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Is corporate governance relevant to firm performance? Evidence from Indian manufacturing companies

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Abstract: This article empirically examines how the performance of Indian manufacturing corporations is affected by corporate governance practices. The study has used panel data comprising of 76 manufacturing companies listed in BSE, for a consecutive six-year period, from 2015–2016 to 2020–2021. The study has applied panel data regression model to enquire the impact of ownership structure variables; and also board composition variables on firm performance using Tobin's Q and ROA. The findings reveal that ownership structure variables, board size and multiplicity of the board positively affect both ROA and Tobin's Q. While independent board and women director show positive effect on Tobin's Q, the CEO-duality is negatively associated with Tobin's Q. The study suggests policymakers to enhance the multiplicity of directors and gender diversity, to maintain the right proportion of board independency, and to increase the size of board. Policymakers may also restrict the CEO to play dual role.

Keywords: board composition; ownership structure; CEO-duality; Tobin's Q.

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1 Introduction

'Corporate governance' becomes a celebrated issue for the last couple of decades due to number of corporate scams all-over the world. Like the Collapse of Maxwell Communications (1991) in the UK, Vivendi (2002) in France, Enron (2001), WorldCom (2005), and Andersen Worldwide (2001) in the USA, and a lot more around the globe, which are believed to have the mature and efficient governance structure. In developing nations like India, where the development in governance in corporate sector is still an enduring process, the failure of Saytam (2009) and Kingfisher Airlines (2012) attracts researchers and policy makers to explore various governance issues; and also gave a strong impetus to review the existing governance mechanisms in developed nations.

In India, the evolution of governance in corporate arena can be traced back from the early stage of trade and business in the nation. The early form of modern governance system in India can be observed in managing agency system. So, managing agency system may be considered as first step towards forming modern governance scheme in India. Thereafter, the development of capital market and improvement in credit system in India dispirited managing agency system and here, it should be worth mentioning that, the introduction of the Companies Act, 1956 added to the story of downsizing of managing agency system. Afterward, the process of economic liberalisation of India and adoption of structural changes in 90s gave a tremendous momentum to grow the capital market in the nation and it was marked as one of the rationales for companies to follow world class best governance practices. Earlier, various committees were formed to review the governance practices and recommended a number of standards in order to achieve the goal. Presently, the SEBI, the Companies Act 2013 and Listing Obligations and Disclosure Requirements (LODR) provide an input in shaping the future corporate governance practices in India.

Despite having a rigorous framework under the Companies Act 2013; and policy and regulations set by the SEBI concerning governance, India is still not free from the ambiguity of governance mechanisms as well as corporate failure. Therefore, it is definite that there is still ample scope to reform in the corporate governance of India. So, the insights of researches in this context may help the policymakers to frame various rules and regulations to develop the governance structure as well as the corporate scenario.

Being more specific, the rigorous changes in the board composition and structure in terms of independency, directors-interlocking, gender diversity through the Companies Act 2013 incite to examine the impact of the afore stated changes of the corporate in terms of financial performance. In this context, the present study focuses on two most important issues, namely, board composition and ownership structure, and their impacts on firm performance.

2 Literature review and hypotheses formulation

In this part, several relevant studies are analysed to get a brief idea about the governance scenario prevailed nationally and globally and their association with firm performance. It also allows to generate the empirical insights on the association between some the board composition and ownership structure on firm performance.

2.1 Board composition and firm performance

Earlier studies like, Garg (2007), Sarkar and Sarkar (2009), Saravanan (2012), Vo and Phan (2013), Pucheta-Martínez and Gallego-Álvarez (2020), Puni and Anlesinya (2020), Michalis (2021) and Ali et al. (2022); explored the linkage between firm performance and some corporate governance variables, such as board size, proportion of independent director in board, multiple directorships and CEO duality.

Board size is one of the important variables of board characteristics; which plays a vital role in governance mechanism of a corporation (Yermack, 1996). So, identification of optimal level of board size of a firm becomes a great issue of debate in various studies (Arora and Sharma, 2016; Palaniappan, 2017; Puni and Anlesinya, 2020; Michalis, 2021). Some studies like, Fauzi and Locke (2012), Manna et al. (2016) and Ahmed et al. (2020); supported large size of board, as large boards are more innovative and transparent; and also, helps to better monitoring and efficient decision making. But, some other studies like, Garg (2007), Mashayekhi and Bazaz (2008), and Kumar and Singh (2013) referred small size of board for better performance. The study of Jensen (1993) referred smaller board, as it helps to take superior decision due to better coordination and communication.

Different previous studies, like, Petra (2005), Pathan et al. (2007), Arora and Sharma (2016), Michalis (2021) and Ali et al. (2022) showed the linkage between Proportion of Independent Directors in Board and firm performance but result of these study yields conflicting result. The study of Michalis (2021) and Ali et al., (2022) concluded that proportion of independent directors had a significant positive impact on firm's value. Again, Pombo and Gutiérrez (2011) and Gafoor et al. (2018) mentioned that independent directors improve performance as they are valued for their reputation, knowledge and managerial experience. But, some other studies like, Arora and Sharma (2016), Garg and Singh (2017) concluded that there is an inverse association between proportion of independent directors and firm performance.

Gender diversity is one of the essential board characteristic indicators. Several empirical studies (like Rose, 2007; Terjesen, 2015; Green and Homroy, 2018; Ahmed et al., 2020) were conducted and also revealed that Women Directorship had an impact firm performance. For instance, the study of Terjesen (2015) and Brahma et al. (2021) concluded that women directorship affects firm performance positively as women director have greater connections with stakeholders. Supporting this, Vo and Phan (2013) and Ali et al. (2014) also argued that firm performance was improved in presence of women director. Bear et al. (2010) revealed that existence of female director on board also improves CSR practice, which positively associated with the market value of the firm.

