# IMPACT OF CORPORATE GOVERNANCE ON FINANCIAL PERFORMANCE OF FIRMS IN INDIA

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## ABSTRACT

Corporate Governance refers to the framework of rules and practices by which a board of directors ensures accountability, fairness, and transparency in a company's relationship with all its stakeholders. Failure of corporates like Enron or Satyam is the prime argument for better corporate governance. In the light of major corporate debacles, efforts have been made for putting into operation better corporate governance. The question then arises, does governance indeed affect the financial performance of a firm? The present study aims to examine and determine the impact of corporate governance on financial performance of firms in India. The study was conducted on a sample consisting of 30 companies of the BSE Sensex for a period of five financial years from 2011-12 to 2015-16. It was concluded that board and audit committee independence significantly have a bearing on performance measures of a company. The performance measures of older companies were significantly higher than younger companies which indicate that the governance of companies with higher age tends to be better. Audit committee independence, audit committee size and age have a significant correlation with performance measures, though the correlations are weak yet positive. Board size (6 to 18 in the sample) is negatively associated with performance measures indicating that large boards have an adverse impact on financial performance of firms.

**Keywords:** Corporate Governance, Return on Assets, Return on Equity, Return on Capital Employed, Board Size, Board Independence, Audit Size, Audit Independence

## I. INTRODUCTION

Ratan Tata vs. Cyrus Mistry spat. Once again an issue fuelled the discussion on corporate governance recently. It was however, the Harshad Mehta scam in 1992 followed by other cases like promoter disappearing, or promoters being issued

preferential shares at deeply discounted prices causing injustice to common shareholders; and many others which necessitated concerns being addressed towards issues of corporate governance. A committee headed by Rahul Bajaj was formed by CII which submitted its guidelines in 1998 for Code for Desirable Corporate Governance. Two more committees, chaired by Kumar Mangalam Birla and Narayana Murthy also worked on the same and recommended measures which have been largely incorporated in formulating Clause 49 of Listing Agreements.

The mandatory features of Clause 49 regulations deal with issues like composition of the board of directors, the composition and functioning of the audit committee, governance and disclosures regarding subsidiary companies, disclosures by the company, CEO/CFO certification of financial results; and reporting on corporate governance as part of the annual report.

The composition and proper functioning of the board of directors was one of the important areas of focus. Clause 49 stipulates that non-executive members should comprise at least half of the board of directors. It defines an "independent" director and requires that independent directors comprise at least half of the board of directors if the chairperson is an executive director and at least a third if the chairperson is a non-executive director. It also sets rules regarding compensation of board members, sets limits on committee memberships and chairmanships, specifies the minimum number and frequency of board meetings, and mandates certain disclosures for board members.

Clause 49 also recommended the composition and functioning of the audit committee, requiring at least three members on it, with an independent chair and made up two-thirds of independent directors, including at least one financially literate person. The Clause also charts out the role and powers of the audit committee and specifies the minimum number and frequency of the committee meetings.

The company is also required to provide a separate section of corporate governance in its annual report, with a detailed compliance report on corporate governance. It is also required to submit a quarterly compliance report to the stock exchange where it is listed. Also, it must have its compliance with the

mandatory specifications of Clause 49 certified by auditors or by practicing company secretaries.

If mechanisms of internal governance are so well laid out as in the case of Clause 49, then this should lead to good governance among firms. The question then arises, does governance indeed affect the financial performance of a firm?

The present study aims to examine and determine the impact of corporate governance on financial performance of firms in India.

## II. REVIEW OF LITERATURE

A large numbers of studies have been done worldwide to study the impact of corporate governance on performance of firms. There is a steady increase in the research interest on this topic. Majority of the research in this area in India has been done in the last two decades. The review of literature presented below is in the Indian context.

Madan Mohan, G and Marimuthu (2015) endeavoured to establish the relationship between financial performance of firms and corporate governance of 30 Indian companies, listed on the BSE. The study found that directors and composition of independent directors in the board failed to cast any sort of impact on the financial performance of firms listed on the Bombay Stock Exchange. However, the two corporate governance variables of board ownership and duality are exerting significant impact on financial performance. Presence of promoters in the board has exerted a significant positive impact on financial performance. The study also revealed that if Chairman and Managing Director positions of a firm are held by a single person, financial performance of that company will be adversely affected.

