial variables such as sales/net fixed assets, sales/net working capital, sales/total assets, investment/total assets, total liability / total net worth, net cash flows from operating activities/average capital employed, profit before depreciation interest and tax/average capital employed, profit after tax/ average net worth, net cash flows from operating activities/average net worth and debt-equity ratios (times) to represent financial performance of companies. The variables and their codes have been presented in Table 3. The study period covers from 2000 to 2015 of 11 years. We consider companies under various Bombay Stock Exchange (BSE) sectors. Finally two BSE Sectorial Indices are considered, one BSE IT sector and other BSE Oil & Gas sector. After data alignment, 49 companies are analysed for which data on ownership and performance for 11 years were available.

Table 3. *Variables and codes*

	Variables	Codes
Performance Variables	Sales/Net Fixed Assets	Snf
	Sales/Net Working Capital	Snw
	Sales/Total Assets	Sta
	Total Outsiders Liability(TOL)/Total Net Worth(TNW)	Totn
	Investment/Total Assets	Int
	Net Cash Flow from Operation/Average Capital Employed	ncac
	PBDIT-Depreciation/average capital employed	pbac
	PAT/Average Net Worth	paan
	Net Cash Flow from operation/Average Net Worth	ncan
	Debt to equity ratio (times)	De
Ownership Variables	Promoter	P
	Non-Promoter Institution	Npi
	Non-Promoter non-institution	npni

Panel Models: For analysis through panel models, the initial check of the panel unit root test has been applied. Subsequently, we proceed for analysis of data through panel regression including choice of application of fixed effect and random effect model. The brief of this model is given below.

Panel Unit Root Test: Assessment of stationarity of data series is required to be carried out before proceeding for econometric analysis. For this purpose, Panel stationarity tests are applied to measure unit root in the data under consideration. A test of Levin et al. (2002) assumes a homogeneous autoregressive unit root under the alternative hypothesis. Hadri (2000) develop a technique which is a reverse procedure of testing the unit root. The Lagrange Multiplier (LM) test of Hadri (2000) is made to confirm and strengthen the above two procedures.

Panel Regression

Fixed Effect Model

We use a fixed effect model to analyse the impact of variables that vary over time. It explores the relationship between predictor and outcome variables within an entity. When we use this model, we assume that something within the individual may impact or bias the predictor or outcome variables, and we need to control for this. This is the rationale behind the assumption of the correlation between the entity's error term and predictor variables. Fixed effect removes those time-invariant characteristics so we can assess the net effect of the predictors on the outcome variables. An important assumption of the fixed effect model is that those time-invariant characteristics are unique to the individual and should not be correlated with other individual characteristics. Each entity is different; therefore, the entities error term and the constant should not be correlated with others. If the error terms are correlated, then fixed effect model will not be suitable. This is the main rationale for the Hausman test (Reyna, 2007). The fixed effect equation

$$Y_{it} = \beta_1 X_{it} + \alpha_i + U_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where:
α_i(i =1, …, n) is the unknown intercept for each entity (n entity-specific intercepts);
Y_{it} – dependent variable where i – entity and t – time;
X_{it} – independent variable;
β_1 – coefficient for the independent variable;
U_{it} – error term.

Random Effect Model

The rationale behind the random effect model is that, unlike the fixed effects model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. If we assume the differences across entities have some influence on your dependent variable, then you should use random effects. We can use time-invariant variables in this model. In the fixed effect model, these variables are absorbed by the intercept (Reyna, 2007).

"The crucial distinction between fixed and random effect is whether the unobserved individual effect embodies elements that are correlated with the repressor's in the model or not; whether these effects are stochastic or not" (Greene, 2008, p. 183)

The random effect model is-

$$Y_{it} = \beta_1 X_{it} + \alpha + U_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where:
U_{it} – between entity error;
ε_{it} – within entity error.

Random effect assumes that the entity's error term is not correlated with the predictors, which allow for time-invariant variables to play a role as explanatory variables. This model allows generalising the inferences beyond the sample used in the model. (Reyna, 2007).