According to Latif et al. (2013) Multiplicity of directorship has positive impact on firm performance, because it helps a director to gather experience, and information from various corporate board which helps in formation of corporate strategy, tackling corporate problems in effective and efficient manner. In the same way, Jiraporn et al. (2008) suggested that the high multiplicity of directorship implies efficiency and reputation of a director which have positive impact of shareholders wealth. Ferris et al. (2003) and Sarkar and Sarkar (2009) also concluded that multiplicity of director and firm performance are positively related.

Different studies like, Abor and Biekpe (2007), Vo and Phan (2013), Pucheta-Martínez and Gallego-Álvarez, (2020) investigate the relationship between CEO

duality and firm performance; and the findings showed CEO duality affects firm performance positively. In line with the agency theory of governance, the studies of Rechner and Dalton (1991) and Kamarudin et al. (2012) revealed that CEO duality and firm performance are negatively associated. As per Tang (2017) a situation where dominant CEO enjoys more power than other executive, agency cost increases and consequently firm performance gets worsen. But, the study of Puni and Anlesinya (2020) was not found any linkage between CEO duality and firm performance.

Based on above discussion, we can expect that there is a linkage between board composition and firm performance. Therefore, we have formulated the following hypothesis:

Hypothesis 1 Board composition variables have an impact on firm performance.

2.2 Ownership structure and firm performance

One component of ownership structure variables is promoters' shareholding, which is an important determinant of firm performance. Prasanna (2008) affirmed that foreign promoters positively influenced the productivity as well as firm performance. In the same way Kumar and Singh (2013), Bansal and Singh (2019) and Manna et al. (2016) stated that promoters' ownership has significant and positive relationship with the performance of companies. But, Gupta and Joarder (2011) revealed that there is a significant negative relationship between promoters' shareholding and firm performance.

Finally, institutional investor's shareholding also has an impact on corporate performance. Koji et al. (2020) argued that institutional ownership positively affects the firm performance. Further, the study of Xu and Wang (1997) and Fazlzadeh et al. (2011) also concluded that institutional investor ownership and firm performance were linked positively. But, the study of Alipour and Amjadi (2011) showed an inverse relationship between institutional ownership and firm performance.

We also expected that there is a linkage between ownership structure and firm performance. Hence, we formulated the following hypothesis:

Hypothesis 2 Ownership structure variables affect firm performance.

3 Research design and methodology

This section provides an in-depth discussion of the data sets used in the study and construction of empirical model to analyse the effect of corporate governance variables on the corporate performance in context of India. It discusses the sample design and selection of variables, descriptions of the selected variables, study period, and data sources etc.

3.1 Sample selection and data collection

Initially, for the purpose of the study BSE 100 listed companies were considered as sample, for a consecutive six-year period, from 2015–2016 to 2020–2021. Later, we discarded financial institution due to different format of financial reports and performance measures; and also, the firms not having five years data. Finally, 76 companies were selected as sample out of BSE 100 listed companies. The empirical study

based on the secondary data that are collected from financial database packages, namely 'Capitaline Plus', maintained and marketed by Capital Market Publishers Pvt. Ltd. Mumbai. The annual reports of sampled are also considered to extract data.

3.2 Different variables used in the study

The study considers two dependent variables namely, return on assets (ROA) i.e. an accounting based financial measures; and Tobin's Q (TQ) i.e. a market based financial performance measures. The study of Arora and Sharma (2016), Mollah et al. (2012) etc. employed these two variables to measure corporate performance. Some of board composition variables and ownership structure variables are used in the study. For Ownership Structure variables study employ Promoters' shareholding and Institutional investors' shareholding; and board size, CEO duality, independent director, women director, and multiplicity of directorship are considered as Board Composition variables. Palaniappan (2017) and Manna et al. (2016) used most of the variables as independent variables. To understand the other probable determinants of firm performance, some control variables are applied namely, executive remuneration, size of the firm, debt-equity ratio, growth in profit after tax and assets turnover ratio. Some earlier studies like, Manna et al. (2016), Sheikh et al., (2013) etc. also employ most of the control variables.

In our study, the formation of these variables for empirical analysis is described in Table 1.

Table 1 Description of different variables used in the study

Sl. no.	*Variable(s)*	*Full form*	*Definition/formula*
		Part A: Firm performance measures	
1	ROA	Return on assets	ROA = Net profit – Tax / Average Assets (including Cash and cash equivalent) after depreciation
2	TQ	Tobin's Q	TQ = (Market Value of Equity + Debt) / Book Value of Total Assets
		Part B: Ownership structure variables	
3	PS	Promoters' shareholding	Percentage of share held by Promoters = (shares held by Promoters /Total Share)* 100.
4	IIS	Institutional investors' shareholding	Proportion of share of IIS = (share held by IIS /Total Share) *100.
		Part C: Board composition variables	
5	BS	Board size	Board size (BS) = Total number of directors holding office for six months or more in a particular year.
6	ID	Proportion of independent directors in board (ID)	Proportion of Independent Directors = Numbers of independent directors / Total number of directors.
7	WD	Women directorship	WD = Total number of women directors holding office of the director for six or more / Total number of directors

Source: Prepared by researchers

Table 1 Description of different variables used in the study (continued)

Sl. no.	*Variable(s)*	*Full form*	*Definition/formula*
		Part C: Board composition variables	
8	MD	Multiplicity of directorship	MD = Total number of outside board appointments by the directors (who holds the office of the concerned company for six or more months) / total number of directors for six or more months.
9	CEO_DUAL	CEO duality	CEO duality =‘0’ value is assigned when the chairman is an executive and ‘1’ is assigned for the non-executive chairman
		Part D: Control Variables	
10	ER	Executive remuneration	ER = log value of total remuneration received
11	FS	Size of the firm	FS = Logarithm of total assets
12	PATG	Growth in Profit after Tax	PATG = $[(PAT_{t1} – PAT_{t0}) / PAT_{t0}]$ *100
13	D/E	Debt equity ratio	D/E = borrowed fund (i.e., loan capital) / owner’s capital
14	ATR	Assets turnover ratio	Assets turnover ratio = Sales ÷ Total Assets.

