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Moderating Effect of Board Capital on the Board Characteristics and Market Performance Relationship: A Case from Manufactirng Sector of Pakistan

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ABSTRACT: *This study is primarily focused to determine the causal effect of board capital over the association among various board attributes like board dependence, CEO duality, managerial share ownership and market performance. Board capital which is usually referred to board incumbents' capabilities to advise and guide company management and also to have a check over their performance, varies among directors. We argue that professionally well-equipped and qualified members not only tend to be better human capital but can supervise and control management more effectively as well. Based on the data of 92 firms from the manufacturing sector of Pakistan listed at Pakistan Stock Exchange we established that stock market performance of firms is negatively affected by board attributes i.e. CEO duality and board dependence. However, this negative effect is restricted by intensity of board capital. We also determined that managerial ownership in the firm enhances its market performance and presence of board capital improves this relationship further. Findings of this study are congruent with the views that board capital in terms of outside directors' qualification and capabilities to exert control over management benefits the business.*

KEYWORDS: *Board dependence, Board capital, Chief executive officer, Managerial ownership,*

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I. INTRODUCTION

Agency theory is the foremosttheory,wherethe impact of board executives and managerial share ownership on market performance are subject to primary focus. Meckling (1976) emphasized that controlling and motivating forces moderate administrators' opportunistic activities.This study primarily explores the moderating influence of board characteristics on market performancein manufacturing sector of Pakistan.Previous studies have established that corporate governance can be measured through CEO duality, board size,working knowledge, outside executives and stakeholders.The keyobjective of this investigation is to stipulate scientific evidence about board attributes,board capital and market performance. Top management has critical role regardingcorporate governance to ensure that company workforce is congruent with capital providers' objectives.

External directors are precious in enhancing a board's advisory and pursuing capabilities. Acharya, et al. (2010) outlined that influential external directors can be precious while CEOs are less entrenched and decrease supervisor-shareholder organization charges which offended shareholder pursuits. Independent directors play an inevitable role and check over managements' performance and activities. A greaterratio of independent or outside directors on board makes the managements' performance supervision more robust.Although highly concentrated ownership may impede outside directors' control over performance, their presence posits positive impact on firms' performance. On board independent directors are considered to deal agency problems more effectively as they would be able to supervise self-interested motives of managersmore easily.Such establishment would eventually enhance firms' performances.

However, dependent upon board size, authoritative imbalances could be instigated between inside and outside board directors. Weisbach (1998) established the inefficient execution of a firm operations, when inside executives are suppressed and hindered by outside executives. Subsequently, the firms with perpetually poor earnings possess normally higher extent of outside executives on the board panel. The duality position in an organization means when a person is simultaneously Board Chairman (COB) and Chief Executive Officer (CEO) as well. The CEO will probably utilize his strength as board executive to choose incumbents of his prefer. There are two theories that support and reject the duality position in an employer which is agency theory and stewardship theory. Agency theory posits that an incumbent having a place in board of directors, like board

chairman and CEO as well, would highly likely to serve his own interest against the overall goals of firm. However, stewardship theory states that managers are self-responsible and don't need any check and balance.

This study basically investigates the extent of the relationship between board characteristics, board capital and market performance. The secondary objective is to suggest the listed manufacturing firms on Pakistan stock exchange to be effective in the market performance through the best corporate governance application.Quite extensive literature is available covering the effects of board capital on board characteristics and market performance in the context of Australia, China, Malaysia and some other countries. There are very few evidences found with the reference to Pakistan however, none of these studies as per our limited knowledge, were conducted with the moderating role of board capital. There was a need to explore the impact of board capital on the board characteristics and market performance in Pakistan using more specific statistical techniques because the trends are different country wide. We have used board capital as moderating variable in our current study.

We utilized a data set of listed firms in Pakistan stock exchange from 2008 - 2015 to investigate the association. The market performance will be our dependent variable. The explanatory variables in ourstudy include chief executive officer's duality (CEO), board dependence (DEP) and managerial share ownership (MSOWN). However, board independence/ board capital (CAP) will act as moderating variable.

H1: CEO duality has an impact on market performance.
H2: Managerial ownership has an impact on market performance.
H3: Board dependence has an impact on market performance.
H4: Impact of CEO duality on market performance, is moderated by board capital.
H5: Impact of Board dependence on market performance, is moderated by board capital.
H6: Impact of Managerial ownership on market performance, is moderated by board capital.

