# Composition of board of director in the Indian Nifty 50 Listed Firms: Impact study from financial angle

**H. K. Singh**
**Waleed Al-Ahdal**
Faculty of Commerce,
Banaras Hindu University, Varanasi, India

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Board of director's characteristics, Firm performance, India, Nifty 50I

**Abstract**

***Purpose*** *– applying a set of data Nifty 50 listed companies in India; this research paper is an attempt to empirically evaluate the effects financial performance of board of director's based on their characteristics.*

***Design/ methodology/ approach*** *– a sample size of 50 listed firms have been used, from the year 2008 to 2016. Time series and cross sectional are the basic features on which the entire study is based upon for panel estimation. Beside it, statistical measures like ordinary least squares (OLS) model of regression and robust regression is applied to mitigate the problems related to endogeneity.*

***Findings*** *– The primary results show that for financial performance measuring by ROA, ROE, ROCE, board of director's features has positive and relevant effect on financial decision and performance of the firms in our study on Indian Nifty 50 listed firms. The results also point out that in the perspective of nifty 50 listed firms, the leverage and firm size are negatively related with the financial performance of the firms.*

***Limitations and implications of the Research*** *–In accordance with the Indian corporate governance norms and reforms, it is obligatory for the listed companies to appoint independent directors system, by far is successful still, the regulatory and governing authorities should efficiently implement the norms of appointment of independent directors in listed companies to improve corporate governance system in India.*

***Originality/value-*** *Initially, in not similar fashion with the prior studies based on the developing nations, this present study interrogates the impact of features of board of directors on financial performance of Indian Nifty 50 listed firms. Thereafter, while a lot many studies applied a solitary indicator of firm financial performance, this study examines ROA, ROE and ROCE. Using the OLS estimation the present study emphasizes the endogeneity issue between firm performance and board of director's characteristics, and robust regression for mitigating the exactness of using OLS estimation.*

## Introduction

The corporate governance composition of boards in terms of structure and size have paid much attention in the media and news in the corporate world in recent times, the failures of large companies was felt and observed many scams such as Enron, WorldCom and Parma- lat. The basic and primary idea is that, there is abundance of national and international guidelines for good corporate governance practices that affect matters related to board of director's characteristics (Bennedsen et al., 2008). Composition of company's board of director is one of the most valuable and significant mechanism of good corporate governance. The focal point in academic section is the effectiveness and efficiency of board of director's characteristics. Firm financial performance has often been employed as a proxy for deciding the governance potential efficiency of a company in many previous studies review such as. Ghosh, (2006), revealed that firm's performance either in terms of accounting concept or in marketing measures, particularly large size firm is affected by size of board of director's that tends to have dampening impact.

The one of the most integral part of internal corporate governance mechanism is the board of directors. According to(Akhtaruddin et al.,2009; Haji & Mubaraq, 2015) the vital institution in the internal governance structure of a company includes board of directors, which facilitates a primary monitoring function for agency problems. Definition of effectiveness means an extent to which problems are solved and objectives have been achieved (Wadhwa, 2014). Previous studies showed that board of director's effectiveness essentially depend on board of director's attributes, as disclosure of more relevant information to external parties is an important characteristic that define the effectiveness of boards. Following(Bennedsen et al., 2008; Green & Homroy, 2018; Merendino & Melville, 2019) studies, board of director's effectiveness is defined in this study by its characteristics. In other way it can be said that, the improvement of the board of directors with reference to its integral elements such as independence, size, shareholding, nationality, multiple directorship, meeting and board committees can improve the effectiveness and capacity of the board to manage and monitor management and thus by increasing the scope and probability of providing more relevant information to external investors relevantly.