Source: Prepared by researchers

3.3 Empirical analysis

This section elaborately involves in analysing the data collected on the variables pertaining to our research problem. The basic characteristics of the variables in terms of descriptive statistics are discussed first. After that, the multicollinearity property of the data is examined. Finally, panel data analysis technique applied to reflect the relationship between the dependent and independent variables. The main objective behind carrying out these statistical and econometric investigations is to find out the nature and degree of relationship between the corporate governance and corporate performance of Indian corporate in such a manner that the findings become significant, generalised, realistic and acceptable.

3.4 Descriptive analysis

This part Table 2 presents the descriptive summary, which shows minimum, maximum, mean value and the standard deviations of different variables used in the study.

Table 2 shows that ROA varies between –13.190 to 73.790 with an average of 11.225. Similarly, Tobin’s Q varies from 0.190 to 50.750 with mean of 5.688. The average holding of the foreign promoter in Indian corporate is near about 50% (54.096). The Institutional Investors holds 12.741% on an average. The summary statistics shows that the size of the board varies from 4 to 20 with mean of 11.567. The female directors occupy only 7.25% of the Indian board, which indicates that the Indian boards are male dominated. Similarly, 50.2% of the Indian corporate boards are chaired by independent

directors; and 48.85% of CEO plays the role of chairman of board as well. Finally, multiple board appointments vary from 1 to 11.333, with mean of 5.067. Along with these variables, the study also presented the summary statistics of control variables used in this study.

Table 2 Descriptive statistics of dependent, independent and control variables

Variable	*Mean*	*Std. Dev.*	*Min.*	*Max.*
PS	54.096	19.704	0.000	86.58
IIS	12.741	7.758	0.000	34.74
BS	11.567	2.694	4.000	20
ID	0.502	0.101	0.000	0.757
WD	0.072	0.075	0.000	0.333
CEO_DUAL	0.489	0.501	0.000	1.000
MD	5.067	2.217	1.000	11.333
ER	8.053	0.551	6.675	9.165
FS	9.646	1.332	6.323	13.085
PATG	0.194	2.575	-16.907	50.723
D/E	0.506	0.818	0.000	7.260
ATR	1.021	0.739	0.018	3.854
ROA	11.225	9.483	-13.190	73.790
TQ	5.688	6.357	0.190	50.750

Source: Calculated by researchers

3.5 Multicollinearity property

Here, correlation matrix and VIF are applied to check multicollinearity property among the independent and control variables, as a pre-requisite of regression analysis.

Here, Table 3 shows the highest value of correlation coefficient between PS and IIS is (–0.53), which belongs to acceptance region (less than 0.70). The maximum value of VIF in case of promoters' shareholding is 2.79, that also much lower than the maximum acceptance level, i.e. 5. Therefore the absence of multicollinearity property is noticed in the selected data set.

3.6 Panel data analysis

After checking the multicollinearity property among the independent and control variables, the study progresses to analysis the panel data with the help of multiple regressions. Ordinary least square (OLS), random effect model (REM) and fixed effect model (FEM) are applied by taking return on assets (ROA) and Tobin's Q (TQ) as the performance measure variables one after another respectively. Subsequently, with the help of econometrics tools the appropriate model of regression is selected.

Table 3 Correlation matrix and VIF values of independent and control variables

	PS	*IIS*	*BS*	*ID*	*WD*	*CEO_DUAL*	*MD*	*ER*	*FS*	*PATG*	*D/E*	*ATR*
PS	1											
IIS	–0.530*	1										
BS	0.132	0.11	1									
ID	0.201*	–0.041	–0.002	1								
WD	0.010	0.116*	–0.087*	–0.321*	1							
CEO_DUAL	0.103*	0.238*	–0.028	0.117*	0.127*	1						
MD	0.266*	–0.336*	–0.066	0.229*	–0.247*	–0.098*	1					
ER	0.029	0.189*	–0.041	–0.346*	0.242*	–0.049	–0.160*	1				
FS	–0.024	–0.313*	0.028	0.157*	–0.140*	–0.210*	0.384*	–0.450*	1			
PATG	–0.047	–0.0026	0.049	–0.006	–0.057	0.024	–0.010	0.017	0.031	1		
D/E	0.260*	–0.179*	0.007	0.254*	–0.097*	–0.048	0.452*	–0.318*	0.208*	–0.026	1	
ATR	–0.078*	–0.209*	–0.073	0.165*	–0.078*	0.056	0.309*	–0.145*	0.004	–0.0341	0.283*	1
Variance inflation factor (VIF)	2.79	2.01	1.51	1.76	1.14	1.37	1.22	1.43	1.08	1.93	1.78	1.37

Notes: ***Statistically significant at 1% level. **Statistically significant at 5% level. * Statistically significant at 10% level.