Gupta, M and Newalkar, G (2015) conducted an empirical study to determine the impact of corporate governance on the profitability of a firm. The sample consisted of 30 companies listed on National Stock Exchange. The data studied was over a period of five years from FY 2010-11 to FY 2014-15. The study shows that ROE is positively co-related with CEO status and Market Book value is positively and significantly co-related with CEO status and Audit committee. Governance rating of company has a significant impact on ROE, but not on other profitability measures i.e. ROA and Market Book value. The study also revealed

that corporate governance has a positive significant impact on Return on Equity (ROE).

Sridhar,V.R and SakthivelMurugan, M (2015) determined the relationship between Corporate Governance practices and financial performance of corporate sectors. The study included 25 companies from 5 different sectors for a period of two years i.e. 2012-13 and 2014-15. The study revealed that best corporate governance practices ensure moderate performance to best performance in most of the companies.

Vishwakarma, R and Alok Kumar (2015) studied the effect of corporate governance aspects on the performance of selected IT companies in India. This study is based on the secondary data of top 10 IT companies, based on market capitalisation, covering the period of 5 years i.e. from 2010 to 2014. The study found that the sizes of board of directors, Independent directors and board committees significantly affected the performance of IT companies.

Aggarwal, P (2013) investigated the impact of corporate governance on corporate financial performance, using a sample of 20 companies listed on S&P CNX Nifty 50 Index. The study found that governance rating of company has a significant positive impact on its financial performance. It also concluded that ratings of company along employees-related and environmental dimensions and the control variable, firm size significantly influence corporate financial performance.

Gugnani, R (2013) investigated the relationship between corporate governance and performance of listed Indian manufacturing firms between the periods of 2005 to 2012. The study concluded that board size is an important determinant of firm's performance though it is negatively related with firm performance. The findings suggest that profit margin is the only financial performance measure which is significantly related with internal governance structures. It was also found out that profit margin and ROA are the only variables, which are statistically significant and explain the relationship between financial performance and corporate governance.

Kapooria, P. et al. (2013) studied the impact of adopting Corporate Governance norms as listed by Securities and Exchange Board of India on firm performance. The study undertook a comparative analysis of 10 companies across two sectors

i.e. IT and Manufacturing and attempts to assess the relative importance of the various norms. The findings show that among the various corporate governance norms under the scope of the study, the Disclosure of Directors' Remuneration in the Annual Report has a major influence on the performance of organizations across the selected sectors. The disclosure policy gives a certain level of confidence in the minds of the stakeholders and thus facilitated in enhancing the image and the overall performance of an organization.

Chugh, L. et al (2010) investigated the relationship between the characteristics of the board of directors and the financial performance of a sample of large, publicly traded firms in India. The study summarised that board structure has a definite impact on financial performance of firms. An excessively autonomous board with a high proportion of independent directors lowers profitability. CEO-duality creates additional agency costs and impairs performance.

Dwivedi, N.(n.a.) studied attributes of the board of directors that contribute to effectiveness of corporate governance for a firm and hence its performance in the Indian context. The study included 195 companies for a period of two years i.e. 2001-02 and 2002-03. The study found that firms with CEO duality outperformed the firms without it. Firms which had nominees of financial institutions on their board had performed poorly on both performance measures of market-to-book value and ROCE as compared to firms which did not. The study also concluded that board size is not related to corporate performance for large Indian firms.

## III. OBJECTIVES OF STUDY:

This paper aims to achieve the following objectives:

1. To study the performance measures in different groups based on board independence, audit committee independence and age

2. To study the relation of corporate governance measures and performance of firms in India

3. To study the impact of corporate governance on performance of firms in India

## IV. HYPOTHESES

Based on review of literature, the following null hypotheses have been formulated:

$H_{0.1:}$ Average financial performance of companies with greater board independence equals that of companies with lesser board independence

$H_{0.2.}$: Average financial performance of companies with greater audit committee independence equals that of companies with lesser audit committee independence

$H_{0.3.}$: Average financial performance of companies with greater age equals that of companies with lesser age

$H_{0.4.}$: There is no significant correlation of corporate governance measures with financial performance of firms

## V. RESEARCH METHODOLOGY

### Sample Selection:

The sample consists of 30 companies (Table 1) constituting the oldest index in the country i.e. the BSE Sensex. These companies represent large, well-established and financially sound companies across key sectors in India.