II. LITERATURE REVIEW

Nuria Reguera-Alvarado (2017)explored the interdependence between characteristics of independent or outside directors' and firm's financial performance with their tenure and multiple directorships. In their study characteristics of independent directorswere used as explanatory variable, while firm performance was taken as dependent variable for the period of 2008-12.Investor Responsibility Research Center (IRRC) was used as data source to collect the information about board directors. Their study showed the favorable interdependence between independent directors and firm performance in post sarbanse oxely (SOX) period. Jigao and Chan (2016) conducted a study and determined the relationship among board, independent executives, hierarchy and firm value with the evidences collected from China. Results suggestedthat the one way in which authorized independent managers could be beneficial to the organization is through their dependable observing of business affiars.

Rutledge and Lu (2016) evaluated the effect of CEO duality and board structure on financial performance of firms using the data from NASDAQ 100 Index with panels for correlation problem. Various significant associations were established from the study. Independent executive group overlay showed a significantly positive association with firm value. Elgiziry (2017) discovered, how corporate business leverage is influenced by corporate governance dimesons like ownership structure and board characteristics. In their research paper they used agency theory to support the ownership structure. The ownership structure and board characteristics played an important role in determining the Egyptian corporate financial leverage. Institutional and governmental ownership were significantly and positively linked to corporate leverage, whereas block holding, board female, and board size were found to be significantly butnegatively associated.Managerial share ownership increases the firm's leverage as stockholders become more inspired to deploy extensive level of debt to increase firm value, nevertheless the insignificant results could be credited to the low level of managerial influence. He alsoexaminedhow board ownership structure and board characteristics influences the corporate financial leverage. In their study, board characteristics were used as an explanatory variables and company leverage was dependent variable. Data was gathered from the stock exchange firms of Egypt for the period 2007-2011. Results revealed that board size played a significant role in formulating the degree of financial leverageand monitoring management. Large board panels proved more effective in monitoring the managers and to exert pressure on board to employ lower level of responsibility than the smaller panels. Guizani (2015)evaluated the role of outside directors on firm performance with the guiding impacts of the board administration structure and ownership. These results provided strong support to the governance with reference to the role played by external executives.

Arora (2016) examined the interdependence of firm's financial performance & board ownership and other corporate governance characteristics with the empirical evidence from India. The board capital, board size, board meetings were used as explanatory variables and firm performance was dependent variable. Dependence theory was used to support the independent director's findings. Samples were selected from twenty biggest firms of the manufacturing sector. Findings showed that there were negative association between company

performance and board characteristics. The more meetings, outside membership, and larger board were considered as exclusive affairs of the firm.

Wang and Yang (2016) depicted the association among board independence, and performance of corporations in China. Board independence & ownership structure were used as an autonomous factors and firm performance was response variable for the purpose of this study. Dependence theory was used to support the independent director's findings. In their study, the data was collected from 16,000 firms registered with stock exchange of China. The level of the board dependence had significant association with the company's performance, particularly in government owned well-ordered companies and in companies with less information monitoring costs and acquisition. That was due to the selection of autonomous executives, who were efficiently observing firm administration and maintain the objective of investor's wealth growth.

Goh. F., (2014) examined the association among panel independence, corporate governance, duality, and financial performance in family companies with the substantiation from the manufacturing business in Malaysia. In their study the CEO duality, control contestability, board independence & ownership structure were used as a predictor variables and firm performance was dependent variable. Dependence theory was used to support the independent director's findings and agency theory was to support ownership structure. Sample data was collected from family companies registered in the manufacturing produce directory in Malaysia stock exchange. Findings showed that instruments on firm performance were clarified from end to end moderating and casual examination. Board independence exerted an insignificant effect, whereas a high percentage of independent executives were insufficient control contestability to exercise operational firm monitoring.

Iftikhar and Yasir (2013) observed the association among board structure, CEO duality, and corporate fiscal performance. In their study the internal and external directors, managerial ownership, board size was used as an autonomous factors and firm performance was dependent factor. Dependence theory was used to support the independent director's findings and agency theory supported ownership structure. Data was collected from Karachi Stock Exchange's listed companies and sampling technique was used for this study was convenience sampling. There was a negative impact of executive and independent directors on corporate performance of companies in Pakistan. Because in Pakistan there is large pool of family owned businesses while external dominancy is dispirited.