Source: Calculated by researchers

Table 4 Regression result: dependent variable-ROA

Ordinary least square model			*Fixed effect model*			*Random effect model*		
Variable	*Coefficient*	*t-Stat*	*Variable*	*Coefficient*	*t-Stat*	*Variable*	*Coefficient*	*z-Stat*
Intercept	16.15	4.90***	Intercept	7.02	1.15	Intercept	13.64	2.70***
PS	0.16	4.21***	PS	0.13	1.75*	PS	0.15	2.97***
IIS	0.10	1.92**	IIS	0.09	1.3	IIS	0.10	1.65*
BS	–0.04	–0.27	BS	0.77	2.95***	BS	0.41	2.01**
ID	7.25	2.07**	ID	–2.53	–1.03	ID	–0.83	–0.34
WD	–4.92	–1.20	WD	1.94	1.29	WD	1.78	1.76*
CEO_DUAL	1.45	1.94*	CEO_DUAL	0.71	0.88	CEO_DUAL	–0.68	–0.34
MD	–0.57	–3.53***	MD	1.05	4.16***	MD	0.32	1.6
ER	0.99	2.88***	ER	1.32	2.05**	ER	–0.21	–0.5
FS	0.02	1.30	FS	–0.03	–1.53	FS	–0.07	–0.23
PATG	0.51	2.55**	PATG	0.38	3.38***	PATG	0.41	3.47***
D/E	–1.15	–3.98***	D/E	–0.64	–1.25	D/E	–1.05	–2.53**
ATR	3.28	6.94***	ATR	10.71	16.69***	ATR	7.45	10.53***
F-Stat	25.09***		F-Stat	25.32***		Wald-$\chi 2$	341.71***	
R^2	0.4360		R^2 - Within	0.3031		R^2 - Within	0.4513	
	222		R^2- Between	0.2142		R^2- Between	0.2843	
			R^2- Overall	0.2304		R^2- Overall	0.2997	

Notes: ***Statistically significant at 1% level. ** Statistically significant at 5% level. *Statistically significant at 10% level.

Source: Calculated by researchers

Table 4 reveals that the F-stat of OLS (25.09) and FEM (25.32) are significant at 1% level. The REM is also significant at 1% level (Wald-$\chi 2 = 341.71$).

Thus, primarily all three regression models are found to be fit for the data set used by the study. But, each of these three models has their own set of assumptions. Sensibly, all the assumptions of these three models cannot be applicable simultaneously. Therefore, the study needs to select an appropriate model of regression to determine the strength of relationship between dependent and independent variable.

Table 5 Selection of appropriate model of regression analysis

Purpose	*Null hypothesis*	*Test*	*Test statistic*
Pooled regression model vs. fixed effect model	All $u_i = 0$	Restricted F Test	F(70, 397) = 20.28***
Pooled regression model vs. random effect model	$\sigma_u^2 = 0$	Breusch-Pagan lagrange multiplier test	$\chi 2$ (1) = 453.10***
Fixed effect model vs. random effect model	Difference in coefficients is not systematic	Hausman test	$\chi 2$ (12) = 87.31***

Notes: ROA dependent variable.
***Statistically significant at 1% level. **Statistically significant at 5% level.
*Statistically significant at 10% level.
Source: Calculated by researchers

To choose from OLS and FEM from the first regression result taking ROA as dependent variable, the study has estimated Restricted F test (Table 5). The Restricted F Test statistic is found to be significant at 1% level [F (70, 397) = 20.28] rejecting the null hypothesis of no difference in intercepts. Thus, the FEM fits better than OLS. Thereafter, the Breusch-Pagan Lagrange Multiplier Test is applied to make a choice between OLS and REM. The results of Table 5 shows that the Breusch-Pagan Lagrange Multiplier test is significant at 1% level [$\chi 2$ (1) = 453.10] indicating the rejection of null hypothesis of the concerned test. Thus, the REM fits better than OLS technique. At last, the Hausman test is applied to choose between FEM and REM. The Null hypothesis of Hausman test is non-systematic difference in coefficients. Table 5 states that the Hausman test is significant at 1% level [$\chi 2$ (12) = 87.31] and consequently the null hypothesis is rejected and finally FEM is found to be more appropriate for the panel data set used in this study. Thus, in case of ROA, finally the study accepts the results of FEM as it overruled the other models used in this research.

Like, ROA in case of Tobin's Q also all the three models of regression (OLS, FEM and REM) are found to be appropriate as all of them are statistically significant at 1% level. The regression results (Table 6) shows that F value of OLS is 18.50, FEM is 9.19 and for REM value of Wald-$\chi 2$ is 119.40; and all these test statistic is found to be significant at 1% level.

Table 6 Regression results: dependent variable – TQ

Ordinary least square model			*Fixed effect model*			*Random effect model*		
Variable	*Coefficient*	*t-Stat*	*Variable*	*Coefficient*	*t-Stat*	*Variable*	*Coefficient*	*z-Stat*
Intercept	9.45	3.74***	Intercept	–21.13	–4.41***	Intercept	–3.08	–0.85
PS	0.16	4.21***	PS	0.13	1.75*	PS	0.15	2.97***
IIS	0.10	1.92**	IIS	0.09	1.3	IIS	0.10	1.65*
BS	–0.13	–1.35	BS	0.56	2.95***	BS	0.39	2.01**
ID	8.03	3.89***	ID	1.83	0.95	ID	4.66	2.49**
WD	5.22	1.95*	WD	7.77	2.96***	WD	11.05	4.42***
CEO_DUAL	–0.68	–1.84*	CEO_DUAL	–1.81	–2.91***	CEO_DUAL	–1.91	–3.40***
MD	0.15	1.57	MD	0.16	1.53	MD	0.17	1.68*
ER	0.29	4.52***	ER	0.13	1.45	ER	0.17	1.99**
FS	0.27	2.78***	FS	0.03	0.04	FS	0.05	0.04
PATG	0.00	–0.03	PATG	0.00	0.32	PATG	0.00	0.32
D/E	0.81	7.26***	D/E	–0.20	–0.96	D/E	–0.21	–1.3
ATR	–0.33	–2.89***	ATR	1.12	6.38***	ATR	0.97	7.92***
F-Stat	18.50***		F-Stat	9.19***		Wald-$\chi 2$	119.40***	
R^2	0.3704		R^2- Within	0.2308		R^2- Within	0.1838	
			R^2- Between	0.0222		R^2- Between	0.2666	
			R^2- Overall	0.0292		R^2- Overall	0.2276	

Notes: ***Statistically significant at 1% level. ** Statistically significant at 5% level. * Statistically significant at 10% level.