To decide between the fixed effect model and random effect model, we need to perform the Hausman test. The null hypothesis for this test is that the preferred model is random effects vs. the alternative hypothesis is fixed effects (Greene, 2008, Chapter 9)

Hausman test: Fixed Effect (FE) or Random Effect(RE)

The choice between fixed effects and random effects specification is generally based on Hausman (1978) test, which is designed to detect the violation of random effect modelling assumption that explanatory variables are orthogonal to unit effects. The test chooses the appropriate model between FE and RE. The null hypothesis is that no correlation exists means no difference between the estimators since both of them are consistent. While the alternative suggests that both are dissimilar if the null hypothesis is rejected, then the FE is the appropriate model.

$$H = (\beta_{RE} \acute{-} \beta_{FE})[Var(\beta_{FE}) - Var\beta_{RE}]^{-1}(\beta_{RE} \acute{-} \beta_{FE})$$

Where:
$\beta_{RE} and\ \beta_{FE}$ is the vector of random effects and fixed effects estimates.

Under the null hypothesis of orthogonality, H-statistics follows chi-square distribution with degrees of freedom equal to the number of regressors in the model. A finding that $p < 0.05$ is taken as evidence that at conventional levels of significance, the two models are different enough to reject the null hypothesis and hence to reject the random effects model in favour of the fixed effect model.

Section 4. Results

Descriptive statistics of the results are presented in Table 4 to appreciate the statistical properties of the sample. The variability of a series has been measured by mean, median, maximum, minimum, and standard deviation. We observe the mean of all variables is positive. The standard deviation of sales/net working capital is higher, and non-promoter institutions' is lower than the average observed in respective categories. Most of the variables are positively skewed except promoters' ownership. The values of Kurtosis of all variables are positive, implying leptokurtic and high peaked distribution of data series than a normal distribution. The Jarque-Bera test for normality is significant in case of all

variables indicates that the series over the periods are non-normal. This initial exercise provides early and preliminary insights into the data sets and variables. This helped us a further investigation.

Table 4. *Descriptive statistics*

	DE	INT	NCAC	NCAN	NP	NPI	NPNI
Mean	0.479	0.241	0.153	0.194	0.506	0.174	0.331
Median	0.090	0.208	0.125	0.163	0.500	0.140	0.316
Max	8.700	0.834	1.177	2.516	1.000	0.595	0.990
Min	0.000	0.000	-0.609	-1.223	0.000	0.000	0.000
Std.Dev	1.020	0.185	0.188	0.326	0.193	0.149	0.193
Skewness	4.480	0.855	1.068	1.612	-0.208	0.568	0.459
Kurtosis	28.392	3.247	8.204	17.616	2.758	2.266	2.847
Jarque-Bera	16283*	67.035*	710.705*	5031.519*	5.202	41.094*	19.425*
Observations	539	539	539	539	539	539	539

	P	PAAN	PBAC	SNF	SNW	STA	TOTN
Mean	0.466	0.164	0.243	7.117	4.542	0.935	0.677
Median	0.480	0.162	0.200	4.782	3.584	0.762	0.330
Max	0.925	1.250	1.668	62.453	90.816	4.156	10.000
Min	0.000	-1.830	-0.279	0.000	-76.214	0.000	-5.800
Std.Dev	0.198	0.237	0.226	8.651	17.189	0.745	1.231
Skewness	-0.209	-0.936	2.424	3.401	0.047	1.757	1.116
Kurtosis	2.481	16.546	12.614	16.727	9.747	5.945	16.763
Jarque-Bera	9.986***	4199.786*	2603.823*	5270.531*	1022.585*	472.063*	4365.84*
Observations	539	539	539	539	539	539	539

***** indicates significant at the level of 1%.

Table 5. *Co-relation matrix among variables*

	Snf	Snw	Sta	totn	Int	ncac	Pbac	paan	Ncan	De	P	Np	npi	npni
snf	1.00													
snw	0.08	1.00												
Sta	0.42	0.23	1.00											
totn	0.19	0.00	0.20	1.00										
Int	0.02	-0.09	-0.38	0.03	1.00									
ncac	0.09	0.08	0.29	-0.11	-0.21	1.00								
pbac	0.24	0.07	0.30	-0.14	-0.25	0.61	1.00							
paan	0.17	0.09	0.24	-0.07	-0.17	0.46	0.77	1.00						
ncan	0.03	-0.01	0.15	0.05	-0.15	0.65	0.28	0.19	1.00					
De	0.02	-0.09	0.04	0.25	-0.07	-0.13	-0.23	-0.26	0.23	1.00				
P	0.04	0.06	0.18	0.04	-0.06	0.15	0.24	0.22	0.10	-0.03	1.00			
np	0.00	-0.09	-0.13	-0.02	0.08	-0.14	-0.23	-0.23	-0.09	0.06	-0.73	1.00		
npi	0.04	-0.07	0.11	0.04	0.01	0.04	0.00	0.02	0.07	-0.02	-0.31	0.39	1.00	
npni	-0.03	-0.03	-0.22	-0.05	0.08	-0.18	-0.23	-0.25	-0.14	0.07	-0.49	0.70	-0.38	1.00

