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## RESEARCH ARTICLE

# BOARD SIZE AND BOARD COMPOSITION EFFECTS ON FINANCIAL PERFORMANCE: EVIDENCE FROM BANKING SECTOR OF PAKISTAN

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### ABSTRACT

The research was designed to conduct to identify the board size and board composition effects on Financial Performance in Banking Sector of Pakistan having Board Composition i.e. Independent Director, Board Size and Total number of directors on Board as depending variable, Leverage and Size of Banks as Control Variable whereas the independent variables was Financial Performance i.e. Return on Assets and Return on Equity. A total of 174 responses were gathered through secondary sources for the analysis of the study. The time horizon of the proposed research was "cross sectional" in nature because of the limited time available to complete the study and recourse constraint. The unit of analysis used in proposed study will be each financial banks listed at Karachi stock exchange in KSE-100 index. These units was represented all of the banks at Karachi stock exchanges.

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## 1. INTRODUCTION

The most prudent and recognized theoretical perspective implied in corporate governance studies is the standard agency theory. In modern firms where as soon as firms become listed to acquire equity financing, the control and ownership become two distinct concepts. Consequently the modern financial and nonfinancial firms have several owners or shareholders (Fama and Jensen, 1983). Shareholders are regarded as the principals while management is regarded as agent. The executive or directors are compelled to direct the decision making behavior towards maximizing the returns for the shareholders. However this separation of control and ownership cause conflict of interest between shareholders and management. This conflict of interest is termed as agency problem in previous theories expounded in the corporate governance base literature (Jensen, 1993). Therefore to address and align the interest of principal and agent agency theory advocate, the presence of affective corporate governance practices which include dominantly the appointment of a board of director. Agency theory has the major assumption that the management of the firm is controlled and directed by the board of director. Therefore the composition of corporate board (no of independent and dependent directors) and board size have immense importance

as a pivotal determinant of corporate governance (Cheng, 2008). Corporate governance address the process and system through which the policies and key issues of the companies are directed and controlled (Fama & Jensen, 1983). There are different dimensions of a corporate board such as board composition, board size, CEO duality, CEO compensation and frequency of corporate board meetings.

### 1.2 Problem statement

Based on the substantive literature review the proposed study plan to identify and empirically determine the relationship and impact of board composition and board size on banks financial performance in Pakistan. The proposed study take in dual objective to determine that whether it is board composition or board size which most significantly or insignificantly affect the banks financial performance. The proposed study will expectantly contribute to the growing field of literature on mitigating agency problem broadly and board relationship with firm financial performance substantively.

### 1.3 Research Objectives and Research Questions

**1:** To what extent the corporate board composition is related to the banks financial performance in the banking industry of Pakistan.

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**2:** To what extent the corporate board size are related to the banks financial performance in the banking industry of Pakistan.

#### 1.4 Significance of the Study

The rationale behind the present study is to identify and empirically determine the impact of board composition and board size on banks financial performance in Pakistan. The proposed study encompasses twofold objective to determine that whether it is board composition or board size which most significantly or insignificantly affect the banks financial performance. The proposed study will hopefully add to the growing field of literature on mitigating agency problem generally and board relationship with banks financial performance specifically. On the basis of substantive literature review the proposed study deduced certain hypothesis to address the issue. The previous studies disclose divergent findings by using the data set from different contextual settings (Adams & Mehran, 2012; Bhagat & Black, 1999; Rashid *et al.*, 2010).

#### Literature review

Corporate governance is an area which offer many dimension for hypothetical testing to gauge its effect on the corporation. The dependence of the firm financial performance on corporate governance is evidenced by numerous scholars such as Yasser *et al.* (2011). In their study different dimensions of corporate governess are taken as explanatory variable to gauge the effect on firm performance which is measured by taking two proxies such as ROA & Profit Margin. While studying the board composition and ownership structure effect on the firm performance Bhagat& Black (1999) and Shah *et al.* (2011) reveal varying empirical findings. Shah *et al.* (2011) confirm positive correlations between corporate governance and the firm performance. On the other hand Bhagat& Black (1999) conclude that there is no such relationship among ownership structure, board composition on firm performance. The corporate governess mechanisms prevailing in Pakistan are researched by Ibrahim *et al.* (2010). In this study various mechanism of corporate governess such as size of the board, audit committee structure, board composition and duality of CEO are used as a explanatory to gauge the dependence of firm performance in chemical and pharmaceutical of Pakistan. Return on asset and return on equity are used as two proxies for measuring firm performance. Result shows that there is a significant impact of corporate governance on ROE, while insignificant impact on ROA.

#### Board Composition

A corporate board contains mainly a configuration of executive and non executive director, which are authorized to direct and regulate the issues of governess on behalf of all stakeholders (Shah *et al.*, 2011). Executive and non Executive director are also termed as dependent and independent director respectively. There is a continuing debate over the question that what will be the ratio of an independent and dependent director in a corporate board?

#### Independent board

A board composed of member having no direct relationship with the company is termed as impendent board (Gallo, 2005). The independent director is considered to have no ties to the firm in any way; therefore there is minimum chance of having a conflict of interest between principal and agent, because independent directors have no material interests in a company. According to Dalton, Daily, Ellstrand, and Johnson (1998) "independent directors are essential because inside or dependent directors may have no access to information and resources of external world that are enjoyed by outside or independent directors". Recently there is a trend towards corporate board with more independent director to independently monitor and elevate the agency problem faced by organization.

#### Dependent board

A board composed of member having direct ties with the organization for which they are subjected to receive direct benefit (salary, perks and other benefits). These board members are at the top key post of the organization and having vibrant knowledge of inside processes of the organization (Beasley, 1996). The puzzle with this type of corporate board is perceived as, giving the priority to self interest instead the best interest of organization.