Source: Calculated by researchers

Table 7 Selection of appropriate model of regression analysis

Purpose	*Null hypothesis*	*Test*	*Test statistic*
Pooled regression model vs. fixed effect model	All $u_i = 0$	Restricted F Test	F(70, 399) = 14.13***
Pooled regression model vs. random effect model	$\sigma_u^2 = 0$	Breusch-Pagan Lagrange multiplier test	$\chi 2$ (1) = 431.57***
Fixed effect model vs. random effect model	Difference in coefficients is not systematic	Hausman test	$\chi 2$ (12) = 1.85

Notes: TQ Dependent Variable.
***Statistically significant at 1% level. **Statistically significant at 5% level.
*Statistically significant at 10% level.

Source: Calculated by researchers

Table 8 Summarised regression results

Fixed effect model – ROA			*Random effect model – Tobin's Q*		
Variable	*Coefficient*	*t-Stat*	*Variable*	*Coefficient*	*z-Stat*
Intercept	7.02	1.15	Intercept	–3.08	–0.85
PS	0.13	1.75*	PS	0.15	2.97***
IIS	0.09	1.3	IIS	0.10	1.65*
BS	0.77	2.95***	BS	0.39	2.01**
ID	–2.53	–1.03	ID	4.66	2.49**
WD	1.94	1.29	WD	11.05	4.42***
CEO_DUAL	0.71	0.88	CEO_DUAL	–1.91	–3.40***
MD	1.05	4.16***	MD	0.17	1.68*
ER	1.32	2.05**	ER	0.17	1.99**
FS	–0.03	–1.53	FS	0.05	0.04
PATG	0.38	3.38***	PATG	0.00	0.32
D/E	–0.64	–1.25	D/E	–0.21	–1.3
ATR	10.71	16.69***	ATR	0.97	7.92***
F-Stat	25.32***		Wald-$\chi 2$	119.40***	
R^2- Within	0.3031		R^2- Within	0.1838	
R^2- Between	0.2142		R^2- Between	0.2666	
R^2- Overall	0.2304		R^2- Overall	0.2276	

Notes: ***Statistically significant at 1% level. **Statistically significant at 5% level.
*Statistically significant at 10% level.

Source: Calculated by researchers

To choose from OLS and FEM from the first regression result taking TQ as dependent variable, we have estimated Restricted F test (Table 7) and the test statistic is found to be significant at 1% level [F (70, 399) = 14.31]. So, the concerned null hypothesis of no difference in intercepts is rejected and we found FEM is better than OLS. To make a choice between OLS and REM, Breusch- Pagan Lagrange Multiplier Test is applied. Table 7 clearly shows that the null hypothesis, i.e. no variance in intercepts is rejected

and REM is found to be significant at 1% level [$\chi 2$ (01) = 431.57]. Finally, we have considered the Hausman test to have a robust selection between the FEM and REM. Now, employing the Hausman Test [$\chi 2$ (12) = 1.85], we have found the FEM to be inappropriate for our regression analysis as the test statistics is insignificant. It means that the difference in coefficients is non-systematic and the REM is fit for the regression analysis.

Therefore, the study presents the regression results at Table 8 where the FEM on ROA and REM on Tobin's Q are applied respectively.

4 Findings and discussion

This segment of the study represents the findings of panel data analysis with the selected sample panel data. The nature of impact of ownership structure, board composition, and gender diversity on firm performance namely ROA and TQ with the justifications are demonstrated here.

4.1 Ownership structure and corporate performance

The study uses the Promoters' shareholdings (PS) and Institutional Investors shareholdings (IIS) as the ownership structure variable section and their impact on corporate performance variable are discussed below based on panel data analysis.

The result shows that the PS has a positive and statistically significant impact on both ROA and TQ with the coefficient of 0.13 and 0.15 respectively. Here Promoters' shareholdings imply Indian and Foreign Promoters, which is positively associated with both the firm performance namely, ROA and TQ. Prasanna (2008) has already affirmed that foreign promoters have positively influences the productivity as well as firm performance. On the other hand, Indian Promoter, the largest shareholder in Indian companies must take care of their large amount of investment so that firms are able to generate value for the shareholders. In the same way, Bansal and Singh (2019), Kumar and Singh (2013) stated that promoters' ownership has significant and positive relationship with the performance of companies.

The other ownership structure variable is used in this study, i.e. IIS that also has a positive relationship with Tobin's Q; and significant at 10% level with the coefficient of 0.10. The result of the study shares the similar view with the study of Xu and Wang (1997). The possible reason behind such result is that the investments of the institutional investors are generally fine tuned by well-equipped investment advisor who play the role of good steward in terms of monitoring and engaging with companies on the issue of strategy, risk, capital structure, corporate governance etc. which allow them enhance firm performance as well as shareholders value.

Thus, the null hypothesis for ownership structure is that there is no relationship between ownership structure and corporate performance is rejected.

4.2 Board composition and firm performance

The board of directors of an organisation plays a key role in maintaining the effectiveness of an organisation and the issues related to governance is centred on the composition of board of directors (Garg, 2007).