We observe the existence of linkages between financial performance and ownership variables. We find PBDIT-Depreciation/average capital employed (pbac) and Net Cash Flow from Operation/Average Capital Employed (ncac), Net Cash Flow from operation/Average Net Worth (ncan) and ncac, PAT/Average Networth (paan) and

PBIT/Average capital employed (pbac) have a high positive correlation. Promoter and non-promoter non-institution have high negative correlations. Within financial performance variables, in some cases, correlation is high, and within ownership variables, it is weak except in two cases. This requires further investigation to uncover extent, quality, and consistency in these linkages.

To check the stationarity of variables, we employ panel unit root tests, those are: Levin et al. (2002) known as LLC, IM et al. (2003) known as IPS, ADF Fisher, PP Fisher and Hadri (2000) test. The null hypothesis of all tests except Hadri (2000) is that panel data have unit root means non-stationary. If the probability of the coefficient is significant than we reject null and accept alternative hypothesis which indicates data are stationary. The null hypothesis for Hadri (2000) is just the opposite of all other methods. From all the tests (as presented in Table 6), we find all variables are stationary at the level both in intercept & trend and intercept.

Table 6. *Panel stationarity test result*

Variables	Type	intercept	Trend and intercept	Variables	Type	intercept	Trend and intercept
Promoter (p)	LLC	-696.274*	-586.770*	Investment/total assets(int)	LLC	-23.891*	-26.738*
	IPS	-93.896*	-40.926*		IPS	-2.630*	-1.989*
	ADF Fisher Chi-Square	170.749*	179.705*		ADF Fisher Chi-Square	125.395**	147.601*
	PP Fisher Chi-Square	177.415*	137.456*		PP Fisher Chi-Square	159.411*	157.924*
	Hadri	11.512*	15.008*		Hadri	7.501*	13.331*
Non Promoter (np)	LLC	-693.968*	-520.059*	NCFO/Avg Capital Employ(ncac)	LLC	-8.440*	-13.519*
	IPS	-93.759*	-44.291*		IPS	-3.508*	-1.372***
	ADF Fisher Chi-Square	194.275*	238.053*		ADF Fisher Chi-Square	157.889*	141.153*
	PP Fisher Chi-Square	171.911*	134.568*		PP Fisher Chi-Square	268.845*	243.322*
	Hadri	10.959*	16.062*		Hadri	7.310*	13.280*
Non Promoter Institution(npi)	LLC	-102.491*	-83.348*	PBDIT-DEP/avg capital employed (pbac)	LLC	-7.262*	-12.306*
	IPS	-14.225*	-6.778*		IPS	-1.944*	-1.189
	ADF Fisher Chi-Square	126.929*	172.030*		ADF Fisher Chi-Square	138.987*	137.319*
	PP Fisher Chi-Square	133.058*	159.734*		PP Fisher Chi-Square	222.457*	222.715*
	Hadri	10.555*	15.228*		Hadri	8.258*	12.963*
Non PromoterNon institution(npni)	LLC	-39.069*	-42.178*	PAT/Average net-worth (paan)	LLC	-4.497*	-5.887*
	IPS	-9.081*	-6.499*		IPS	-1.908**	-0.023
	ADF Fisher Chi-Square	209.700*	232.173*		ADF Fisher Chi-Square	128.245**	114.699
	PP Fisher Chi-Square	208.581*	202.633*		PP Fisher Chi-Square	244.132*	233.862*
	Hadri	9.090*	17.558*		Hadri	7.826*	13.954*
Sales/Net Fixed Assets(Snf)	LLC	-3.672*	-5.973*		LLC	-6.083*	-8.854*
	IPS	-0.223	-0.465		IPS	-3.018*	-0.570