All those financial shows that assess and fulfil the firm's economic objective is a key matter of interest in management and other areas of researches. Firm financial performance concern with the a variety of subjective measures of how well a firm can apply its available assets from primary mode of operation to earn profit(Peters & Bagshaw, 2014). "The NIFTY 50 is the flagship index on the National Stock Exchange of India Ltd. (NSE). The Index measures the behavior of a portfolio investment of blue-chip companies through different domains, the largest and most liquid Indian securities. It includes 50 of the approximately 1600 companies listed on the NSE, captures approximately 65% of its float-adjusted market capitalization and is a true reflection of the Indian stock market". NIFTY 50 includes major economic sectors of India. It issues declaration to offers an investment to managers' publicity in one efficient portfolio in the Indian market. Indexing has been done since April 1996 and is appropriate for establishing parameter, index funds and index-based derivatives (NSI, 2019)[1].

Figure 1 shows that there was an increase in Nifty market at a CAGR of 11.7% in last 20 years (since 1996) and 7.5% in last 10 years (since 2006). In terms of yearly returns, since 1996, NIFTY 50 has given more than 50% return in (1999,2003,2007,2009,2018) 5 calendar years and more than 30% return in (1999,2003,2005,2006,2007,2009,2014,2017) 8 calendar years. NIFTY 50 has fallen by over 20% only in (2008, 2011) 2 calendar years, giving positive returns in 16 out of 23 years.

Figure 1: Performance of NIFTY 50


Data for 2019 is as on March 29, 2019. Source: NSE

From the above context, research problem is clear and that objective is to study the impact of board effectiveness policy on the financial performance of the firm financial performance of NIFTY

[1] NSE is the brief name of the National Stock Exchange of India. Available in https://www.nseindia.com

50 traded companies, therefore, necessary steps will be taken to provide a clear picture for indexing board of directors. It is significant to enquire the relevant question the impact of composition of boards of directors on NIFTY 50 firm's financial performance? Recent research work has answered this question by showing the impact of board of directors in different countries. Further, with a shortage of empirical studies on the impact of board of directors on many aspects of the Indian economy; academic research has not yet studied the impact of composition of board effectiveness on the financial appraisal of NIFTY 50 listed firms in India.

A lot was said about financial performance of NIFTY 50 traded firms based on the board of directors' characteristics in different countries, through many pieces of writing. The present study aims to study the effect of board of directors on the financial performance of NIFTY listed firms and determine whether it was affected positively or negatively. The rest part of this paper organized as follows. Second section deals with the formulation of hypotheses and review of different literatures. The next and the third part constitute the research methodology section. Section four focuses on the descriptive statistics and results of the empirical tests. Lat and the fifth section include the concluding remarks of the study. Section six reveals the implications and drawback of the study.

**Literature Review and hypothesis development**

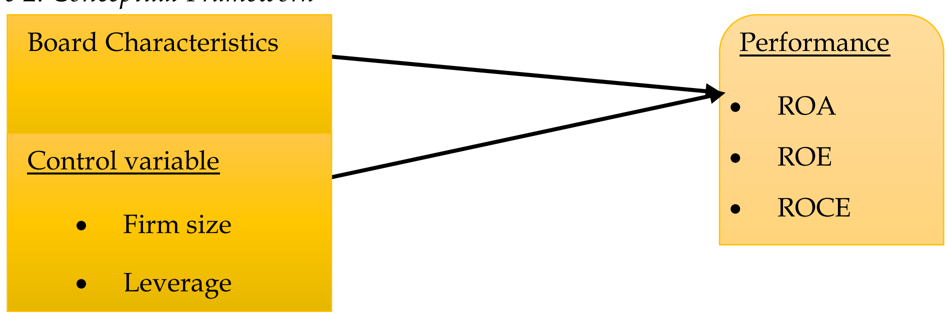
The important mechanism of internal corporate governance is constituent of board of directors. Board of directors and business organizations occupies a unique position in corporate governance. Both big and small organisations are governed by corporate governance. It is mandatory for the corporate entities to have board of directors by statue. Many studies have been done on various aspects of characteristics of board of directors and their impact on the financial performance. Some of the previous studies argued that the board size provides board effectiveness to improve firm performance. Guest(2008) argued the demerit that larger board size may face lack of coordination and decrease the board's ability to oppose and find loopholes the control of top managers due to lack of opportunities of discussion of management problems. In the other hand, Guner et al., (2008 ) argued that constitution of large board size may facilitate firms in offering suitable advice that comes from directors' external link and due to expertise knowledge and experience in their respective fields