Johl (2009) conducted a research to establish the relationship between board structure and firm performance with the confirmation from India's top firms. In this examination, inside administration structures were utilized as autonomous factors and firm execution wasdependent variable. Information was gathered from OSIRIS database and firms tested,were the top Indian firms recorded on the Bombay Stock Exchange by advertise capitalization. By supporting the view that more noteworthy experience to the outer condition enhances access to numerous capital sources and decidedly impacts on performance. The investigation however neglected to bolster the asset reliance hypothesis as far as the connection between recurrence of executive gatherings and performance.

However, the outside administrators may not be the vital systems administration contacts that were important to produce benefits to the protest. One likely purpose behind this assessment is the restricted pool of outer chiefs with the correct information in India. In gathering, Indian firms particularly family claimed business may either acquire the correct individuals on board in respect of conceivable loss of control.

Another examination explored the connection amongcorporategovernance mechanismand financial performance (Bhagat &Bolton, 2008). In their investigation, corporate governance was utilized as anindependent variable and firm performance was dependent variable. Asset reliance hypothesis upheld the proprietorship discoveries. President seat division and ownership of board individuals were essentially and decidedly related with better resulting and synchronous powerful performance. Curiously, board freedom contrarily corresponded with resulting and synchronous compelling performance.

Nowak (2008) explored the impact of independent executive on company executives. Board of directors was dependent variable and independent directors were used as an independent variable in this research. A qualitative technique was used as grounded research approach and thirty executives of Australian public registered firms were questioned. Results indicated that the management influenced a mainstream of non-executive directors for equalization of energy in the administration alliance. The contrast between Non-ExecutiveDirectors (NEDs), NEDs who are not free, and who are additionally autonomous executives, was highlighted as a vital distinction. These outcomes were supported to resource dependence theory. The capacity for board individuals to think autonomously apparently was enhanced, yet not really shielded, with greater part participation of NEDs. All things considered, a standard of free personalities passed on various realities of view was seen to decrease the board room hazard of "bunch think."

Shakir (2004) investigated the association among the executive directors, size of the board and real estate firms'performance in Malaysia. In this study board size, executive directors, independent directors were used as an independent variable and firm performance was dependent variable. Sample comprised of 81 listed companies' panel data for the period of 1999 to 2005. The samples consisted of companies listed under the

assets area on the board of the Stock Exchange of Kuala Lumpur (KLSE). Therewas significant interdependencebetween property firm'sperformance, Board Size, and Executive Directors.

III. METHODOLOGY

Following theoretical framework is proposed in figure 3.1.

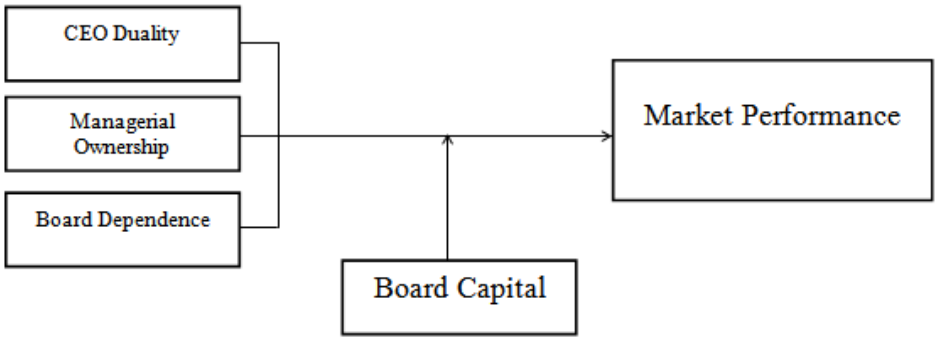

Figure 3.1: Theoretical framework for proposed model with moderating variable.

Data was taken of all listed manufacturing concerns on Pakistan Stock Exchange for the period of 2008-2015 for this study.Annual Reports were used to collect data about financial performance and corporate governance mechanism i.e. data about ownership structure and board of directors. We choose 2015 as the last year of the sample time frame. Subsequently, our final dataset comprised of 92 firms, for 8 years. The aggregate number of firm-year observations was 736 for the stated sample period.The data has been analyzed through E-views software version 8.