The previous studies such as Yasser *et al.* (2011) revealed that the relationship between corporate board composition and firm performance document a positive and significant relationship which is measured by ROA and ROE. Beside econometric equation the empirical technique employed in this study was the, Pearson correlation model, ANOVA and most frequently used descriptive statistics. There finding reveal that ROE is positively correlated with the firm's board size the Various other studies regarding the board composition and firm performance hold the view that there is a positive effect of board composition on the firm financial performance (e.g., Ibrahim *et al.*, 2010; (Beasley, 1996); Htay, 2012; Shah *et al.*, 2011). The empirical techniques employed by the studies such as Htay, (2012) were OLS (Ordinary least square method). It is advocated by the empirical and theoretical studies that independent board effect the firm financial performance significantly. But on the other there is a negation of this view also such as (Bhagat and Black, 1999). The empirical method employed by (Bhagat and Black, 1999) was correlation and regression to assess the impact of board composition on the firm performance. Their findings shows that although there is a linkage between board composition and firm performance but the results were indicating a negative relationship of board composition with the firm financial performance. There is a varying view about the board composition with the firm financial performance. The divergence of results may be subjected due to various others firms and industry characteristics which also explain the behavior of the firm performance. Also there are the legal, ownership structure and culture, which are the important dimension of corporate governess are not homogeneous in all economies. Also most of the previous studies exclude the financial firms from there sample, so as result we know very little about financial firms

governance issues. So the aim of the current study is to empirically determine the dependence of firm financial performance on board size and composition. The context selected for the current study is Pakistani banking sector. The financial sector is selected due to the integration of financial institution around the globe. A mistake in one part of the financial world spread and can disturb the whole system. Therefore every country needs to converge its banking system with the international standards of good governance.

### Board Size

The next determinant of the corporate board is board size, which is also considered very important in governing the corporation effectively. The size of the governing board is considered a central figure in provoking coordination and communication problems faced by the board in decision making. It is revealed by the studies (e.g., Lipton and Lorsch, 1992; Jensen, 1993) that large board size initially facilitates key board functions but when the board become more diffuse, the coordination and communication problems arise and ultimately the firm performance is affected. Prudent scholars have the view that corporate board size should be not more than 8 or 9 member for all firms (e.g., Lipton and Lorsch, 1992; Jensen, 1993). The empirical toll used by these studies for the data analysis were OLS (Ordinary least square) and other panel data model such as random effect, common effect model were employed. However there are also studies which conclude contradictory views about the effect corporate BOD size and its influence on the firm's financial performance. However this is not the last verdict which should be employed in all settings. A number of recent studies (Lehn *et al.*, 2004; Boone *et al.*, 2007; Guest, 2008) delineate that board size is subject to firm specific characteristics and the effect of board size on firm performance is determined by the firm specific variables. According to (Htay, 2012) the smaller board size is positively related to bank financial performance, measured by return on asset and return of equity. According to Htay (2012), the board size is also positively related to financial performance. The empirical tests employed in this study were, (generalized least square method) GLS. The method is used because the data taken as sample is not normally distributed and the data has either heteroscedasticity problem, autocorrelation problem or both since this method will overcome entire problem. The previous studies expounded in the literature report mixed result about the effect of board size on firm performance. Studies such as (Mak and Kusnadi, 2004; Yermack, 1996) support the view that there is a negative dependency of firm performance on board size. Their findings report that there is a negative relationship between board size and firm financial performance. The board size is also subject to many other variables such as the firm size, firm complexity and other contextual elements of the respective organization.

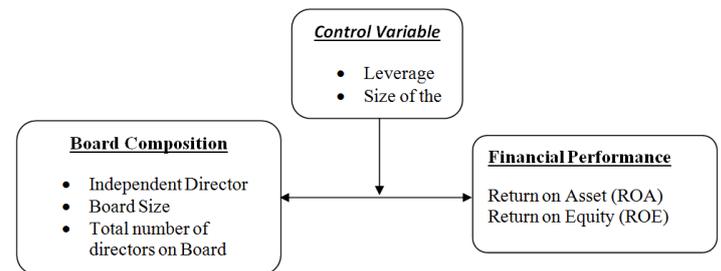
### Firm Performance

The performance of the firm is the most widely used variable by the researcher to know the effect of various corporate governance mechanisms on corporation. The empirical studies in the previous literature shows the two type of performance measure i.e., accounting base measure and market base

measure. Accounting base measure mainly contains the measure of Return on Asset, Return on Equity, and profit margin. The previous studies such as Matolcsy and Wright (2011) calculate the firm performance by ROA (EBIT / Average total Assets - in book value-), ROE (net profit / Equity - in book value). Market base measure of performance in the previous studies are Tobin's Q (market value of equity + book value of debt/total of assets - in book value -) and Marris ratio (Market value of equity/ book value of equity (Shah *et al.*, 2011).

### 3.1 Theoretical Framework of the study

On the basis of substantive literature review the proposed study proposed the following theoretical framework to identify and empirically determine the impact of board composition and board size on banks financial performance in Pakistan.



Source: (Adams and Mehran, 2012; Htay, 2012; Lipton and Lorsch, 1992; Rashid *et al.*, 2010; Shah *et al.*, 2011; Yasser *et al.*, 2011).