The result shows that the board size has a positive and significant impact on both ROA and TQ with the coefficient of 0.77 and 0.39 respectively. This result is consistent with the study made by Malik et al. (2014) and Gafoor et al. (2018). As per their opinion, major and dominating shareholders in developing countries can easily exploit the rights of the minor shareholders. In such situation, large board helps the minor shareholders to protect their rights. Fauzi and Locke (2012), Arora and Sharma (2016) and Ahmadi et al. (2018) stated that large board provides greater monitoring and enhance board independence resulting improvement in performance. The analysis of the study states that both the ROA and Tobin's Q are positively impacted by the size of the board. That indicates if board size is increased, the performance of corporation also increases.

The analysis revels that board independence is positively associated with Tobin's Q and the association is significant at 5% level with coefficient of 4.66. This result is consistent with the study of Petra (2005) and Pathan et al. (2007). These studies stated that the independent directors play an important role to monitor the functions of the management and to safe guard the interest of the shareholders. Again, Pombo and Gutiérrez, (2011) and Gafoor et al. (2018) mentioned that outside independent directors improve performance as they are valued for their reputation, knowledge and managerial experience. On the contrary, the statistical analysis of the study failed to find any significant effect of proportion of independent directors on ROA.

In line with the agency theory of governance, the econometric analysis of the study revealed that CEO duality has a negative impact on Tobin's Q; and also significant at 1% level with the coefficient of (–1.91). Earlier study like, Rechner and Dalton (1991) argued that CEO-duality affects firm performance negatively. As per Tang (2017), a situation where dominant CEO enjoys more power than other executive, agency cost increases and consequently firm performance gets worsen. Lam and Lee (2008) argued that the CEO-duality is value destroying where dominating power of CEO deteriorates board monitoring function. On the contrary, it must be referred that the study failed to explore any significant relation between CEO-duality and ROA.

In case of multiplicity of directorship, the result shows a positive significant relationship with both ROA and TQ; and the relationship is statistically significant with coefficient of 1.05 and 0.17 respectively. The study of Latif et al. (2013) argued that the probable reason behind such result as multiple collaborations helps a director to gathering experience, knowledge and information from various corporate board positions, that helping in formation of corporate strategy, tackling corporate problems and would result in positive performance. Similarly, result of the study Jiraporn et al. (2008) suggested that the high multiplicity of directorship implies efficiency and reputation of a director which have positive impact of shareholders wealth.

When Gender diversity is considered the empirical analysis find a positive impact on Tobin's Q; and also significant at 1% level with coefficient of 11.05. This assenting outcome is in harmony with the studies of Green and Homroy (2018). Nguyen and Faff, (2006) pointed out that diversity in board allows better understanding of the market place. They also noted that diversity is linked with creativity and innovation which helps in problem-solving decision. Lückerath-Rovers (2013) and Terjesen (2015) stated that companies with women on boards have better connections with the relevant stakeholders which improve company's reputation. Bear et al. (2010) revealed that along with firm performance female appointment also improves CSR practice, which positively linked with the market value of the firm.

Thus, the null hypothesis for board composition is that there is no impact of board composition on corporate performance is rejected.

A number of control variables were considered at the time of data analysis. It is found that the executive remuneration and assets turnover ratio have a significant positive effect on both ROA and Tobin's Q. Whereas growth in profit after tax is also maintain significant positive related only with ROA. This indicates that higher rate of growth in profitability improves firm performance. When the debt – equity ratio and the size of the firm taken into consideration, the study unable to find any significant relationship.

5 Conclusions and policy implication

The very intention of the study is to explore impact of the implementation of the new companies Act 2013 (like, the structural changes in terms of board size, composition, interlocking directorship and women participation in the board) on the performance of Indian corporation. The structural changes in terms of board size, composition, interlocking directorship and women participation in the board are the key concerns of the study. To explore the impact of above mentioned amendments this study is conducted based on 76 non-financial companies listed in BSE 100 index of India for the period of 2015–2016 to 2020–2021.

From the statistical analysis, it can be concluded that the ownership structure and board composition variables have some significant impact on performance of Indian companies. Both the ownership structure variable maintains a significant positive relationship with firm performance. The board size has a positive and significant impact on both ROA and TQ; and descriptive statistics, also states that average size of the Indian corporate board is near about 12. On the basis of resource dependence theory, it is noticed that large sized board improves Indian firm performance. In case of board independence, proportion of independent directors has a positive influence on firm performance and the India the proportion of them on an average 50%. The Indian corporate sector needs effective monitoring by the board so as to protect the interest of the small investors and other stakeholders. Gender diversity shows a positive relationship with Tobin's Q. From analysis, it is observed that CEO duality improves performance of Indian companies. In case of multiple directorships of directors, the result depicted that several board appointments act positively to improve performance. Following quality hypothesis approach, it is witnessed that the multiple board appointments by the directors enhance the knowledge as well as decision making capability of the board which positively influence the firm performance.

Based on the results the present research work provides a range of suggestions that may help the policymakers of the nation. In context of India, the size of the board of should be large as it facilitates in collecting critical resources and information from the outside environment with the help diversified experienced directors. In respect of board independency, an enhancement in the proportion is suggested which leads to perform the responsibility of monitoring and advising that may help in protecting the interest of the investors. Policymakers may encourage firms to enhance gender diversity in India as gender diversification allows better understanding of the market and reduces conflict in boardroom which helps creating value for the firms. The management hegemony theory suggests that CEO duality helps the management to dominate the board of directors but the monitoring role of the directors is compromised. Therefore, the policymakers in India

may restrict the CEO to play the dual role. The multiplicity of the directors in India, the resource dependence theory suggests that the more networked and experienced independent directors bring more valuable resources and create value for the firms. The present study, thus, suggest Indian policymakers to enhance the multiplicity of directors.