In this study to test the hypotheses we proposed the following multiple regression model given in equation (1).

$$PERFORM = \alpha_1 + \beta_1 DUALITY + \beta_2 DEP + \beta_3 MSOWN + \beta_4 ASSETS + \beta_5 BZISE + \beta_6 INST + \beta_7 DEBT + \beta_8 StdDEV\Delta oI + \beta_9 MTGS + \beta_{10} Auditor + \beta_{11} AUDSIZE + \beta_{12} AUDMEET + \beta_{13} AUDIND + \beta_{14} COMPSIZE + \beta_{15} COMPMEET + \beta_{16} COMPIND + \beta_{17} \Delta EBITD + \varepsilon \quad \ldots(1)$$

The equation (1) enabled us to determine the impact of explanatory variables i.e. DUALITY, DEP, MSOWN, BSIZE, MEETINGS and FIRMSIZE on firm's performance.

The moderating variable strengthens or mitigate the relation among the predictor and response variable. The board capital as moderating variable is a variable that could strengthenor mitigate the causality between the board attributes and market performance. In this examination, the board capital lessens the negative impacts of CEO duality and board dependence as well. Managerial share ownership positively affects market performance by strength of board dependence(Gani & Jermias, 2006).

We have used the following regression model including the moderator variable for hypothesis testing.

$$PERFORM = \alpha_1 + \beta_1 DUALITY + \beta_2 DEP + \beta_3 MSOWN + \beta_4 CAP * DUALITY + \beta_5 CAP * DEP + \beta_6 CAP * MSOWN + \beta_7 INST + \beta_8 DEBT + \beta_{10} StdDEV\Delta oI + \beta_{11} MTGS + \beta_{12} Auditor + \beta_{13} COMPSIZE + \beta_{14} COMPMEET + \beta_{15} AUDIND + \beta_{16} AUDSIZE + \beta_{17} AUDMEET + \beta_{18} COMPIND + \beta_{17} AUDIND + \beta_{19} \Delta EBITD + \beta_{20} ASSETS + \beta_{21} BSIZE\varepsilon \quad \ldots(2)$$

We used board capital to analyze the connection amongst board characteristics factors and firm market performance. Our estimation produced consistent OLS regression estimates. We have applied Jarque-Bera test for testing the normality, the correlation matrix to check multicollinearity, BPG test for heteroscedasticity test of our samples data. Despite the multiple linear regression analysis, the Hausman test was also applied for testing random and fixed effects.

3.1 Measurement of the variables

Variables	**Calculation**
PEFORMANCE	The market value of Firm / Total Assets
DEP	Number of Inside Directors / Total number of directors on the board
DUALITY	A binary variable with 1 if duality exist and 0 otherwise.
MSOWN	Ordinary shares owned by management / Total Ordinary shares outstanding
CAP	The number of directors who also serve as a CEO/board of directors firms/university Professor/government

	officer divided by total numbers of directors on the board
CAP*DUALITY	The number of directors who also serve as a CEO/board of directors firms/universityprofessor/government officer divided by total numbers of directors on the board *DUALITY
CAP*DEP	The number of directors who also serve as a CEO/board of directors firms/university professor/government officer divided by total numbers of directors on the board *DEP
CAP*MSOWN	The number of directors who also serve as a CEO/board of directors firms/universityprofessor/government officer divided by total numbers of directors on the board * MSOWN
INST	The ratio of No. of shares owned by institutional shareholders / total outstanding common shares.
DEBT	The ratio of Total debt / Total assets.
StdDEV	The standard deviation of changes in operating income.Current year income – previous year income
MTGS	The number of board meetings held during the year
	Is an indicator of whether a firm is audited by a big-four audit firm or not (Auditor is equal to 1 if the firm is audited by a big-four accounting firm and 0 otherwise)firm is audited by a big company = 1 firm is not audited by a big= 0
AUDITOR	**Big 4 Audit Firms in Pakistan** • 1. A.F Ferguson & Co. • 2. KPMG Taseer Hadi And Co. • 3. Ernst & Young. 4. Anjum Asim Shahid Rehman
COMPSIZE	The number of members on the compensation committee.
COMPMEET	The number of compensation committee meetings
AUDIND	The ratio of # of Outsiders directors / Total number of members on the audit committee
AUDSIZE	The number of members on the audit committee.
AUDMEET	The total number of audit committee meetings in a year
COMPIND	The ratio of No. of outside directors / Total number of members on the compensation committee.
EBIT	The change in earnings before interest, tax, depreciation and amortization (EBITDA).
ASSETS	A logarithmic function of the firm's total assets.
BSIZE	The total number of directors on the board

3.2 Descriptive characteristics of the sample data

The descriptive characteristics of 736 samples observations were shown in table 1.