### 3.2 Research Hypothesis

A corporate board mainly compose of independent and dependent director, which are authorized to direct and regulate the issues of governance on behalf of all stakeholders (Adams and Mehran, 2012). The independent director is considered to have no direct relation to the firm in any way; therefore there is minimum likelihood chances of having a conflict of interest between principal and agent, because independent directors have no material interests in a company (Gallo, 2005). The efficacy of independent directors on firm financial performance is positively correlated is empirically evidence by various previous studies (Adams and Mehran, 2012; Cheng, 2008; Yasser, *et al.*, 2011). The dominant view about the affect of board composition and board size is positively correlated with the firm financial performance. However there are studies which neglect this view and hold that there is a insignificant and negative impact of board composition and board size on firm financial performance.

**H<sub>1a</sub>:** There is a positive association between independent directors and return on asset in banking sector of Pakistan.

**H<sub>1b</sub>:** There is a positive association between independent directors and return on equity in banking sector of Pakistan.

As an important element of corporate board, board size is intensively researched by various researchers. Previous studies advocate that board size may improve the firm financial performance (Adams and Mehran, 2012; Rashid, *et al.*, 2010; Shah, *et al.*, 2011; Yasser, *et al.*, 2011). A moderate size of corporate board is positively correlated with the firm financial

performance. The size of the board is central to provoke communication and coordination problem (Jensen, 1993; Lipton and Lorsch, 1992). Although initially large board size facilitate the organization with beneficial supporting services to execute the business plan but later it will affect the performance of the firm. Therefore due to diverse and contradictory empirical evidence expounded in the previous literature offer a gap for further empirical research regarding the phenomena of board size and its affect on firm financial performance in different contextual setting. Therefore the proposed research stream on the basis of previous literature develops the following hypothesis.

**H2<sub>a</sub>:** There is a positive association between board size and return on asset in banking sector of Pakistan.

**H2<sub>b</sub>:** There is a positive association between board size and return on equity in banking sector of Pakistan.

#### 4. MATERIALS AND METHODS

The time horizon of the proposed research was “cross sectional” in nature because of the limited time available to complete the study and recourse constraint. The unit of analysis used in proposed study will be each financial banks listed at Karachi stock exchange in KSE-100 index. These units was represented all of the banks at Karachi stock exchanges. The data source of the proposed study was about the annual reports of the respective banks listed on Karachi Stock Exchange (KSE100). The annual reports were made available thorough information about the key variable of the proposed study. The population or total group of elements about which the study plan to make some inferences will be banking sector of Pakistan. The proposed study will aim to employ a sample of 30 banks listed on KSE-100 index. The convenient sampling technique will be used, due to the limitations of resource, time and unavailability of data. Cross sectional panel data ranging from 2007- 2011 will be collected for secondary data analysis. The data for each bank over the time of 2007-2011 compile time series data. While the data for all the banks for all the years is the rational for employing panel data with a total of 150 observations (Gujarati, 2004). The relationships among explanatory variable and dependent variable will be estimated through OLS regression (ordinary least square method). Panel data model such as, fixed affect model and random affect models was used to conduct detail panel data analysis. The robustness of the results were statistically checked through Hausman specification test, specification test statistically determine which model batter explains the relationship and affect of board composition and board size on banks financial performance. E-Views 7 software was used for applying these econometric techniques to make detailed analysis.

##### Fixed Affect Model

$$ROA_{it} = \beta_1 i + \beta_2 INED_{it} + \beta_4 BDSIZE_{it} + \beta_8 BSZ_{it} + \beta_9 LEV_{it} + \mu_{it}$$

$$ROE_{it} = \beta_1 i + \beta_2 INED_{it} + \beta_4 BSZ_{it} + \beta_8 BSZ_{it} + \beta_9 LEV_{it} + \mu_{it}$$

##### Random Affect Model

$$ROA_{it} = \beta_1 + \beta_2 INED_{it} + \beta_4 BDSIZE_{it} + \beta_8 BSZ_{it} + \beta_9 LEV_{it} + \omega_{it}$$

$$ROE_{it} = \beta_1 + \beta_2 INED_{it} + \beta_4 BSZ_{it} + \beta_8 BSZ_{it} + \beta_9 LEV_{it} + \omega_{it}$$

Where:

**ROA**= EBIT (Net profit)/ Average total assets

**ROE**= EBIT (Net profit)/ Average total equity

**INED** = Proportion of Independent directors on the board

**BDSIZE** = Size of the corporate board i.e. total number of independent and dependent directors on the board

**BSZ** = Size of the bank, measured by log of total Assets

**LV** = Leverage of the firm, measured by total asset over total equity

After testing this general equation through fixed affect and random affect models, Hausman specification test will applied to check which model batter explains the relationship between explanatory variables and dependent variable.

#### 5. RESULTS AND DISCUSSION

The results & discussion chapter documents the outcomes of the major findings as they related to the objective of the empirical investigation. These findings on the basis of secondary data analysis will identify the causal relationship between the explanatory and dependent variable. The chapter serves a culmination of this empirical investigation.

**Table 5.1. Descriptive Statistics**

	IND DIR	SIZ BD	ROA	ROE	LEV	SIZE_BA NK
Mean	5.574713	8.080460	-0.086075	-3.698885	84.11860	25.31011
Median	6.000000	8.000000	0.586500	3.791500	89.49250	25.34339
Maximum	12.000000	13.000000	3.982000	28.57100	98.42500	28.10745
Minimum	1.000000	4.000000	-12.98100	-270.5510	18.85400	22.47368
Std. Dev.	2.148435	1.721798	2.511257	37.17848	14.75689	1.446710
Observations	174	174	174	174	174	174

Where:

**IND\_DIR** = Proportion o Independent director on the board

**SIZ\_BD** = Size of the corporate board

**ROA**= Return on Asset

**ROE**= Return on Equity

**SIZE\_BANK** = Size of the bank, measured by log of total Assets

**LEV** = Leverage of the firm, measured by total asset over total equity

Table 5.1 shows the summary statistics of the variables incorporated in the study. As there are 29 banks included in sample and the data was collected for 6 year such as from 2007 to 2012, so the total number of observations become 174. Moreover this table shows different statistical facts about data such as mean, medians, standers deviation. It also shows the minimum and maximum values of each variable. In case of proportion of independent director, the mean value (5.574713) shows on average, the sample banks have a high proportion of independent directors on corporate board size. Previous studies recommend that at least one of the board members on the board should be independent directors. Concerning with the size of corporate board the mean value (8.080460) shows that, on average the bank's boards have total number of directors. Previous studies such as (Klein, 1998) posit that a corporate

board size of companies should not more than 7 or 8 members, considered ideal in ensuring effectiveness. The means values of dependent variables i.e., return on asset (-0.086075) and return on equity (-3.698885). There is no such huge difference on the mean values of ROA and ROE for banks. Their amount of equity is quite equal compared to the amount of assets. As for the firm specific control variable the mean value of leverage and the size of the banks are (84.11860) and (25.31011) respectively.

pursue towards employing the GLS for validating the results base on common regression line.

Table 5.4 show an estimate of econometric equation through panel GLS (cross section weights weights). The independent directors and board size are the potential determinate of bank financial performance. By assigning the cross section weights estimated through generalized least square method the statistical values become significant.

**Table 5.2. Regression results of Return on Asset**

Dependent Variable: ROA Method: Panel Least Squares Total panel (balanced) observations: 174				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.159954	0.888977	-3.554595***	0.0005
BOARD_SIZE	0.278523	0.122100	2.281111**	0.0238
IND_DIRECTOR	0.147682	0.097853	1.509218	0.1331
R-squared	0.075500	Mean dependent var		-0.086075
Adjusted R-squared	0.064687	S.D. dependent var		2.511257
S.E. of regression	2.428676	Akaike info criterion		4.629661
Sum squared resid	1008.638	Schwarz criterion		4.684127
Log likelihood	-399.7805	Hannan-Quinn criter.		4.651756
F-statistic	6.982458	Durbin-Watson stat		1.042919
Prob(F-statistic)	0.001216			

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

Results in Table 5.2 show an estimate of econometric equation through panel common regression line. The regression line state that the board size is a potential determinant of firm financial performance measured as return on asset. However the t-statistic and probability reject our proposed hypothesis that independent directors have a significant impact on banks financial performance. Overall the R- squared of the model shows that (0.075500) percent variation in return on asset is due to the explanatory variable incorporated in the econometric equation. To validate the results of common regression line, the study pursue the reason of being low R squared value and insignificant relation of independent directors. The main obvious reason behind these insignificant results may be due to the size of the sample. Also the low size sample result in auto correlation and heteroscedasticity problem (Gujarati, 2004). Further the panel data have more periods for the same variable. The problem of additional periods for the same variable may also be the problem in cross section panel data result. The problem of heteroscedasticity prevails due to the reason that cross section weights are exceeding from the number of periods included. To validate that either the data either have these limitation the study employed the GLS (generalized least square method).

The Table 5.3 represents the result of regression line to estimate the dependence of banks financial performance on board size and independent directors. According to t-statistic and probability approach to signify the dependency of one variable on another reject the hypothesis that independent members of BOD and size of the board have a significant impact on banks financial performance. The return on equity an accounting base measure of performance show an insignificant casual relationship to both explanatory variables. The value of the R-squared is also very low (0.0122230). The study further

The t-value and p-value for board size are (4.53) and (0.000) respectively. Accordingly the independent directors on banks board are also pivotal for the financial performance of banks in Pakistan according to the table stated above. The t-value and p-value for board size are (4.29) and (0.000) respectively. Showing a strong casual relationship between the variable proposed in this study. Overall the R- squared of the model shows that (0.23 %). The Durbin Watson value is moving towards 2 which show that there is no such autocorrelation problem as was in the case of common regression line. The table above also signifies that simple regression line is biased towards the statistical result and GLS method best explain the relationship between explanatory variable and dependent variable.

**Table 5.3. Regression results of Return on Equity**

Dependent Variable: ROE Method: Panel Least Squares Total panel (balanced) observations: 174				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.64111	13.60397	-1.590794	0.1135
BOARD_SIZE	1.538731	1.868487	0.823517	0.4114
IND_DIRECTOR	0.988136	1.497442	0.659882	0.5102
R-squared	0.012230	Mean dependent var		-3.698885
Adjusted R-squared	0.000677	S.D. dependent var		37.17848
S.E. of regression	37.16590	Akaike info criterion		10.08575
Sum squared resid	236203.0	Schwarz criterion		10.14022
Log likelihood	-874.4604	Hannan-Quinn criter.		10.10785
F-statistic	1.058569	Durbin-Watson stat		1.019537
Prob(F-statistic)	0.349214			

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

**Table 5.4 Generalize least square (GLS) results of return on asset**

Dependent Variable: ROA  
Method: Panel EGLS (Cross-section weights)  
Total panel (balanced) observations: 174  
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.795708	0.367913	-4.88080***	0.0000
BOARD_SIZE	0.178760	0.039401	4.53695***	0.0000
IND_DIRECTOR	0.125317	0.029147	4.29950***	0.0000

Weighted Statistics			
R-squared	0.231938	Mean dependent var	0.812970
Adjusted R-squared	0.222955	S.D. dependent var	2.817841
S.E. of regression	2.245549	Sum squared resid	862.2656
F-statistic	25.81917	Durbin-Watson stat	1.130147
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.039242	Mean dependent var	-0.086075
Sum squared resid	1048.196	Durbin-Watson stat	0.991248