Jermias & Gani(2014) interrogated the association between board of directors' dependence, managerial ownership and firm's performance based on board capital. The outcomes are consistent with the view that firms advantage from board capital in terms of outside directors' capability to check managers performance and provide advice and counsel to managers. Wang (2013) argued and concluded that different firms have different requirements based on complicated and simple firms' performance-improvements board structure. Although large boards faces communication distortion and decision-making problems, they facilitates firms via making available more advisory functions. Guest (2009) studied the impact of board size on firm performance for a large sample of 2,746 UK listed firms over 1981-2002.They concluded that board size has a strong negative impact on financial performance .In addition, Ranasinghe (2010) found that board size had a negative association with Return on Assets and market book value, which was applied as proxies for firm performance.

Many prior studies have been done to know the relationship between board size and firm performance has produced varied outcomes. It is discovered in most of the studies that the affiliation between board size and firm performance is negative (Bennedsen et al., 2008; Guest, 2009; Lin, 2011).on the contrary, Conheady et al.,(2015) find a significant positive relationship between the firm's measure of board effectiveness and the firm's contemporaneous and future market measure of performance. Furthermore, Bonn et al.,(2004) study and compared the sound effects of board size, proportion of female directors, proportion of outside directors and average age of directors on firm performance in Japanese and Australian firms. We found that board size and age of directors were negatively associated with the performance of Japanese firms. For Australian firms, outsider ratio and female director ratio were positively related with performance.

Mohd Nor et al., (2014) analysed the trend of board characteristics and try to explore the association of board characteristics and Malaysian firm performance. The data were collected from the analysis of companies' annual report for a sample size of 169 companies for period of 2009 and 2010. Study shows that there is a significant relationship between board size and firm performance. In addition, there are no association between proportions of independent non-executive directors to firm performance. Lin (2011) investigated the impact of duality and board structure on corporate performance. The finding of small and medium-sized companies advocate that the supervisory directors, outside independent and inside directors had positive impacts on financial performance, ROA and ROE. Prior studies conducted in India have not yet studied and appraised the impact of board characteristics on the financial performance. So, this study try to put in literature by introducing the following conceptual framework as shown in the Figure 2 to examine the impact of board characteristics on the financial performance of the firms.

*Figure 2: Conceptual Framework*




Based on the above literatures review and objectives of the study demonstrated above, the hypotheses of the present study are:

$H_0$1: There is positive associated between board characteristics and return on assets of Nifty 50 listed firms.

$H_0$2: There is positive associated between board characteristics and return on equity of Nifty 50 listed firms.

$H_0$3: There is positive associated between board characteristics and return on capital employee of Nifty 50 listed firms.

**Research Methodology**

**Date**

The Research paper is based on pure secondary data which has been adopted from Prowess IQ a database of Indian companies, Money control website[2], books and journal. Whereas board of directors and ownership structures, data were retrieved from the corporate governance reports section from the annual reports of the selected sample companies. Data which we need to justify objectives, collected for 8 years from 2008–2009 to 2015-2016. The purpose of the index is to compute the performance of large market capitalization companies.

**Sample Size**

Companies constituting the S&P CNX Nifty 50 firms which are registered on the National Stock Exchange of India have been considered to fulfil the purpose of this study. (NSE), is a leading stock. The Nifty companies were classified into four eleven-samples classification as showing in the

[2]Moneycontrol is India's leading financial information source. See https://www.moneyworks4me.com

Table 1: Number and Percentage of sample firms by industry

| *S. no* | *Industry* | *Number* | *Proportion* |
|---|---|---|---|
| 1 | *Automobiles* | 8 | 16% |
| 2 | *Cement* | 3 | 6% |
| 3 | *Construction* | 1 | 2% |
| 4 | *Consumer Goods* | 3 | 6% |
| 5 | *Energy* | 8 | 16% |
| 6 | *Financial Services* | 10 | 20% |
| 7 | IT | 5 | 10% |
| 8 | *Media and entertainment* | 1 | 2% |
| 9 | *Metals* | 4 | 8% |
| 10 | *pharma* | 5 | 10% |
| 11 | *Telecom* | 2 | 4% |
| Total | | 50 | 100% |