Table 1: Descriptive characteristics of the samples data

Variable	Mean	Std. Dev.	Skewness	Kurtosis
PERFORMANCE	0.042	0.650	0.258	3.345
DEP	0.387	0.163	0.614	3.594
DUALITY	0.773	0.419	-1.305	2.703
MSOWN	0.002	0.006	9.154	97.781
CAP	0.599	0.154	-0.730	3.764
CAP*DUALITY	0.474	0.289	-0.680	2.050
CAP*DEP	0.201	0.049	-0.853	3.108
CAP*MSOWN	0.001	0.003	9.210	102.818
INST	0.808	0.231	5.243	98.715
DEBT	0.973	5.160	11.215	157.132
StdDEV	5.545	1.039	0.201	3.926
MTGS	5.475	1.567	1.256	4.479
AUDITOR	0.534	0.499	-0.137	1.019
COMPSIZE	3.527	0.720	1.448	5.208
COMPMEET	5.538	1.597	1.319	4.664
AUDIND	1.242	0.535	-0.035	2.634
AUDSIZE	3.316	0.800	1.632	7.212
AUDMEET	1.328	0.856	5.439	40.971
COMPIND	4.082	1.626	0.234	3.081
EBIT	1.507	10.148	11.679	154.887
ASSETS	7.757	1.190	0.312	1.978
BSIZE	7.760	0.974	1.677	6.697

Source: *Calculated from the samples data using E-views software.*

3.3Multivariate normality of residuals

For checking the normality of each response and predictor variables we have plotted histogram of the fitted residuals which is a precise illustrationfor the dissemination of numerical information. It is used to estimatethe distribution of a constant or quantitative variableand was first presented by Karl Pearson. Also,Jarque–Bera test was applied that determines and ensures the skewness and kurtosis matching of the sample data to the normal distribution. The test was named after Jarque and Bera. The formula of test statistic is mentioned below.

$$JB = \frac{n-k+1}{6}\left(S^2 + \frac{1}{4}(C-3)^2 \right)$$

where n stands for total observationsin number (or degrees of freedom in general); S is the skewness of sample data,sample's kurtosis is denoted by C, and k applies the number of predictors.

$$S = \frac{\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^3}{\left[\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2\right]^{3/2}} \quad \text{and} \quad C = \frac{\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^4}{\left[\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2\right]^2}$$

Following figure3.3, shows both the graphical and numerical status regarding normality of the variable performance which was taken as dependent variable in our study.