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

**Table 5.5 Generalize least square (GLS) results of return on equity**

Dependent Variable: ROE  
Method: Panel EGLS (Cross-section weights)  
Total panel (balanced) observations: 174  
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15.85005	3.828550	-4.13996***	0.0001
BOARD_SIZE	0.908061	0.476892	1.904125	0.0586
IND_DIRECTOR	1.657969	0.409035	4.05336***	0.0001

Weighted Statistics			
R-squared	0.149557	Mean dependent var	5.209742
Adjusted R-squared	0.139610	S.D. dependent var	36.09989
S.E. of regression	33.67825	Sum squared resid	193952.4
F-statistic	15.03584	Durbin-Watson stat	1.078897
Prob(F-statistic)	0.000001		

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

According to the Table 5.5 above showing the GLS results for board size and independent directors. The board size shows an insignificant causal relationship to return on equity of banks in Pakistan. While the proportion of independent directors on banks board have a potential casual relationship with banks financial performance. The t-statistic and p-value of the table signify the relationship accordingly. The R- squared of the model shows that (0.149 %) variation in explanatory variable is

due to the dependent variable. The Durbin Watson value is moving towards 2 which show that there is no such autocorrelation problem as was in the case of common regression line. By assigning the cross section weights estimated through GLS the statistical values become significant to the explanatory variable. The study also takes into account two control variables namely the banks size and leverage. The next section of the chapter presents the result in the presence of the control variable in econometric equation. Beside fixed affect panel data model the study also employed random affect model estimated through GLS. The next segment of the chapter state the random affect model results for the study.

**Table 5.6 Generalize least square (GLS) results of return on asset in the presence of Leverage**

Dependent Variable: ROA  
Method: Panel EGLS (Cross-section weights)  
Total panel (balanced) observations: 174  
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.550890	2.861833	-0.891348	0.3740
LEV	0.008766	0.032690	0.268137	0.7889
BOARD_SIZE	-1.444114	0.411232	-3.51167***	0.0006
IND_DIRECTOR	2.397652	0.525460	4.56295***	0.0000
BOARD_SIZE*LEV	0.017283	0.004479	3.85886***	0.0002
IND_DIRECTOR*LEV	-0.024376	0.005706	-4.27166***	0.0000

Weighted Statistics			
R-squared	0.294881	Mean dependent var	0.759191
Adjusted R-squared	0.273895	S.D. dependent var	2.810911
S.E. of regression	2.235711	Sum squared resid	839.7318
F-statistic	14.05154	Durbin-Watson stat	1.143938
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.064504	Mean dependent var	-0.086075
Sum squared resid	1020.636	Durbin-Watson stat	1.023142

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

The Table 5.6 states the GLS results by assigning cross section weights in the presence of leverage. The leverage was incorporated as the control variable in the model. The results of the table show that the leverage alone has no significant relationship with the return on asset, an accounting measure for financial performance.. According to t-value (3.851) and P-value (0.0060), the board size has a significant relationship with the return on asset. The independent directors in the presence of leverage also show a significant but negative inverse casual relationship with return on asset. The inclusion of leverage in the equation changes the nature of the relationship between the independent directors and return on asset. The inclusion of leverage in the econometric equation changes the nature of the relationship. Therefore it is reflected through data analysis that the relative debt and equity ratio affect the phenomena. As the leverage of the banks increase the independent director's play in important role to protect the

right of the shareholders. Also the interactive affect of leverage affect the board size and performance relationship. The leverage as a control variable seems have a potential affect in the causal relationship between variable selected for the study. The R- squared of the model shows that (0.29 %) variation in explanatory variable is due to the dependent variable. The Durbin Watson value is moving towards 2 which show that there is no such autocorrelation problem in the model. Table 5.7 Generalize least square (GLS) results of return on equity in the presence of Leverage.

**Table 5.7 Generalize least square (GLS) results of return on equity in the presence of Leverage**

Dependent Variable: ROE

Method: Panel EGLS (Cross-section weights)

Total panel (balanced) observations: 174

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.61213	27.70640	0.924412	0.3566
LEV	-0.532306	0.326090	-1.632393	0.1045
BOARD_SIZE	-8.056713	4.737796	-1.700519	0.0909
IND_DIRECTOR	5.051137	5.079965	0.994325	0.3215
BOARD_SIZE*LEV	0.115559	0.053396	2.16419* * *	0.0319
IND_DIRECTOR*LEV	-0.044062	0.057722	-0.763356	0.4463

Weighted Statistics

R-squared	0.190642	Mean dependent var	4.532030
Adjusted R-squared	0.166554	S.D. dependent var	32.89796
S.E. of regression	29.96280	Sum squared resid	150825.2
F-statistic	7.914395	Durbin-Watson stat	1.153483
Prob(F-statistic)	0.000001		

Unweighted Statistics

R-squared	-0.030838	Mean dependent var	-3.698885
Sum squared resid	246501.6	Durbin-Watson stat	0.991262

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

The results of the Table 5.7 show that the leverage alone has no significant relationship with the return on equity, an accounting measure for financial performance. According to t-value (2.16) and P-value (0.0310) approach to signify the relationship, the board size have a significant but relationship with the return on equity. The independent directors in the presence of leverage however show an insignificant casual relationship with return on equity. The result was consistent as was in before the inclusion of leverage in the econometric equation. Without the inclusion of leverage the dependency of return on equity was also insignificant. The R- squared of the model shows that (0.19 %) variation in explanatory variable is due to the dependent variable. The interaction of leverage and independent directors shows a highly significant relationship

with the return on equity. As the leverage of the bank increase the relationship of board size and independent directors goes significant with the bank operating performance. The comparative statistics of the Table 5.7 state significant values accordingly. The Durbin Watson value is moving towards 2 which show that there is no such autocorrelation problem in the model. The study also incorporate the size of the bank, measured as the log of total asset as a control variable in the study. The next table presents the result in the presence of size of the bank in econometric equation. According to fixed affect panel data model the proportion of independent directors on banks was the potential determinate of bank financial performance. By assigning the cross section weights estimated through generalized least square method the statistical values signify the causal relationship accordingly.