**Variables**

There are three variables in this Research; the independent variable is board of director's attributes and the dependent variable and control variable are as follow:
Return on assets measures by net income over total assets at the end of the financial year.
Return on equity is measured by profit after tax divided by total equity shares in issue.
Return on capital employee is measured by net profit after tax /capital employed.
Firm size is measured by the natural logarithm of total assets.
Leverage measures by total debt percentage are divided by total assets.

**Statistical tools and Methods**

The study comprises descriptive statistics such as mean, median, mode, correlation and multicollinearity diagnostic, ordinary least squares and robust regression eviews 10 using review of literature to study the impact of board of director's characteristics on financial performance of Nifty 50 listed firms.Therefore, the following model is developed:

$$ROA_{it} = \alpha + \beta_1 BDC_{it} + \beta_2 LEV_{it} + \beta_3 FSIZE_{it} + \varepsilon_{it}$$

$$ROE_{it} = \alpha + \beta_1 BDC_{it} + \beta_2 LEV_{it} + \beta_3 FSIZE_{it} + \varepsilon_{it}$$

$$ROCE_{it} = \alpha + \beta_1 BDC_{it} + \beta_2 LEV_{it} + \beta_3 FSIZE_{it} + \varepsilon_{it}$$

Where,

$\alpha$ is the intercept in this study, $\varepsilon$ is defined as an error term for the model, i and t correspond to firm and year, ROA is return on assets, ROE is return on equity, ROCE is return on capital employee, BDC is board of director's characteristics, LEV is the short form of leverage, and FSIZE is the firm size.

**Data Analysis and findings:**

**Descriptive statistics**

Table 2 describes descriptive statistics for the variables applied in this research paper. It gives details information in the form of descriptive statistics, skewness, kurtosis and number of observations for the dependent variable and its causal and control variables. The output shows that skewness and kurtosis are in the range of ±1 and ±3 respectively. The results demonstrate the trend of financial performance measurements; ROA, ROE, and ROCE over the period 2008–2016. Similarly, the results show the descriptive statistics for board of director's characteristics, leverage, firm size variables for the same period. The results reveal that ROA, ROE, and ROCE each range between minimum values of -5.08, -18.18and -45.36and maximum values of 38.71, 86.91and 72.75with a mean of 11.98, 23.13 and 17.09 respectively. Moreover, board of director's characteristics ranges between a minimum of 0.44, a maximum of 0.94 with a mean value of 0.74, and standard deviation of 0.10. Controls variables have an average value of 11.95, 5.20, a minimum of .01,3.75 with standard deviation of 22.8,0,90 respectively.

Table 2: Descriptive Statistics

| Stat. | ROA | ROE | ROCE | BDC | LEV | FSIZE |
|---|---|---|---|---|---|---|
| Mean | 11.98 | 23.13 | 17.09 | .74 | 11.95 | 5.20 |
| Maximum | 38.71 | 86.91 | 72.75 | .94 | 87.61 | 10.14 |
| Minimum | -5.08 | -18.18 | -45.36 | .44 | .01 | 3.75 |
| Std. Dev. | 7.44 | 16.12 | 12.42 | .10 | 22.8 | .90 |
| Skewness | 0.65 | 1.61 | 0.72 | -0.16 | 1.8 | 0.12 |
| Kurtosis | .247 | 1.73 | 2.47 | -.61 | 2.27 | 2.09 |
| observations | 400 | 400 | 400 | 400 | 400 | 400 |

**4.2. Correlation and multicollinearity diagnostic**

Table 3 explains the Pearson correlation matrix and multicollinearity diagnostics for different dependent and causal variables. The coefficients are based on the data from 50 Nifty Indian listed firms with 400 observations for the period 2008/09–2015/16. Results reveal the positive relationship of board of director's characteristicswith financial performance. This indicates that if the companies follow the rules of board of director's characteristics, the financial performance of the companies are going to increase. Similarly, the result also shows a positive relationship between firm leverage and financial performance measured by ROA, ROE, and ROCE, which means that if there is increase in leverage it leads to an increase in profitability. The result also shows a positive relationship of board of director's characteristicswith leverage and firm size. This reveals that board of director's characteristicsleads to increase in leverage and firm size whereas board of director's characteristicshas a negative association with financial performance measured by ROA, ROE, and ROCE.