Variables	Type	intercept	Trend and intercept	Variables	Type	intercept	Trend and intercept
	ADF Fisher Chi-Square	99.097	120.880**	NCFO/Average net worth(ncan)	ADF Fisher Chi-Square	146.906*	117.981***
	PP Fisher Chi-Square	102.609	142.604*		PP Fisher Chi-Square	257.496*	232.962*
	Hadri	9.191*	8.946*		Hadri	5.195*	11.612*
Sales/Net Working capital(snw)	LLC	-5.576*	-5.690*	Debt to equity ratio (times)(de)	LLC	-12.536*	-15.729*
	IPS	-2.549*	-0.160		IPS	-4.949*	-2.322*
	ADF Fisher Chi-Square	144.904*	103.362		ADF Fisher Chi-Square	163.196*	164.411*
	PP Fisher Chi-Square	251.252*	263.745*		PP Fisher Chi-Square	237.111*	225.657*
	Hadri	5.436*	14.993*		Hadri	2.721*	15.896*
Sales/Total Assets(sta)	LLC	-9.699*	-12.402*	TOL/TNW (totn)	LLC	-9.107*	-20.602*
	IPS	-2.663*	-0.631		IPS	-2.164*	-0.545
	ADF Fisher Chi-Square	139.381*	125.604**		ADF Fisher Chi-Square	126.717**	114.756
	PP Fisher Chi-Square	176.878*	177.975*		PP Fisher Chi-Square	172.461*	200.774*
	Hadri	8.643*	10.333		Hadri	7.113*	15.144*
	Hadri	2.721*	15.896*				

Fixed effect vs. Random effect

In this study, the dependent variable is the financial performance and the independent variable is ownership structure. The study run both fixed effects and random effect models to examine our objectives of study. We employ the Hausman (1978) test to choose between these two effects. The null hypothesis for the Hausman test is that Random effect model is appropriate and if null is rejected than the fixed effect model is suitable. The regression equations from the ownership structure to financial performance are as under.

$$snf = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

$$snw = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

$$sta = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

$$totn = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (iv)$$

$$int = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (v)$$

$$ncac = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (vi)$$

$$pbac = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (vii)$$

$$paan = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (viii)$$

$$ncan = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (ix)$$

$$de = a_0 + \beta_1 p + \beta_2 npi + \beta_3 npni + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (x)$$

We run ten different models to capture fixed as well as a random effect. Results have been given in Tables 5 and 6. Based on Hausman test, we find fixed effect model is appropriate for models 1, 4 and 8 and Random effect model is appropriate for rest of the models (models 2, 3, 5, 7, 6, 9 and 10). For the overall significance of the models; we employ Wald Chi-square test for random effect models and F statistics for fixed effect models. F statistics for fixed effect models of 1 and 4 are insignificant, and for model 6, it is significant. This indicates the overall significance of model 6. The Wald Chi^2 is significant in the case of model 2, 3, 7, 8, and 9. Overall these models are significant.

Our dependent variables are the financial performance, and independent variables are ownership structure. From fixed effect models of 1 and 4, we find no significant impact of ownership structure on financial performance, but in case of model 6, we find promoter positively impacts financial performance and non-promoter non-institutions negatively impact financial performance, but non-promoter institution dose does not impact financial performance. Table 7 and Table 8 present the regression model for all variables under consideration.