**Period of Study :** Five financial years from 2011-12 to 2015-16

### Variable Description (Table 1)

Three Accounting-based measures – Return on Assets (ROA), Return on Equity (ROE) & Return on Capital Employed (ROCE) have been used as proxies for the dependent variable i.e. financial performance.

Board size, Board Independence, Board Independence (%), Audit Committee size, Audit Committee Independence, Audit Committee Independence (%), Board Committees, Board Meetings, CEO Duality and Female Directors have been used as proxies of Corporate Governance. Age of the company has been used as a control variable.

### Data Sources

The corporate governance data has been extracted from annual reports which are available on websites of the respective companies. The financial data has been extracted from websites like profitndtv.com and equitymaster.com.

## Tools for analysis

Statistical tools like Independent Sample t-test, Pearson Correlation and Multiple Regression have been used.

## Research Models (Multiple Regression)

$ROA = b_0 + b_1*Board Size + b_2*Audit Comm. size + b_4*Audit Comm. Ind. + b_5*Age$

$ROE = b_0 + b_1*Board Size + b_2*Audit Comm. size + b_4*Audit Comm. Ind. + b_5*Age$

$ROCE = b_0 + b_1*Board Size + b_2*Audit Comm. size + b_4*Audit Comm. Ind. + b_5*Age$

## VI. ANALYSIS OF THE DATA

The descriptive statistics of all the variables are presented in table T.2.

## Financial Performance (ROA, ROE, ROCE) of Companies and Board Independence

The small value of significance associated with Levene's test indicates that the two groups have unequal variances and the null hypothesis is false. The t-test result (with equal variances not assumed) shows two-tailed p-value of 0.000, 0.000 & 0.001 respectively for ROA, ROE & ROCE which is less than 0.01. Therefore, we reject the null hypothesis at 1% significance level, which means that the average ROA, ROE & ROCE of companies with greater and lesser board independence are significantly different from each other. (Refer tables T.3.1 & T.3.2)

## Financial Performance of Companies and  Audit Committee Independence

The small value of significance associated with Levene's test indicates that the two groups have unequal variances and the null hypothesis is false. The t-test result (with equal variances not assumed) shows two-tailed p-value of 0.000 for all three measures i.e. ROA, ROE & ROCE which is less than 0.01. Therefore, we reject the null hypothesis at 1% significance level, which means that the average ROA, ROE & ROCE of companies with greater and lesser audit committee independence are significantly different from each other. (Refer tables T.4.1 & T.4.2)

## Financial Performance and Age of Companies

The small value of significance associated with Levene's test indicates that the two groups have unequal variances and the null hypothesis is false. The t-test result (with equal variances not assumed) shows two-tailed p-value of 0.005, 0.023 & 0.001 which is less than 0.01, 0.05 & 0.01 respectively for ROA, ROE & ROCE. Therefore, we reject the null hypothesis at 1% significance level, which means that the average ROA & ROCE of companies with greater and lesser age are significantly different from each other. We reject the null hypothesis at 5% significance level for ROE, which means that the average ROE of companies with greater and lesser age are significantly different from each other. (Refer tables T.5.1 & T.5.2)

## Relation of Corporate Governance Measures with Financial Performance of Firms

It can be inferred from the above table that there is a significant correlation between the variables; audit independence and age with all three performance variables i.e. ROA, ROE & ROCE. There also exists a significant correlation between audit size and ROA & ROE. All the correlations are weak positive correlations. There is no significant correlation with other proxies of corporate governance like board size, board independence, board committees, board meetings & female director in BOD. (Refer tables T.6.1 & T.6.2)

## Impact of Corporate Governance Measures on Financial Performance of Firms

Based on results of correlation, the data was further tested empirically using multiple regression. The following models were formulated as a result.