Table 3: Correlation Matrix and Multicollinearity Diagnostics

| Variables | ROA | ROE | ROCE | BDC | LEV | FSIZE |
|---|---|---|---|---|---|---|
| Correlation matrix (Panel A) | | | | | | |
| ROA | 1 | | | | | |
| ROE | .85** | 1 | | | | |
| ROCE | .56** | .52** | 1 | | | |
| BDC | .17** | .06 | .052 | 1 | | |
| LEV | .012 | .04 | .03 | .02 | 1 | |
| FSIZE | -.234** | -.25** | -.18** | .04 | -.15** | 1 |
| | | | | | | |
| VIF | | | | 1.84 | 1.26 | 1.37 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | |

**4.3 Results of model estimation**

Table 4 draws conclusion of regression estimation of firm financial performance on board characteristics, and control variables. The regression results in Columns 1, 2 and 3 depend upon accounting measures for ROA, ROE and ROCE, respectively. The board characteristics variables, the coefficient of BDC is positively and statistically significant at the 1% significance level for ROA, ROE and ROCE. The conclusion favors the hypotheses of the study ($H_01$, $H_02$, $H_03$) and are similar with those of (Kao et al., 2019; Mohd Nor et al., 2014; Wang, 2013), suggesting that board characteristics variables does enhance firm financial and overall performance. The hypotheses have been accepted as the coefficient of TIER is associated positively and significantly with ROA, ROE and ROCE at the 1 % level. Table 4 depicts that the coefficient value of leverage is negative and insignificant for all ROA, ROE and RCOE. The result is consistent with (Doan & Nguyen, 2018). Moreover, the coefficient of

Firm size is also negative and significant at the 1% level for both ROE and ROCE, These results are consistent with those of (Guest, 2009; Wang, 2013).

Table: 4 Regression Results Estimation

| Models | ROA | | ROE | | ROCE | |
|---|---|---|---|---|---|---|
| Variable / Type | Coeff. | Prob. | Coeff. | Prob. | Coeff. | Prob. |
| C | 16.07 | 0.0 | -42.53 | 0.0 | 29.32384 | 0.0003 |
| BDC | 14.64 | 0.0 | 20.86 | 0.006 | 31.46188 | 0.0001 |
| LEV | -0.02 | 0.16 | -0.057 | 0.13 | -0.01536 | 0.6963 |
| FSIZE | 0.004 | 0.017 | -6.39 | 0.0 | -6.07634 | 0.0000 |
| R-squared | 0.13 | | 0.11 | | 0.11 | |
| F-statistic | 20.29 | | 17.15 | | 17.70 | |
| Prob. | 0.0 | | 0.0 | | 0.0 | |

**Robust Regression**

The panel regression outcome may face the issues related to endogeneity. In this research study, endogeneity of board of director's characteristics through firm financial performance would entail that the panel regression estimates, are significantly biased and incoherent, and so it cannot apply to draw conclusions about the causality of the association. So, we go for applying the robust regression to tackle the endogeneity issue. The equation is applied to carry out the robust regression is the same as equation (1). However, robust regression estimation may not convey better estimates in comparison to panel estimation.

Table 5 demonstrates the results of the robust regression model. The results show that there is a slight change in the values of coefficients, standard errors and t-statistic from the values of OLS regression model in table 4. The coefficient estimates in case of robust regression are not inflated, deflated or highly deviated from the coefficient estimates of OLS regression. Further, the standard error of both; robust regression and OLS regression are about similar which indicates a proper estimating of the results.