Table 7. *The panel OLS results: fixed effects (FE) vs. random effects models*

Dependent Variable-Financial Performance										
	Fixed Effects (FE) Model Results					Random Effect Model Results				
Regressor	Model-1	Model-2	Model-3	Model-4	Model-5	Model-1	Model-2	Model-3	Model-4	Model-5
C	4.978 (2.583)**	10.661* (5.601)	0.504 (0.217)**	0.464 (0.368)	-0.212* (0.557))	3.528 (2.542)	9.612*** (5.469)	0.552 (0.212)*	0.424 (0.366)	0.201 (0.543)*
P	2.752 (2.782)	-2.339 (6.034)	0.783 (0.234)*	0.319 (0.396)	-0.011 (0.060)	4.175 (2.748	-1.305 (5.911)	0.737 (0.229)*	0.358 (0.392)	-0.000 (0.587)
NPI	3.560 (3.482)	-15.971** (7.552)	0.783 (0.294)	0.450 (0.496)	0.457 (0.751)	2.219 (2.903)	-14.625** (7.404)	0.726 (0.287)**	0.501 (0.491)	0.059 (0.074)
NPNI	0.712 (2.583)	-7.898 (6.376)	-0.214 (0.248)**	-0.043 (0.419)	0.078 (0.634)	3.528 (2.543)	-6.897 (6.244)	-0.264 (0.242)	-0.001 (0.414)	0.090 (0.062)
R^2	Within: 0.003 Between: 0.567 Overall: 0.005	Within: 0.011 Between: 0.145 Overall: 0.010	Within: 0.068 Between: 0.079 Overall: 0.067	Within: 0.005 Between: 0.085 Overall: 0.005	Within: 0.007 Between: 0.364 Overall: 0.007	Within: 0.003 Between: 0.634 Overall: 0.006	Within: 0.012 Between: 0.142 Overall: 0.010	Within: 0.068 Between: 0.064 Overall: 0.067	Within: 0.004 Between: 0.089 Overall: 0.005	Within: 0.007 Between: 0.373 Overall: 0.007
F Test/ Wald Chi^2	0.69	2.05***	12.86*	0.81	1.26	3.38	5.73	38.47*	2.63	4.17
Hausman Test Statistic:- H0: Random Effects Model is Appropriate, H1: Fixed Effects Model is Appropriate										
Chi^2	159.965*	1.042	2.984	13.664*	3.468					

Note: The co-efficient for Fixed Effect model is t-statistics, and for random effect model, it is z-statistics, Wald Chi^2 for RE model and F test for fixed effect model; * Significant at 1% level, ** at 5% level, *** at 10% level, Numbers in the parenthesis are standard errors.

From the random effect models, in the case of model 2, non-promoter non-institution negatively impacts financial performance, in the case of model 3, promoter and non-promoter institutions positively impact on financial performance. From models 5 and 9, we find ownership structure is not impacting financial performance. In the case of model 7,

the promoter is impacting financial performance, and other ownership variables are not impacting. From model 8, we find promoter positively impacts financial performance and non-promoter non-institution impact negatively on financial performance. The R^2 which implies that how many independent variables impact on dependent variables in all models is very low indicate even if there is the impact of ownership structure on financial performance in some cases, but the impact is very low. This result also supports the view of existing literature.

Table 8. *The panel OLS results: fixed effects (FE) vs. random effects models*

Dependent Variable-Financial Performance										
	Fixed Effects (FE) Model Results					Random Effect Model Results				
Regressor	Model-6	Model-7	Model-8	Model-9	Model-10	Model-6	Model-7	Model-8	Model-9	Model-10
C	0.131* (0.059)	0.220* (0.065)	0.160* (0.068)	0.160*** (0.096)	0.273 (0.308)	0.144* (0.054)	0.213* (0.064)	0.169* (0.068)	0.150 (0.096)	0.254 (0.299)
P	0.103*** (0.059)	0.187** (0.070)	0.163** (0.073)	0.127 (0.104)	0.067 (0.331)	0.091 (0.059)	0.193* (0.069)	0.156** (0.073	0.137 (0.102)	0.087 (0.324)
NPI	0.051 (0.075)	-0.009 (0.089)	0.001 (0.092)	0.136 (0.130)	0.115 (0.414)	0.034 (0.074)	-0.005 (0.087)	-0.010 (0.091	0.144 (0.129)	0.143 (0.406)
NPNI	-0.106*** (0.063)	-0.187 (0.075)	-0.220* (0.078)	-0.146 (0.109)	0.468 (0.349)	-0.119** (0.062)	-0.181* (0.073)	-0.229* (0.078)	-0.135 (0.109)	0.483 (0.343)
R^2	Within: 0.038 Between: 0.030 Overall: 0.037	Within: 0.078 Between: 0.015 Overall: 0.078	Within: 0.076 Between: 0.108 Overall: 0.075	Within: 0.026 Between: 0.015 Overall: 0.025	Within: 0.005 Between: 0.005 Overall: 0.005	Within: 0.037 Between: 0.006 Overall: 0.037	Within: 0.077 Between: 0.023 Overall: 0.077	Within: 0.076 Between: 0.124 Overall: 0.075	Within: 0.025 Between: 0.008 Overall: 0.025	Within: 0.005 Between: 0.007 Overall: 0.005
F Test/ Wald Chi^2	6.91*	14.71*	14.36*	4.57*	1.03	20.58*	44.72*	43.52*	13.63*	3.15
Hausman Test Statistic:- H0: Random Effects Model is Appropriate, H1: Fixed Effects Model is Appropriate										
Chi^2	2.451	2.224	6.771*	1.366	1.234					

Note: The co-efficient for Fixed Effect model is t-statistics, and for random effect model, it is z-statistics, Wald Chi^2 for RE model and F test for fixed effect model; * Significant at 1% level, ** at 5% level, *** at 10% level, Numbers in the parenthesis are standard errors.