**Table 5.8 Generalize least square (GLS) results of return on asset in the presence of Bank size**

Dependent Variable: ROA

Method: Panel EGLS (Cross-section weights)

Total panel (balanced) observations: 174

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.521095	8.101912	-1.175166	0.2416
BANK_SIZE	0.322372	0.307896	1.047017	0.2966
BOARD_SIZE	-2.693069	1.155341	-2.33097* * *	0.0209
IND_DIRECTOR	3.044269	0.988059	3.08106* * *	0.0024
BOARD_SIZE*BANK_SIZE	0.108714	0.043892	2.47685* * *	0.0142
IND_DIRECTOR*BOARD_SIZE	-0.112577	0.037121	-3.03273* * *	0.0028

Weighted Statistics

R-squared	0.465929	Mean dependent var	1.532596
Adjusted R-squared	0.450034	S.D. dependent var	3.676602
S.E. of regression	2.121232	Sum squared resid	755.9368
F-statistic	29.31295	Durbin-Watson stat	1.167051
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.195197	Mean dependent var	-0.086075
Sum squared resid	878.0479	Durbin-Watson stat	1.110897

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

The table states the GLS results by assigning cross section weights in the presence of the size of the bank. The size of the banks was incorporated as the control variable in the model. The results of the table show that the size of the bank alone has no significant relationship with the return on asset, an

accounting measure for financial performance. However the inclusion of leverage in the equation changes the nature of the relationship between the independent directors and return on asset. According to t-value (-3.32) and P-value (0.00628), the independent directors have a significant but negative inverse relationship with the return on asset. The size of the board in the presence of control variable as size of the bank also shows a significant casual relationship with return on asset. The interactive affect of size with explanatory variable affect the operating performance of the banks. The independent directors with interaction of size show a significant but negative causal relationship with the operating performance of the firm. The R-squared of the model shows that (0.46 %) variation in explanatory variable is due to the dependent variable. The Durbin Watson value (1.16) is moving towards 2 which show that there is no such autocorrelation problem in the model.

**Table 5.9 Generalize least square (GLS) results of return on equity in the presence of Bank size**

Dependent Variable: ROE

Method: Panel EGLS (Cross-section weights)

Total panel (balanced) observations: 174

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-51.17352	62.83990	-0.814348	0.4166
BANK_SIZE	1.777980	2.428011	0.732278	0.4650
BOARD_SIZE	-20.25133	9.881607	-2.04939* *	0.0420
IND_DIRECTOR	15.05669	9.298560	1.619250	0.1073
BOARD_SIZE*BA	0.813608	0.381538	2.13244* *	0.0344
IND_DIRECTOR*B	-0.542968	0.354885	-1.529982	0.1279

Weighted Statistics

R-squared	0.462572	Mean dependent var	11.33053
Adjusted R-squared	0.446577	S.D. dependent var	37.83884
S.E. of regression	26.79611	Sum squared resid	120629.3
F-statistic	28.91996	Durbin-Watson stat	1.275297
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.002530	Mean dependent var	-3.698885
Sum squared resid	238522.4	Durbin-Watson stat	0.997331

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

The results of the Table 5.9 show that the size of the bank alone has no significant relationship with the return on equity, an

accounting measure for financial performance. According to t-value (2.13) and P-value (0.0344) approach to signify the relationship, the board sizes have a significant relationship with the return on equity. The independent directors in the presence of size of the bank however show an insignificant casual relationship with return on equity. The result was consistent as was in before and after the inclusion of leverage in the econometric equation. Without the inclusion of the size of the board the dependency of return on equity on independent directors was also insignificant. The interactive affect of the banks size affect the board size relationship with the return on equity significantly. However the interactive affect of the independent directors and size of the banks affect the return on equity insignificantly.

**Table 5.10. Correlated Random Affects – Hausman Specification Test**

Correlated Random Affects - Hausman Test

Equation: Untitled

Test cross-section random affects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.723380	2	0.0943

Cross-section random affects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
BOARD_SIZE	0.759932	1.666498	3.405574	0.6232
IND_DIRECTOR	-3.317985	-1.616536	0.715083	0.0442

Cross-section random affects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Date: 01/24/14 Time: 18:28

Sample: 2007 2012

Periods included: 6

Cross-sections included: 29

Total panel (balanced) observations: 174

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.657326	22.66797	0.381919	0.7031
BOARD_SIZE	0.759932	2.922212	0.260054	0.7952
IND_DIRECTOR	-3.317985	1.797598	-1.845788	0.0670

Affects Specification

Cross-section fixed (dummy variables)

R-squared	0.489400	Mean dependent var	-3.698885
Adjusted R-squared	0.382282	S.D. dependent var	37.17848
S.E. of regression	29.22045	Akaike info criterion	9.747726
Sum squared resid	122098.3	Schwarz criterion	10.31055
Log likelihood	-817.0521	Hannan-Quinn criter.	9.976040
F-statistic	4.568762	Durbin-Watson stat	1.898560
Prob(F-statistic)	0.000000		

Shows significance \* at 1%, \*\* at 5%, and \*\*\* at 10% level of significance

The R-squared of the model shows that (0.46 %) variation in explanatory variable is due to the dependent variable. The Durbin Watson value is moving towards 2 which shows that there is no such autocorrelation problem in the model.