### 6.5.1 Model 1

It can be inferred from table T.7.1 that the independent variables account for only 6.8% variance in the dependent variable i.e. ROA. It can be seen from table T.7.2. that the result is significant at 10% level. The following regression model can be arrived at from the results:

ROA =-3.391 +(-0.775*Board Size) + (2.626*Audit committee size) + (0.117*Audit Committee Independence) + (0.081*Age)

$Z_{ROA}$ = -0.154*$Z_{Board Size}$ + 0.279*$Z_{Audit committee size}$ + 0.170*$Z_{Audit Committee Independence}$ + 0.170*$Z_{Age}$

### 6.5.1 Model 2

It can be inferred from table T.8.1 that the independent variables account for only 13% variance in the dependent variable i.e. ROE. It can be seen from table T.8.2. that the result is significant at 5% level. The following regression model can be arrived at from the results:

ROE =-4.089 +(-2.749*Board Size) + (6.206*Audit committee size) + (0.313*Audit Committee Independence) + (0.184*Age)

$Z_{ROE}$ = -0.281*$Z_{Board\ Size}$ + 0.340*$Z_{Audit\ committee\ size}$ + 0.235*$Z_{Audit\ Committee\ Independence}$ + 0.2*$Z_{Age}$

### 6.5.1 Model 3

It can be inferred from table T.9.1 that the independent variables account for only 18.5% variance in the dependent variable i.e. ROCE. It can be seen from table T.9.2. that the result is significant at 1% level. The following regression model can be arrived at from the results:

ROE =-19.872 +(-3.597*Board Size) + (7.416*Audit committee size) + (0.499*Audit Committee Independence) + (0.369*Age)

$Z_{ROCE}$ = -0.285*$Z_{Board\ Size}$ + 0.315*$Z_{Audit\ committee\ size}$ + 0.290*$Z_{Audit\ Committee\ Independence}$ + 0.310*$Z_{Age}$

The tolerance and VIF values in all three models indicate that multicollinearity is not present. All three models also indicate that the board size is negatively associated with financial performance.

## VII. FINDINGS

➢ The average ROA, ROE & ROCE of companies with greater and lesser board independence are significantly different from each other.

➢ The average ROA, ROE & ROCE of companies with greater and lesser audit committee independence are significantly different from each other.

➢ The average ROA & ROCE of companies with greater and lower age are significantly different from each other at 1% p-value. The average ROE of companies with greater and lower age are significantly different from each other at 5% p-value.

- There is a significant correlation between the variables; audit independence and age with all three performance variables i.e. ROA, ROE & ROCE. There also exists a significant correlation between audit size and ROA & ROE. All the correlations are weak positive correlations. There is no significant correlation with other proxies of corporate governance like board size, board independence, board committees, board meetings and female directors in BOD.

- The corporate governance measures i.e. the independent variables of board size, audit committee size, audit committee independence have a significant impact on ROA, ROE & ROCE at 10%, 5% and 1% level of significance respectively. They account for 6.8%, 13% and 18.5% variance in ROA, ROE & ROCE respectively. All three models also indicate that the board size is negatively associated with financial performance.

## VIII. CONCLUSIONS

The performance measures are significantly higher in companies with board independence equal to or greater than 50% as compared to companies with board independence lesser than 50%. The means of ROA, ROE & ROCE percentage in higher board independence companies are 13.3, 26.66 & 31.23 as against 7.5, 16.28 & 18.55 in companies with lower board independence. The performance measures are significantly higher in companies with audit committee independence equal to or greater than 2/3rd as compared to companies with audit committee independence lesser than 2/3rd. The means of ROA, ROE & ROCE in higher board independence companies are 13.02, 25.79 & 30.39 as against 2.87, 12.97 & 11.28 in companies with lower audit committee independence. Thus, it can be concluded that board and audit committee independence significantly have a bearing on performance measures of a company. The performance measures are higher in older companies as compared to younger companies. This indicates that the governance of companies with higher age tends to be better.

As per correlation, audit committee independence, audit committee size and age have proved to be variables having a significant correlation with performance measure variables, though the correlations are weak positive correlations. This underlines the importance of audit committees and their composition among all corporate governance variables. From regression analysis it can be seen that

board size, audit committee size & audit committee independence have a significant impact on performance variables. Board size (6 to 18 in the sample) is negatively associated with performance measures. This corroborates earlier findings that large boards have adverse impact on financial performance.