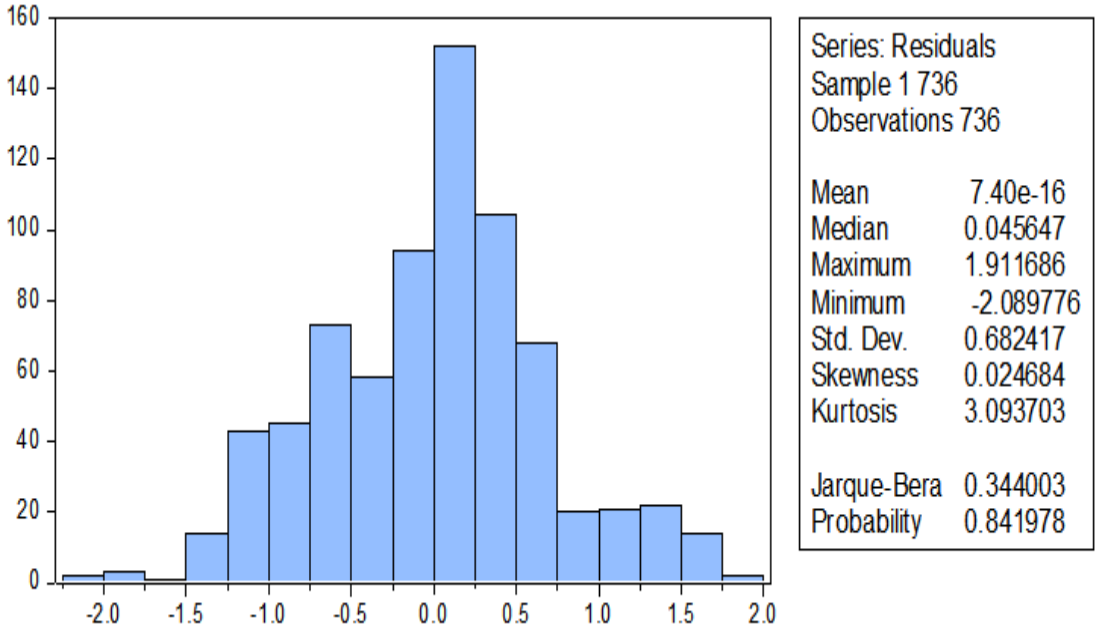

Figure 3.2:Normality of the samples data

Reference to figure 3.2, the Jarque-Bera statistic value was found to be 0.344, its corresponding p-value is equal to the 0.841 which is greater than the critical (significance) value 0.05. Hence, the residuals were determined to be statistically significant by fulfilling the condition of the Jarque-Bera test. It simply means that the samples data was normally distributed.

3.4Detection of multicollinearity

Classical linear regression model considers that explanatory variables should not linearly correlated with each other as its core assumption i.e.,

$$r(x_i, x_j) = 0 \; i \neq j$$

Where, r is the correlation coefficient correlation (discussed in section 3.6.1), i denotes the first predictor and j denotes the second predictor.

Table 2 explores that the correlation coefficient among the independent variables and hence depicted no multicollinearity between them.

Table 2: Correlation between the predictors including control variables

Variable	DEP	DUALITY	MSOWN	CAP	CAP*DUALITY	CAP*DEP	CAP*MSOWN	INST	DEBT	StdDEV	MTGS	AUDITOR	COMPSIZE	COMPMEET	AUDIND	AUDSIZE	AUDMEET	COMPIND	EBIT	ASSETS	BSIZE
DEP	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DUALITY	0.11	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MSOWN	-0.03	0.07	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CAP	-0.17	-0.95	0.16	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CAP*DUALITY	-0.02	-0.49	0.89	-0.08	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CAP*DEP	0.1	0.46	0.03	0.11	-0.31	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CAP*MSOWN	-0.04	0.03	-0.04	0.99	-0.03	-0.05	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
INST	-0.02	-0.06	0.1	0.3	0.04	0.12	-0.16	1	–	–	–	–	–	–	–	–	–	–	–	–	–
DEBT	0.02	0.02	-0.05	-0.03	0.4	-0.05	0.1	-0.03	1	–	–	–	–	–	–	–	–	–	–	–	–
StdDEV	-0.03	0.03	0.05	-0.03	-0.03	0.05	0.11	-0.04	-0.08	1	–	–	–	–	–	–	–	–	–	–	–
MTGS	-0.06	0.24	0.13	0.07	0.07	0.15	0.06	0.06	0.07	0.02	1	–	–	–	–	–	–	–	–	–	–
AUDITOR	-0.14	-0.07	0.14	0.04	0.04	0.18	-0.01	0.06	0.11	-0.05	-0.04	1	–	–	–	–	–	–	–	–	–
COMPSIZE	-0.09	0.02	-0.04	0.04	-0.04	-0.05	0.07	0.05	0.01	-0.06	-0.03	-0.06	1	–	–	–	–	–	–	–	–
COMPMEET	-0.03	0.06	0.12	0.07	0.06	0.14	0.06	0.06	0.08	0.02	0.02	0.99	0.24	1	–	–	–	–	–	–	–
AUDIND	-0.11	-0.37	0.08	-0.11	0.43	0.23	-0.06	-0.09	0.04	0.12	0.08	0.01	0.04	-0.34	1	–	–	–	–	–	–
AUDSIZE	0.01	-0.01	0.07	0.19	0.04	0.09	0.11	0.19	-0.03	-0.01	-0.03	0.18	0.2	0.27	0.18	1	–	–	–	–	–
AUDMEET	-0.02	0.24	-0.17	-0.03	0.02	-0.13	0.02	-0.02	0.02	0.23	-0.05	0.03	-0.02	0.01	0.02	0.08	1	–	–	–	–
COMPIND	-0.06	-0.55	0.12	-0.06	0.58	0.33	-0.19	-0.04	-0.02	-0.12	0.03	0.04	0.05	-0.02	0.03	0.31	0.04	1	–	–	–
EBIT	0.09	0.06	0.1	-0.03	-0.02	-0.01	0.15	-0.03	0.01	0.62	0.01	0.13	0.03	0.1	0.15	0.09	0.03	0.16	1	–	–
ASSETS	-0.05	-0.04	0.02	-0.12	0.08	0.03	0.06	-0.11	-0.06	0.08	0.39	0.07	-0.19	-0.11	0.06	0.15	-0.12	0.08	0.05	1	–
BSIZE	-0.08	0.1	0.03	-0.07	0.04	0.06	0.08	-0.07	0.08	-0.04	0.05	0.08	0.22	0.16	0.05	0.09	0.34	0.12	0.27	-0.01	1