Table 5.10 statistically determines that either random affect model or fixed affect model best explain the relationship among variable incorporated in the model. The null hypothesis of our study is formulated as that the random affect model is significant to best signify the relationship about the phenomena investigated. Also the value of chi-sq-d.f value rejects our null hypothesis that was about the random affect in explaining significance of relationship between variable. The alternative hypothesis which is that fixed affect model is best to explain the relationship conceptualize for the current study. Fixed affect model result the best statistical result with and without the inclusion of controlling variable in the econometric equation. The Hausman test empirically determines that fixed affect model is more affective in explaining the relationship among variable. According to confidence interval approach the P-value i.e. (0.096443), the Hausman test demonstrates that fixed affect is more significant to explain the behavior of variables projected. The statistical result of the random affect model is stated in appendix section. The analysis and discussion are based on fixed effect result as confirmed by the specification test in explaining consistent result.

## 5.11 Discussion on hypothesis proposed

### Hypothesis 1

**H<sub>1a</sub>:** There is a positive association between independent directors and return on asset in banking sector of Pakistan.

**H<sub>1b</sub>:** There is a positive association between independent directors and return on equity in banking sector of Pakistan

An empirical discussion on corporate board of directors is dominantly centered on the perceived advantages and disadvantage of the presence of dependent and independent directors on the board. There is a continuing debate over the questions that what will be the ratio of an independent and dependent director in a corporate board to affectively mitigate the agency problem? The findings of the studies such as (Adams and Mehran, 2012; Cheng, 2008; Shah, Butt and Saeed, 2011), advocate that firm financial performance is positively affected by the independent directors on the corporate board. According to fixed affect panel data model the presence of independent directors on bank's board have a potential impact on bank financial performance in Pakistan. The statistical measure signifies that both of the accounting base measure of firm performance has a strong causal correlation with proportion of independent directors on banks board. The findings of the study are best align to the (Adams and Mehran, 2012 (Cornett, McNutt, & Tehranian, 2009). The pivotal importance of outsider or independent directors in banking industry cannot be denied to the extent. The independent directors in banking industry are also much sensitive about their goodwill in the directorship market (Fama and Jensen, 1983). The role of the independent director beside positive affect on performance is largely expected to increase the bank credit rating and debt financing (Ashbaugh-Skaife,

Collins, & LaFond, 2006). The presences of independent directors are essential because dependent directors may have no access to information and resources of external environment which are accessed by independent directors (Hermalin, 2005). Recently there is a trend towards corporate board with more independent director to independently monitor and elevate the agency problem faced by organization. However most of the previous studies expounded in the literature are best align to our study, there are some of the studies which are not accord with the findings of our study. The empirical findings of the studies (Agrawal and Knoeber, 1996; Bhagat and Black, 2002; Htay, 2012) disclose a negative relationship between the proportion of outside directors on board and firm financial performance. Although agency theory encourages the inclusion of independent directors on corporate board to independently monitor the corporation. Literature base on corporate governance also posit that independent directors play a little role in monitoring and guiding the governance issues of corporation. Furthermore the independent directors have a little information about the internal process of corporation. Beside all this banking governance system also vary from those of non financial firms. Empirical findings regarding the banking sector in Pakistan suggest that there is highly significant role of the independent directors in affecting the banks financial performance. The result of the study confirms the assumption of the agency theory that the independent directors due to their independent position have the tendency to mitigate the agency problem and increase the financial performance of the organization (Fama & Jensen, 1983).

### Hypothesis 2

**H<sub>2a</sub>:** There is a positive association between board size and return on asset in banking sector of Pakistan.

**H<sub>2b</sub>:** There is a positive association between board size and return on equity in banking sector of Pakistan.

As an important element of corporate board, board size is intensively researched by various researchers. Previous studies advocate that board size may improve the firm financial performance (Adams and Mehran, 2012; Rashid *et al.*, 2010; Shah *et al.*, 2011; Yasser *et al.*, 2011). A moderate size of bank board is positively correlated with the firm financial performance. The size of the board is central to provoke communication and coordination problem (Jensen, 1993; Lipton and Lorsch, 1992).

The t-value and p-value for board size are (4.53) and (0.000) respectively according to fixed affect model. The mean value of the board size was 8 which means the average number of banks have a maximum of eight director on their board. As the size of the corporate board is moderate the return on asset has a significant dependency on banks board size. However in the case of return on equity the bank's board size have an insignificant casual relationship. The result of the study shows that size of the bank board is moderate and best serving in the context of improving the financial performance of banks. The independent directors have a diverse and large relational capital to access the capital therefore significantly impacting the financial performance. The pioneer empirical study on board size and firm financial performance suggest limiting the

number of directors on a board to seven or eight, as numbers beyond that it would be difficult for the CEO to control and for directors to coordinate and communicate (Lipton and Lorsch, 1992). A number of recent studies (Lehn *et al.*, 2004; Boone *et al.*, 2007; Guest, 2008), delineate that board size is subject to firm specific characteristics and the affect of board size on firm performance is determined by the firm specific variables. According to (Htay, 2012) the smaller board size is positively related to bank financially performance, measured by return on asset and return of equity. Similarly, (Lehn, Sukesh, & Zhao, 2004) found that firms with smaller board size perform better than firms with large board size. The results of the study are best align to previous studies such as (Lehn *et al.*, 2004; Boone *et al.*, 2007; Guest, 2008).