## IX. RECOMMENDATIONS

A more comprehensive study can be done using more independent variables and the extent of fulfilment of Clause 49. Corporate Governance Index can be created from such study which can then be empirically tested for determining the relation with and impact on financial performance. This study can be extended to dividend policies of firms where the dividend measures like dividend per share and dividend payouts could serve as dependent variables.

## X. REFERENCES

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## ANNEXURES

### T.1. Summary of Measurement of Variables

| Dependent Variables / Performance measures | |
|---|---|
| Return on Assets (ROA) | Net profit after Tax/ total assets x 100 |
| Return on Equity (ROE) | Profit after Taxes (PAT)/ Net Worth or shareholder Equity x 100 |
| Return on Capital Employed (ROCE) | Adjusted Net Profit / Capital Employed x 100 |
| **Independent Variables / Corporate Governance measures:** | |
| Board Size | Total directors on the Board of Directors |
| Board Independence | Total directors appointed as Independent Directors |
| Board Independence (%) | Percentage of Independent Directors on BOD |
| Audit Committee Size | Total directors appointed in Audit Committee |
| Audit Committee Independence | Total number of independent directors appointed in Audit Committee |
| Audit Committee Independence (%) | Percentage of Independent Directors in Audit Committee |
| Total Committees | Total Committees formed of Directors |
| Total Meetings of Board | Total Meetings conducted by Board of Directors during the financial year |
| CEO Duality | Dummy variable 1 if the top 2 positions occupied by same person, otherwise 0 |
| Female Directors | Number of female directors on BOD |
| **Control Variable** | |
| Age | Age of the company calculated from year of inception to the financial year under study |

## T.2 Descriptive Statistics

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Board_size | 150 | 6 | 18 | 12.07 | 2.432 |
| Board_independence | 150 | 0 | 12 | 6.58 | 2.054 |
| Board_ind. (%) | 150 | .00 | 85.71 | 54.18 | 13.62177 |
| Audit_size | 150 | 2 | 9 | 4.17 | 1.303 |
| Audit_ind | 150 | 0 | 7 | 3.57 | 1.019 |
| Audit_ind. (%) | 150 | .00 | 100.00 | 87.71 | 17.81348 |
| Board_committees | 150 | 2 | 17 | 7.17 | 3.311 |
| Board_meetings | 150 | 4 | 20 | 7.77 | 3.226 |
| CEO_Duality | 150 | 0 | 1 | .39 | .490 |
| Females | 150 | 0 | 4 | 1.10 | .880 |
| Age | 150 | 14 | 109 | 48.10 | 25.823 |
| ROA | 150 | -23.44 | 71.24 | 12.34 | 12.26993 |
| ROE | 150 | -37.23 | 131.80 | 24.93 | 23.78543 |
| ROCE | 150 | -31.53 | 177.25 | 29.11 | 30.69353 |
| Valid N (listwise) | 150 |  |  |  |  |

## T.3. ROA, ROE, ROCE & Board Independence
## T.3.1 Group Statistics

|  | Board Independence (%) | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| ROA | >= 50.00 | 125 | 13.3123 | 13.04145 | 1.16646 |
|  | < 50.00 | 25 | 7.5044 | 5.16209 | 1.03242 |
| ROE | >= 50.00 | 125 | 26.6626 | 25.58090 | 2.28802 |
|  | < 50.00 | 25 | 16.2856 | 6.15596 | 1.23119 |
| ROCE | >= 50.00 | 125 | 31.2320 | 32.87454 | 2.94039 |
|  | < 50.00 | 25 | 18.5480 | 11.19691 | 2.23938 |