6 Scope for further study

Though all efforts have been made to ensure the validity of this empirical research work, but the study is not fully free from limitations. The study only focuses on financial performance of the Indian corporation. But environmental awareness and social contribution of the organisation namely CSR, Sustainability reporting etc., should be considered in future. Furthermore, the participation of directors on various committees, the legislative environment, the capital structure, etc., should be the probable expansion of this empirical study. This study only reveals that a large board is beneficial for value creation for the shareholders, but the optimum level of board size is not determined here. So, optimal board size may be found in further studies. To get more robust result, future study may increase sample size and also may consider wider study period.

References

Abor, J. and Biekpe, N. (2007) Corporate governance, ownership structure and performance of SMEs in Ghana: Implications for financing opportunities. *The International Journal of Business in Society*, Vol. 7, No. 3, pp.288–300.

Ahmadi, A., Nakaa, N. and Bouri, A. (2018) 'Chief Executive Officer attributes, board structures, gender diversity and firm performance among French CAC 40 listed firms', *Research in International Business and Finance*, Vol. 44, pp.218–226.

Ahmed, E.R., Alabdullah, T.T.Y., Thottoli, M.M. and Maryanti, E. (2020) 'Does corporate governance predict firm profitability? An empirical study in Oman', *The International Journal of Accounting and Business Society*, Vol. 28, No. 1, pp.161–177.

Ali, A., Alim, W., Ahmed, J. and Nisar, S. (2022) 'Yoke of corporate governance and firm performance: a study of listed firms in Pakistan', *Indian Journal of Commerce and Management Studies*, Vol. 13, No. 1, pp.8–17.

Ali, M., Ng, Y.L. and Kulik, C.T. (2014) 'Board age and gender diversity: a test of competing linear and curvilinear predictions', *Journal of Business Ethics*, Vol. 125, No. 3, pp.497–512.

Alipour, M., and Amjadi, H. (2011) 'The effect of ownership structure on corporate performance of listed companies in Tehran Stock Exchange: an empirical evidence of Iran', *International Journal of Business and Social Science*, Vol. 2, No. 13, pp.49–55.

Arora, A. and Sharma, C. (2016) 'Corporate governance and firm performance in developing countries: evidence from India', *Corporate Governance*, Vol. 16, No. 2, pp.420–436.

Bansal, D. and Singh, S. (2019) 'A literature review on intellectual capital and corporate governance effect on company's performance', *International Journal of Business Ethics in Developing Economies*, Vol. 8, No. 1, pp.39–40.

Bear, S., Rahman, N. and Post, C. (2010) 'The impact of board diversity and gender composition on corporate social responsibility and firm reputation', *Journal of Business Ethics*, Vol. 97, No. 2, pp.207–221.

Brahma, S., Nwafor, C. and Boateng, A. (2021) 'Board gender diversity and firm performance: the UK evidence', *International Journal of Finance & Economics*, Vol. 26, No. 4, pp.5704–5719.

Fauzi, F. and Locke, S. (2012) 'Board structure, ownership structure and firm performance: a study of New Zealand listed-firms', *Asian Academy of Management Journal of Accounting of Finance*, Vol. 8, No. 2, pp.43–67.

Fazlzadeh, A., Hendi, A.T. and Mahboubi, K. (2011) 'The examination of the effect of ownership structure on firm performance in listed firms of Tehran Stock Exchange based on the type of the industry', *International Journal of Business and Management*, Vol. 6, No. 3, pp.249–266.

Ferris, S.P., Jagannathan, M. and Pritchard, A.C. (2003) 'Too busy to mind the business? Monitoring by directors with multiple board appointments', *The Journal of Finance*, Vol. 58, No. 3, pp.1087–1111.

Gafoor, C.A., Mariappan, V. and Thyagarajan, S. (2018) 'Board characteristics and bank performance in India', *IIMB Management Review*, Vol. 30, No. 2, pp.160–167.

Garg, A.K. (2007) 'Influence of board size and independence on firm performance: a study of Indian companies', *Vikalpa*, Vol. 32, No. 3, pp.39–60.

Garg, M.C. and Singh, D. (2017) 'Corporate governance and firm performance in Indian companies', *International Journal of Indian Culture and Business Management*, Vol. 15, No. 4, pp.420–444.

Green, C.P. and Homroy, S. (2018) 'Female directors, board committees and firm performance', *European Economic Review*, Vol. 102, pp.19–38.

Gupta, A. and Joarder, S. (2011) 'Management ownership: interrelation with corporate performance in selected Indian companies', *Indian Journal of Commerce*, Vol. 64, No. 4, pp.59–77.

Jensen, M.C. (1993) 'The modern industrial revolution, exit and the failure of internal control systems', *Journal of Finance*, Vol. 48, No. 3, pp.831–880.

Jiraporn, P., Kim, Y.S. and Davidson III, W.N. (2008) 'Multiple directorships and corporate diversification', *Journal of Empirical Finance*, Vol. 15, No. 3, pp.418–435.

Kamarudin, K.A., Ismail, W.A.W. and Samsuddin, M.E. (2012) 'The influence of CEO duality on the relationship between audit committee independence and earnings quality', *Procedia-Social and Behavioral Sciences*, Vol. 65, pp.919–924.

Koji, K., Adhikary, B.K. and Tram, L. (2020) 'Corporate governance and firm performance: a comparative analysis between listed family and non-family firms in Japan', *Journal of risk and Financial Management*, Vol. 13, No. 9, p.215.