With view to the outcome of robust regression model, the second-stage firm performance equations are presented in Columns 1-3 of Table 4. The coefficients signs on the causal and control variables in each and every equation are g enerally as predicted. In general terms, the robust estimates are larger than those of panel regression estimation in Table 4.

Table 5. Robust Regression

| Models | ROA | | ROE | | ROCE | |
|---|---|---|---|---|---|---|
| Variable / Type | Coeff. | Prob. | Coeff. | Prob. | Coeff. | Prob. |
| C | 29.8911 | 0.0000 | 48.0912 | 0.0 | 34.2806 | 0.000 |
| BDC | 12.3953 | 0.0001 | 7.10256 | 0.1697 | 13.3755 | 0.0091 |
| LEV | -0.0337 | 0.0345 | -0.0677 | 0.0084 | -0.01432 | 0.5745 |
| FSIZE | -5.2475 | 0.0000 | -6.1913 | 0.0 | -5.19885 | 0.0000 |
| R-squared | 0.16 | | 0.07 | | 0.07 | |
| Prob. | 0.0 | | 0.0 | | 0.0 | |

**5. Conclusion**

This Research paper investigates the impact of board of director's features on firm performance. In compare to previous evidence for developing nations that reveals no connection between independent directors composition and firm performance, our results shows that for financial performance measuring by ROA,ROE,ROCE, board of director's characteristics has a statistical significant and positive impact on firm performance in our work study on Indian Nifty 50 listed firms. It also points out that firm size and the leverage are negatively associated with firm performance in the context of nifty 50 listed firms. These findings can be concluded in association to the several institutional theories that portrays these mechanisms are resultant of practices or regulations emerge from coercion by legislators who impose certain good practices in order to improve organizational effectiveness, or as a result of imitation. In other words, the findings may be referred to this theory which suggests that companies might adopt practices or regulations as a result of coercion from a legislator who imposes some practices in order to improve organizational effectiveness. However, there is no prediction that the adoption of these regulations will improve organizational effectiveness and performance efficiency.

Appendix A: Table 5. Variables Definition

| Variable | Measurement | References |
|---|---|---|
| Dependent variables | | |
| Return of Assets (ROA) | ROA = Profit after Tax / Total Asset | (Guest, 2009; Guner et al., 2008; Villanueva-Villar et al.,2016) |
| Return on Equity (ROE) | ROE = Profit after Tax / Total Equity | ( Hassan et al., 2017; Kao et al., 2019; Singh et al., 2018) |
| Return on capital employee (ROCE) | ROCE= Net profit after tax /capital employed | (Vishwakarma & Kumar, 2015) |
| Independent variables | | |
| Board of Director's Characteristics | 1. Size of board of directors is at least 5 but not more than 16 members.<br>2. The qualifications of the board members are revealed.<br>3. All members attended at least 75% of board meetings.<br>4. The number of board meetings held in the year and the attended physically, and/or attended via electronic media is disclosed for every board member.<br>5. The firms has implemented a procedure for a regular assessment of the board.<br>6. Public disclosure of offices held by any independent director in other companies<br>7. Separation of chairman and CEO<br>8. Firm has annual board meeting only for non-executives<br>9. Board performance is periodically evaluated<br>10. Company has a designated "lead" or senior non-executive board member<br>Chairman of board independent director<br>11. The governance/nomination committee is composed of independent board members<br>12. No former CEO of the company serves on the board<br>Time gap between the two meetings does not exceed 4 months<br>13. Governance/nomination committee has a written charter or terms of reference<br>14. Board is controlled by more than 50% of independent outside directors | (Abdallah & Ismail, 2017; Al-Malkawi et al., 2014; Ararat et al., 2017; Srairi, 2015; Wahab et al., 2007) |
| Control variable | | |
| Firm size | Natural logarithm of total assets. | (Arora & Sharma, 2016; Ullah, 2017) |
| Leverage | It measured by total debt to total assets | (Abdallah & Ismail, 2017; Hassan et al, 2016) |

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