## T.3.2 Independent Samples Test

|  | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
|  | F | Sig. | T | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|  |  |  |  |  |  |  |  | Lower | Upper |

| | | F | Sig. | t | Df | Sig. | Mean | Std. Err | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|---|
| ROA | Equal variances assumed | 16.319 | .000 | 2.188 | 148 | .030 | 5.80792 | 2.65469 | .56193 | 11.05391 |
| | Equal variances not assumed | | | 3.728 | 94.559 | .000 | 5.80792 | 1.55773 | 2.71525 | 8.90059 |
| ROE | Equal variances assumed | 9.810 | .002 | 2.012 | 148 | .046 | 10.37696 | 5.15866 | .18282 | 20.57110 |
| | Equal variances not assumed | | | 3.994 | 143.880 | .000 | 10.37696 | 2.59825 | 5.24129 | 15.51263 |
| ROCE | Equal variances assumed | 9.851 | .002 | 1.903 | 148 | .059 | 12.68400 | 6.66625 | -.48933 | 25.85733 |
| | Equal variances not assumed | | | 3.432 | 113.053 | .001 | 12.68400 | 3.69604 | 5.36152 | 20.00648 |

## T.4. ROA, ROE, ROCE & Audit Committee Independence
### T.4.1. Group Statistics

| | Audit committee Independence (%) | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| ROA | >= 66.67 | 140 | 13.0209 | 12.41040 | 1.04887 |
| | < 66.67 | 10 | 2.8720 | 2.63112 | .83203 |
| ROE | >= 66.67 | 140 | 25.7879 | 24.37750 | 2.06027 |
| | < 66.67 | 10 | 12.9660 | 4.20796 | 1.33067 |
| ROCE | >= 66.67 | 140 | 30.3922 | 31.37834 | 2.65195 |
| | < 66.67 | 10 | 11.2790 | 3.37994 | 1.06883 |

### T.4.2. Independent Samples Test

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | F | Sig. | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |

| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Diff | Std. Error | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|---|
| ROA | Equal variances assumed | 8.414 | .004 | 2.574 | 148 | .011 | 10.14893 | 3.94253 | 2.35801 | 17.93985 |
| | Equal variances not assumed | | | 7.581 | 51.854 | .000 | 10.14893 | 1.33881 | 7.46223 | 12.83562 |
| ROE | Equal variances assumed | 4.162 | .043 | 1.656 | 148 | .100 | 12.82186 | 7.74044 | -2.47421 | 28.11792 |
| | Equal variances not assumed | | | 5.228 | 75.702 | .000 | 12.82186 | 2.45264 | 7.93670 | 17.70702 |
| ROCE | Equal variances assumed | 6.518 | .012 | 1.919 | 148 | .057 | 19.11321 | 9.95752 | -.56406 | 38.79049 |
| | Equal variances not assumed | | | 6.685 | 133.445 | .000 | 19.11321 | 2.85924 | 13.45792 | 24.76851 |

## T.5. ROA, ROE, ROCE & Age of the firm
## T.5.1. Group Statistics

| | Age of the Company (Years) | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| ROA | >= 40 | 74 | 15.1988 | 13.38130 | 1.55554 |
| | < 40 | 76 | 9.5650 | 10.43762 | 1.19728 |
| ROE | >= 40 | 74 | 29.4511 | 29.77864 | 3.46170 |
| | < 40 | 76 | 20.5339 | 14.86873 | 1.70556 |
| ROCE | >= 40 | 74 | 37.4738 | 38.79183 | 4.50946 |
| | < 40 | 76 | 20.9821 | 16.46154 | 1.88827 |

## T.5.2. Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | T | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| ROA | Equal variances assumed | 4.432 | .037 | 2.879 | 148 | .005 | 5.63378 | 1.95655 | 1.76740 | 9.50017 |
| | Equal variances not assumed | | | 2.870 | 137.979 | .005 | 5.63378 | 1.96295 | 1.75242 | 9.51515 |
| ROE | Equal variances assumed | 14.718 | .000 | 2.329 | 148 | .021 | 8.91713 | 3.82805 | 1.35244 | 16.48183 |
| | Equal variances not assumed | | | 2.311 | 106.627 | .023 | 8.91713 | 3.85905 | 1.26671 | 16.56756 |
| ROCE | Equal variances assumed | 21.284 | .000 | 3.405 | 148 | .001 | 16.49168 | 4.84345 | 6.92042 | 26.06294 |
| | Equal variances not assumed | | | 3.373 | 97.914 | .001 | 16.49168 | 4.88884 | 6.78982 | 26.19353 |