Kumar, N. and Singh, J.P. (2013) 'Effect of board size and promoter ownership on firm value: some empirical findings from India', *Corporate Governance: The International Journal of Business in Society*, Vol. 13, No. 1, pp.88–98.

Lam, T.Y. and Lee, S.K. (2008) 'CEO duality and firm performance: evidence from Hong Kong', *Corporate Governance: The International Journal of Business in Society*, Vol. 8, No. 3, pp.299–316.

Latif, B., Shahid, M.N., Haq, M.Z.U., Waqas, H.M. and Arshad, A.R.B.A.B. (2013) 'Impact of corporate governance on firm performance: evidence from sugar mills of Pakistan', *European Journal of Business and Management*, Vol. 5, No. 1, pp.51–59.

Lückerath-Rovers, M. (2013) 'Women on boards and firm performance', *Journal of Management and Governance*, Vol. 17, No. 2, pp.491–509.

Malik, M., Wan, D., Ahmad, M.I., Naseem, M.A. and Rehman, R.U. (2014) 'Role of board size in corporate governance and firm performance applying Pareto approach, is it cultural phenomena?', *Journal of Applied Business Research (JABR)*, Vol. 30, No. 5, pp.1395–1406.

Manna, A., Sahu, T.N. and Gupta, A. (2016) 'Impact of ownership structure and board composition on corporate performance in Indian companies', *Indian Journal of Corporate Governance*, Vol. 9, No. 1, pp.44–66.

Mashayekhi, B. and Bazaz, M.S. (2008) 'Corporate governance and firm performance in Iran', *Journal of Contemporary Accounting and Economics*, Vol. 4, No. 2, pp.156–172.

Michalis, B. (2021) 'Board structure and firm performance: an empirical study of Greek systemic banks', *Journal of Accounting and Taxation*, Vol. 13, No. 2, pp.110–121.

Mollah, S., Al Farooque, O. and Karim, W. (2012) 'Ownership structure, corporate governance and firm performance: evidence from an African emerging market', *Studies in Economics and Finance*, Vol. 29, No. 4, pp.301–319.

Nguyen, H. and Faff, R. (2006) 'Foreign debt and financial hedging: Evidence from Australia', *International Review of Economics and Finance*, Vol. 15, No. 2, pp.184–201.

Palaniappan, G. (2017) 'Determinants of corporate financial performance relating to board characteristics of corporate governance in Indian manufacturing industry: an empirical study', *European Journal of Management and Business Economics*, Vol. 26, No. 1, pp.67–85.

Pathan, S., Skully, M. and Wickramanayake, J. (2007) 'Board size, independence and performance: an analysis of Thai banks', *Asia-Pacific Financial Markets*, Vol. 14, No. 3, pp.211–227.

Petra, S.T. (2005) 'Do outside independent directors strengthen corporate boards?', *Corporate Governance: The International Journal of Business in Society*, Vol. 5, No. 1, pp.55–64.

Pombo, C. and Gutiérrez, L.H. (2011) 'Outside directors, board interlock and firm performance: empirical evidence from Colombian business groups', *Journal of Economics and Business*, Vol. 63, No. 4, pp.251–277.

Prasanna, P.K. (2008) 'Foreign institutional investors: investment preferences in India', *Journal of Administration and Governance*, Vol. 3, No. 2, pp.40–51.

Pucheta-Martínez, M.C. and Gallego-Álvarez, I. (2020) 'Do board characteristics drive firm performance? An international perspective', *Review of Managerial Science*, Vol. 14, No. 6, pp.1251–1297.

Puni, A. and Anlesinya, A. (2020) 'Corporate governance mechanisms and firm performance in a developing country', *International Journal of Law and Management*, Vol. 62, No. 2, pp.147–169.

Rechner, P.L. and Dalton, D.R. (1991) 'CEO duality and organizational performance: a longitudinal analysis', *Strategic Management Journal*, Vol. 12, No. 2, pp.155–160.

Rose, C. (2007) 'Does female board representation influence firm performance? The Danish evidence', *Corporate Governance: An International Review*, Vol. 15, No. 2, pp.404–413.

Saravanan, P. (2012) *Corporate Governance and Company Performance: A Study with Reference to Manufacturing Firms in India*, Working Paper Indian Institute of Management (IIM), Tiruchirappalli [online] http://dx.doi.org/10.2139/ssrn.2063677 (accessed 9 August 2022).

Sarkar, J. and Sarkar, S. (2009) 'Multiple board appointments and firm performance in emerging economies: evidence from India', *Pacific-Basin Finance Journal*, Vol. 17, No. 2, pp.271–293.

Sheikh, N.A., Wang, Z. and Khan, S. (2013) 'The impact of internal attributes of corporate governance on firm performance: evidence from Pakistan', *International Journal of Commerce and Management*, Vol. 23, No. 1, pp.38–55.

Tang, J. (2017) 'CEO duality and firm performance: the moderating roles of other executives and blockholding outside directors', *European Management Journal*, Vol. 35, No. 3, pp.362–372.

Terjesen, S. (2015) 'Legislating a woman's seat on the board: institutional factors driving gender quotas for boards of directors', *Journal of Business Ethics*, Vol. 128, No. 2, pp.233–251.

Vo, D. and Phan, T. (2013) 'Corporate governance and firm performance: empirical evidence from Vietnam', *Journal of Economic Development*, Vol. 7, No. 1, pp.62–78.

Xu, X. and Wang, Y. (1997) *Ownership Structure, Corporate Governance, and Corporate Performance*, Policy Research Working Paper 1794, The World Bank, Washington, DC.

Yermack, D. (1996) 'Higher market valuation of companies with a small board of directors', *Journal of Financial Economics*, Vol. 40, No. 2, pp.185–221.