Section 5. Conclusion and implications

Table 9. *Summary results of panel regression*

Financial Performance	Model	P	NPI	NPNI	R^2	F Test/Wald Chi-Square	Hausman Test
Sales/Net Fixed Assets	1	+	+	+	0.005	ins	F
Sales/Net Working Capital	2	-	-**	-	0.01	ins	R
Sales/Total Assets	3	+*	+**	-	0.06	sig	R
Total Outsiders Liability(TOL)/Total Net Worth (TNW)	4	+	+	-	0.005	Ins	F
Investment/Total Assets	5	-	+	+	0.007	Ins	R
Net Cash Flow from Operation/Average Capital Employed	6	+	+	-**	0.037	Sig	R

Financial Performance	Model	P	NPI	NPNI	R^2	F Test/Wald Chi-Square	Hausman Test
PBDIT-Depreciation/Average capital employed	7	+*	-	-*	0.078	Sig	R
PAT/Average Net Worth	8	+**	+	-*	0.075	Sig	F
Net Cash Flow from operation/Average Net Worth	9	+	+	-	0.025	Sig	R
Debt to equity ratio (times)	10	+	+	+	0.005	Ins	R

Note: + & - represents positive and negative relationships, * Significant at 1% level, ** at 5% level, *** at 10% level. Ins and sig represent insignificant and significant of the F test or Wald Chi-square test. R and F represented random effect and fixed effect, respectively.

The study examines the relationship between ownership structure and corporate performance over eleven years ending in the financial year 2016 for two important sectors (IT and Oil & Gas) in the Indian context. The summary of panel regression results has been presented in Table 9. It reveals the relationship between ownership and performance exists across the ownership categories; however, with low significance. Broadly, it reveals a positive relationship (in majority cases) between the ownership of promoters. A negative impact is observed in case of non-promoter non-institutional investors, while the mixed impact has been found in case of non-promoter institutional ownership. The study concludes and reinforces alignment of interest effect.

The results have many implications. A positive relationship with the dominant ownership of the promoter suggests devising and encouraging possible alternative ownership structures in the companies that facilitate alignment or convergence of the interest. This threshold will be different for a different size, age, and nature, for example, small and medium-sized company, family managed company, large size, and professionally managed company. However, pursuing this may limit and restrict raising large scale funds and long horizon investment decision which may be carefully avoided. A second important implication of the results is that non-promoter ownership has shown either no impact or negative relationship with performance. This questions established policy postulate that we should encourage wider public ownership in companies. The result implies weaker monitoring and sub-optimum participation of institutional investors' and the weaker collective strength of retail investors in corporate decision making. Negative impacts in case of non-promoter non-institutional investors suggest the weak ability of retail investors to exert collective pressure on the management for higher performance. It advocates policy research driven reforms to devise a strategy for institutional investors' role in the overall management of the company and an effective scheme for public participation and mechanisms to guard and enhance their interests and effective monitoring. Besides, the political process of interactions, inter se, regulations need to encourage and facilitate shareholders' collective mechanisms to participate in corporate decision making and prevent oppression of the minority. This could be in the form of shareholders' activism, class suits, representation of non-promoter non-institutional shareholders' director, etc. The evidence directs further inquiry into this domain to create an informed policy framework that helps to gain maximum benefits of the corporate form of organisation at the same time

avoiding adverse impact arising out of weak monitoring, lack of collective bargaining power of investors and possible entrenchment effects.

The study suggests further areas of research in this domain. Though there were adequately large data sets, in this paper, it focuses only on limited sectors. This can be made more comprehensive and informed by analysing the data across the sections and dividing and studying the total period into meaningful sub-periods. Results can be further improved by further analysing the impact of sub categories of ownership structures.

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