**T.6 Relation of Financial Performance measures with Corporate Governance measures**

|  |  | ROA | ROE | ROCE |
|---|---|---|---|---|
| Board size | Pearson Correlation | -.020 | -.118 | -.103 |
|  | Sig. (2-tailed) | .806 | .152 | .208 |
| Board Independence | Pearson Correlation | .057 | -.027 | -.040 |
|  | Sig. (2-tailed) | .489 | .740 | .627 |
| Board Independence (%) | Pearson Correlation | .132 | .085 | .057 |
|  | Sig. (2-tailed) | .108 | .299 | .490 |
| Audit Committee size | Pearson Correlation | **.189***  | **.191***  | .158 |
|  | Sig. (2-tailed) | .020 | .019 | .054 |
| Audit Committee Independence | Pearson Correlation | **.244****  | **.278****  | **.293****  |
|  | Sig. (2-tailed) | .003 | .001 | .000 |
| Audit Independence (%) | Pearson Correlation | .054 | .087 | .146 |
|  | Sig. (2-tailed) | .510 | .291 | .074 |
| Board Committees | Pearson Correlation | -.138 | -.034 | -.070 |
|  | Sig. (2-tailed) | .093 | .678 | .397 |
| Board Meetings | Pearson Correlation | -.106 | -.105 | -.113 |
|  | Sig. (2-tailed) | .197 | .202 | .167 |
| CEO Duality | Pearson Correlation | .101 | -.020 | -.061 |
|  | Sig. (2-tailed) | .220 | .809 | .457 |
| Females | Pearson Correlation | .021 | -.049 | -.050 |
|  | Sig. (2-tailed) | .794 | .548 | .542 |
| Age | Pearson Correlation | **.163***  | **.172***  | **.277****  |
|  | Sig. (2-tailed) | .046 | .035 | .001 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

## T.7 Impact of corporate governance measures on ROA of firms

### T.7.1 Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .305[a] | .093 | .068 | 11.84682 |

### T.7.2.Coefficients[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -3.391 | 7.667 | | -.442 | .659 | | |
| | Board_size | -.775 | .436 | -.154 | -1.777 | .078 | .836 | 1.196 |
| | Audit size | 2.626 | .854 | .279 | 3.074 | .003 | .761 | 1.315 |
| | Audit Independence | .117 | .060 | .170 | 1.967 | .051 | .838 | 1.194 |
| | Age | .081 | .038 | .170 | 2.099 | .038 | .957 | 1.045 |

a. Predictors: (Constant), Board size, Audit Committee size, Audit Committee Independence, Age of Company

b. Dependent Variable: ROA

## T.8 Impact of corporate governance measures on ROE of firms

### T.8.1.Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 2 | .391[a] | .153 | .130 | 22.19144 |

**T.8.2. Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 2 | (Constant) | -4.089 | 14.361 | | -.285 | .776 | | |
| | Board_size | -2.749 | .817 | -.281 | -3.363 | .001 | .836 | 1.196 |
| | Audit size | 6.206 | 1.600 | .340 | 3.878 | .000 | .761 | 1.315 |
| | Audit Independence | .313 | .112 | .235 | 2.808 | .006 | .838 | 1.194 |
| | Age | .184 | .072 | .200 | 2.561 | .011 | .957 | 1.045 |

a. Predictors: (Constant), Board  size, Audit Committee size,  Audit Committee Independence, Age of Company

b. Dependent Variable: ROE

## T.9 Impact of corporate governance measures on ROCE of firms

### T.9.1. Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 3 | .455[a] | .207 | .185 | 27.70334 |

**T.9.2.Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 3 | (Constant) | -19.872 | 17.928 | | -1.108 | .270 | | |
| | Board_size | -3.597 | 1.020 | -.285 | -3.525 | .001 | .836 | 1.196 |
| | Audit size | 7.416 | 1.998 | .315 | 3.712 | .000 | .761 | 1.315 |
| | Audit Independence | .499 | .139 | .290 | 3.584 | .000 | .838 | 1.194 |
| | Age | .369 | .090 | .310 | 4.102 | .000 | .957 | 1.045 |

a. Predictors: (Constant), Board    size, Audit Committee size,   Audit Committee Independence, Age of Company

b. Dependent Variable: ROCE

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