3.5Detection of heteroscedasticity for the study variables

In the classical linear regression model, one of the assumptions is that the variance of each disturbance term U_i in a regression model is homoscedastic or constant. If this assumption is violated the condition is called Heteroscedasticity. Symbolically,

$$E\left(U_i^2\right) \neq \delta^2 \qquad \forall\ i = 1,2,\ldots,n$$

3.5.1Breusch-Pagan-Godfrey (BPG) test

The Breusch Pagan Godfrey test was applied to check the heteroskedasticity in the data. The statistics in the table below showedthat there was no heteroscedasticity present is our data.

Table 3: Estimates for Breusch Pagan Godfrey (BPG) test

PERFORMANCE	Coefficient	Std. Error	t-statistic	*p*-value
DEP	-0.894885	0.607907	-1.472075	0.0114*
DUALITY	-1.081228	0.597266	1.810296	0.0507
MSOWN	0.201193	0.215050	0.935564	0.0498*
CAP	45.02237	24.29290	1.853314	0.0443*
CAP*DUALITY	2.186761	0.731946	2.987599	0.0029**
CAP*DEP	-0.204312	0.368756	-0.554058	0.0397*
CAP*MSOWN	-0.716976	0.638352	1.123167	0.0217*
INST	82.18618	45.43069	-1.809045	0.0309*
DEBT	0.232136	0.100811	2.302678	0.0216*
StdDEV	0.003906	0.005660	0.690103	0.4904
MTGS	-0.278756	0.094158	-2.960510	0.0032**
AUDITOR	0.017985	0.051423	0.349742	0.0266*
COMPSIZE	-0.068988	0.035148	-1.962814	0.0501
COMPMEET	0.261707	0.092799	2.820160	0.0049*
AUDIND	0.089025	0.051646	1.723748	0.0452*
AUDSIZE	-0.079150	0.032445	-2.439550	0.0149*
AUDMEET	-0.112229	0.041609	-2.697193	0.1172
COMPIND	-0.102494	0.027434	-3.736012	0.0002**
EBIT	-0.003066	0.002919	-1.050240	0.0240*
ASSETS	-0.022343	0.019643	-1.137425	0.0157*
BSIZE	0.040981	0.030353	1.350125	0.0074**

f-statistic = 3.77 (*p-value* = 0.05714), R-squared = 71.598%, S.E of regression = 0.595

Note: *, **significant at 5% level (2-tailed) and 1% level (2-tailed).

IV. RESULTS AND DISCUSSION

For a sample of 736 observations, the table 5 shows the regression estimates and the standard errors are presented in parenthesis for the proposed model i.e., equation (1). Here, the response variable is market performance. The table below also displayed the overall mean and p-value for all the variables in the regression equation.

Table 4: Regression without moderating variable analysis for the proposed model

Variables	Coefficient	Std. Error	t-statistic	*p*-value
Constant	0.490	0.308	1.591	0.112
DEP	-0.885	0.201	4.394	<0.0001**
DUALITY	-0.272	0.056	4.822	0.030*
MSOWN	5.804	3.748	-1.549	0.012*
INST	0.001	0.100	0.011	0.021*
DEBT	-0.005	0.006	-0.851	0.035*
StdDEV	0.060	0.030	1.429	0.047*
MTGS	-0.530	0.092	-5.736	<0.0001**
AUDITOR	-0.204	0.049	-4.114	<0.0001**
COMPZISE	-0.102	0.035	-2.892	0.004**
COMPMEET	0.498	0.091	5.448	<0.0001**
AUDIND	-0.139	0.052	-2.693	0.007**
AUDSIZE	0.064	0.033	1.947	0.052
AUDMEET	0.104	0.040	2.591	0.010**
COMPIND	0.076	0.026	2.932	0.004**
EBIT	0.005	0.003	1.799	0.073
ASSETS	-0.049	0.020	-2.455	0.014*
BSIZE	-0.063	0.030	-2.074	0.038*

f-statistic = 7.942 (*p*-value= <0.0015), R-squared = 45.091%, S.E of regression = 0.605
Note: *, **significant at 5% level (2-tailed) and 1% level (2-tailed).