The study also incorporate two controlling variable to check the significance of explanatory variable in the presence of these specific variable. The leverage was incorporated as the control variable in the model. The results of the table show that the leverage alone has no significant relationship with the return on asset. The independent directors in the presence of leverage also show a significant but negative inverse casual relationship with return on asset. The inclusion of leverage in the equation changes the nature of the relationship between the independent directors and return on asset. However the board size in the presence of the leverage in econometric equation estimated through GLS result a significant casual relationship with the variable. The size of the banks was incorporated as the control variable in the model. The results of the table show that the size of the bank alone has no significant relationship with the return on asset, an accounting measure for financial performance. However the inclusion of leverage in the equation changes the nature of the relationship between the independent directors and return on asset. According to t-value (-3.32) and P-value (0.00628), the independent directors have a significant but negative inverse relationship with the return on asset. The size of the board in the presence of control variable as size of the bank also shows a significant casual relationship with return on asset. The result of the study substantively advocates that independent directors and board size have a significant impact on banks financial performance. However the control variable of the study significantly impacts the independent director's relationship with the banks financial performance.

## 6. Conclusions and Recommendation

The study was mainly concern with modestly examining the impact of outside independent directors and bank board size on the financial performance from an agency perspective. The emerging and developing economies that are steadily integrating with the global economy are getting high recognition in corporate governance study. The contextual setting of the study was provided by the banking sector of Pakistan. The banking industry of Pakistan is growing rapidly and striving to comply national and international governance mechanism. Also the outside directors are considered very pivotal in mitigating the agency problem. The main thrust of the study was to examine the impact of corporate board size and outside independent directors on profitability of Pakistani listed banks. A panel data ranging from 2007-2012 was collected from the financial statements of the banks comprising

174 observations. According panel data model analysis the presence of independent directors on bank's board has a potential impact on bank financial performance in Pakistan. The statistical measure signifies that both of the accounting base measure of firm performance has a strong causal correlation with proportion of independent directors on banks board. The findings of the study are best align to the (Adams and Mehran, 2012 (Cornett, McNutt, & Tehranian, 2009). The pivotal importance of outsider or independent directors in banking industry cannot be denied to the extent. The independent directors in banking industry are also much sensitive about their goodwill in the directorship market (Fama and Jensen, 1983). The role of the independent director beside positive affect on performance is largely expected to increase the bank credit rating and debt financing (Ashbaugh-Skaife, Collins and LaFond, 2006).

Corporate board size which is the second explanatory variable of the study was also proven significant to affect the banks financial performance in Pakistan. The panel data model estimated through generalized least square method signifies the significant causal relationship between banks financial performance and board size of the banks in Pakistan. Previous studies advocate that board size may improve the firm financial performance (Adams and Mehran, 2012; Rashid, *et al.*, 2010; Shah, *et al.*, 2011; Yasser, *et al.*, 2011). A moderate size of bank board is positively correlated with the firm financial performance. The size of the board is central to provoke communication and coordination problem (Jensen, 1993; Lipton and Lorsch, 1992). Planning, work coordination, decision-making and holding regular meetings can be difficult with a large number of board members (Dalton, Daily, Ellstrand, and Johnson, 1998). The mean value of the board size in our data was 8 which means the average number of banks in Pakistan have a maximum of eight director on their board. As the size of the corporate board is moderate the return on asset has a significant dependency on banks board size. However in the case of return on equity the bank's board size have an insignificant casual relationship. The result of the study shows that size of the bank board is moderate and best serving in the context of improving the financial performance of banks in Pakistan. The independent directors have a diverse and large relational capital to access the capital therefore significantly impacting the financial performance. The pioneer empirical study on board size and firm financial performance suggest limiting the number of directors on a board to seven or eight, as numbers beyond that it would be difficult for the CEO to control and for directors to coordinate and communicate (Lipton and Lorsch, 1992).

The econometric model of the study also incorporates the controlling variable in the study. The leverage and size of bank are considered pivotal importance in affecting the overall relationship between the governance variable and operating performance. The independent directors in the presence of leverage also show a significant but negative inverse casual relationship with return on asset. The inclusion of leverage in the equation changes the nature of the relationship between the independent directors and return on asset. However the board size in the presence of the leverage in econometric equation estimated through GLS result a significant casual relationship

with the variable. The inclusion of the size of the bank in the equation changes the nature of the relationship between the independent directors and return on asset. According to t-value (-3.32) and P-value (0.00628), the independent directors have a significant but negative inverse relationship with the return on asset. The size of the board in the presence of control variable as size of the bank also shows a significant casual relationship with return on asset.

Overall the hypothesis proposed on the basis of substantive literature review was proven to be significant. The result of the study suggests that the independent directors and bank board size are the potential determinant of bank's operating performance in Pakistan. The variable incorporated as controlling variable also has a potential impact on the operating performance of the banks. The result of the study suggests that financial performance of banks in Pakistan is not much affected by board size and board composition. However the empirical result supports the view that size of the bank significantly affects the financial performance of the banks in Pakistan. Moreover the leverage of the bank also shows significant but negatively correlated with the financial performance of the banks in Pakistan.

### 6.1 Limitations and Future direction

The study acknowledges some limitations. First, this study is based substantively on banking industry of Pakistan. The size of the sample is insufficient to make generalize the finding of the study in a broader setting. Due to principal of parsimony, study do not incorporate the various other corporate board determinates such, ownership structure, managerial ownership, CEO compensation, CEO duality and director characteristics. Furthermore due to the availability of data study doesn't measure the market base measure of firm performance, such as Tobin's Q and Marris ratio.

Future direction for further empirical studies also exists in this area. Future studies on corporate governance can shed more light on the relationship, by incorporating more explanatory variable such as chairman duality, CEO compensation structure, audit committee and ownership structure etc. Furthermore besides accounting base measure of financial performance, market base measure such as Tobin's Q and Maris ratio will help in determining the relationship more robustly. Moreover increased sample size and data collection period will add more benefit to get more generalized and reliable results.

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