Table 4 displays the regression estimates for the proposed model. We determined the beta coefficient for the variable board dependence as -0.885 (0.201). The t-test statistic value was found to be 4.394 with a corresponding highly significant p-value <0.0001. This means that the board dependence has significantly negative impact on market performance.

Fixed effects and random effects model in the panel data are distinguished through the use of Hausman test. In this case, random effects (RE) is preferred under the null hypothesis due to higher efficiency, while under the alternative, fixed effects (FE) is at least consistent and thus preferred.

After Hausman Test we applied estimates of Fixed Effect Model for the data to interpret the results.

Table 5: Estimates for Hausman Test

Test Summary	Chi-sq. statistics	Chi-sq. d.f	p-value
Panel data	11.6392	2	0.0031

Table 6: Estimates for fixed effects test

Variables	Coefficient	Std. Error	t-statistic	*p*-value
Constant	5.970	1.934	3.087	0.003*
DEP	-0.554	0.068	8.096	<0.0001**
DUALITY	-0.709	0.340	-2.088	0.039*
MSOWN	0.257	0.124	2.075	0.040*
CAP	14.232	114.966	0.124	0.002*
CAP*DUALITY	0.481	2.541	0.189	0.040*
CAP*DEP	0.219	0.784	0.280	0.030*
CAP*MSOWN	1.605	2.359	0.680	0.048*
INST	49.914	220.214	0.227	0.021*
DEBT	-0.641	0.453	-1.416	0.159
StdDEV	0.009	0.056	0.163	0.871
MTGS	5.545	1.567	1.289	0.002*
AUDITOR	0.534	0.477	0.340	0.005*
COMPSIZE	-0.249	0.496	-0.502	0.026*
COMPMEET	-0.070	0.159	-0.439	0.042*
AUDIND	-0.014	0.068	-0.202	0.030*
AUDSIZE	-0.015	0.128	-0.113	0.030*
AUDMEET	0.122	0.223	0.545	0.037*
COMPIND	-1.263	0.658	-1.920	0.057*

EBIT	-0.280	0.267	-1.049	0.026*
ASSETS	-0.010	0.047	-0.211	0.034*
BSIZE	-0.488	0.100	-4.856	<0.0001**

f-statistic = 9.99 (*p*-value= <0.0015), R-squared = 75.27%, S.E of regression = 0.458
Note: *, **significant at 5% level (2-tailed) and 1% level (2-tailed).

V. CONCLUSION

This investigation proposed a theoretical structure on the managerial ownership, board capital, CEO duality, board dependence, and market performance relationship. We used a reconciliation of agency theory, stewardship theory and resource dependencetheory to build up our hypotheses. In this study we utilizedthe data set of manufacturing firms registered on the Pakistan stock exchange from the period 2008 to 2015 to understand the associationamong board capital, managerial ownership, CEO duality, board dependence, and market performance. Final samples comprised of 92 firms of the manufacturing sector of Pakistan stock exchanges. It was found in our investigation that the resource dependence theory is sustenance on account of independent executives, as there is notable relationship between the ratio of independent executives over the board and market performance. This finding could be ascribed to the adequacy of the independent directors who might be charming towards the administration who got them on the board, therefore strengthen the observing part of independent executives.

Managerial ownership had a positive and significant impact on market performance by strengthening the board capital with the percentage of independent executives.Managerial ownership itself also had positive and significant impact on market performance. CEO duality had a significant negative impact on market performance. This negativity is mitigated by the board capital with the percentage of independent executives. Board dependence had a significant and negative association with market performance. The negativity of board dependence is mitigated by the board capital. These outcomes may imitate the nature of business firms in Pakistan where they may have CEO duality of influential positions of CEO and executive parts. The strategy suggestion coming from this outcome could be to make it necessary for Pakistani firms to have an independent executive as director.

We gathered data through openly accessible information sources, for example, financial statements and other official websites. Reliable data about inside and outside number of directors were collected from the annual reports. Large size of samples should have been considered in the study.Independent variables as a part of this investigation are exceptionally restricted to board mechanism and structureand will most likely be unable to give proof of other conceivable elements that may influence market performance.In future investigation, it is recommended to deliberate the longitudinal examination which involve more time period to acquire more accurate findings. It is also recommended to incorporate multiple countries data of independent factors such as managerial ownership and board capital in order to explore the general effect on market performance.

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