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Corporate Governance Independence in the Board of Directors and The Firms Financial Performance: Empirical Analysis of Cement Sector Firms Listed on Pakistan Stock Exchange (PSX)

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Abstract. The corporate governance measures emphasize on presence of independence of the board of directors to bring objectivity and reducing the agency cost; whereas the institutions have the ability, skills and time to supervise the activities of the management and channelize it to better financial performance. The objective of this study is to explore the effect of independence of the board of directors on the financial performance of the firms. The independence was gauged by number of independent directors and non-executive directors, chairing of board committees by independent directors, institutional holding in the firm, and presence of institutional directors on the board. The financial performance of the firm is gauged using the return on equity (ROE) and return on assets (ROA). The corporate governance and financial performance data comprising of 75 firm years from 2014 to 2018 of the firms listed in the cement sector of the Pakistan Stock Exchange (PSX) were selected. GLM regression was performed to study the relationship between the variables. The results suggest that the majority of independence on the board of directors do not affect the financial performance of the firm; the independence in the board committees negatively affects the financial performance, whereas the presence of institutional holding and director in the firm does not have any effect on the performance of the firm. The study will provide a basis for future studies to find the association that independence can bring objectivity, reduce agency cost, and affect the performance of the firm.

Key words: Corporate governance, board of directors, board committees, independent directors, firm performance, return on assets, return on equity, cement sector, Pakistan stock exchange.

1 Introduction

In corporate entities, ownership and control over the firm are two separate things and this gives rise to the agency problem (Gompers et al., 2003). According to Eisenhardt (1989) the agency problem can be classified into two broad categories, i.e. one category groups the issues related to conflicts in the perspective of the principal, i.e. shareholders and agents (managers/management) and second category groups the issues related to costs and difficulty of

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reviewing the activities of the management by the shareholders. The shareholders and management normally have different attitude toward risk and they both have different set of goals. However, as capital provider, the shareholders require the managers to work for achieving their goals. Michael et al. (1976) in their study explained the rationale that the utility maximization in the nature of managers drives them to use the resources of the firm to achieve their own goals and interests. Shareholders have to devise incentive plans for the managers to entice them to achieve shareholders goals. Shareholders also incur costs for keeping track and limiting activities of the managers that they are performing for their own good. The costs of the incentive plans, monitoring and restricting activities, and the cost of the decisions that favor the managers are termed as the agency costs by Michael et al. (1976).

The presence of agency problem in the firms gives rise to the need of some governance system that lines up the objectives of the shareholders and management and aid the shareholders in monitoring that the powers delegated to the managers are utilized for maximizing the shareholders wealth (Judge et al., 2003). This system is acknowledged as the corporate governance (CG) (Gompers et al., 2003). Therefore, we can articulate that CG are the procedures used to cope with the agency cost (Shaukat and Padgett, 2005). Corporate governance (CG) is the mechanism through which the numerous small and dispersed shareholders can eye the activities of the managers and circumscribe them to work for the wealth maximization of the shareholder (Hart, 1995). According to the International Finance Corporation (IFC), a World Bank Group entity, CG is defined as the structures and processes by which companies are directed and controlled. Here the companies mean the corporate entities. IFC further explains that the CG aids in building facilitative environment in the firms, which augments operational efficiencies, better access to capital markets, fosters risk mitigation and refrains from mismanagement.

Under the CG mechanism, oversight of the management is performed by the board of directors (The Board) (Gompers et al., 2003). The directors on the board are elected by the shareholders and the board has the authority to monitor the activities of managers, to act as the approving authority for major decision by the managers, and to appoint or remove chief executive officer (CEO) and any senior management position (Hart, 1995). Along with these authorities, the board is also responsible for appraising the performance of the CEO (Judge et al., 2003). From the literature, it is evident that the CG measures are found at macro and micro levels, i.e. CG measures at country-level and at firm-level (Hillier et al., 2011). Country-level CG measures are imposed by the government or the regulatory authority of the country. Firm-level CG measures are voluntarily adopted by the firm. Country and firm level measures include: firm does not have dual-share-structure; shareholders have cumulative voting rights; there is no requirement of super-majority for amending the bylaws charters or approving mergers; BOD is not classified or staggered; shareholders have right to call special meetings and can act by written consent; BOD has majority of independent directors; audit, compensating, and nominating committees are independent; no duality CEO and Chairperson; single person is not CEO on more than one firm; existence of governance committee and no interlocking directorate (Chhaochharia and Laeven, 2009).

Firms in Pakistan are regulated by the government of Pakistan (the government) through a regulatory body known as Securities Exchange Commission of Pakistan (SECP) established under the securities and commission of Pakistan act, 1997 (What we do? — SECP). SECP has been given a mandate to regulate the capital markets, to supervise and control the corporate firms and the incidental matters (The Securities and Exchange Commission of Pakistan Act, 1997). The government in 2017 reformed former corporate law, i.e. the Companies Ordinance 1984 and promulgated the Companies Act, 2017 (The act). The act provides SECP with the

framework of regulations for the all types corporate firms, including but not limited to public listed firms. The intention behind the act is to expedite and foster corporatization, embolden the digitalization in regulating the firms and in conducting business by the firms, and to regulate the firms in a manner that protects the interests of the stakeholders including shareholders, creditors, the general public, and minority shareholders (The Companies Act, 2017).

The SECP in order to regulate the corporate firms, which are listed over the stock exchanges of Pakistan, issued the first governance rules in 2002 known as the code of the corporate governance (CCG). CCG was introduced to bring reforms only in the publicly listed firms, because these firms have large shareholders base as well as stakeholders. The aim behind the introduction of CCG is to institute international best practices among the firms of Pakistan (Javid and Iqbal, 2010). SECP is continuously thriving for safeguarding the interests of the shareholders and keeping the firms parallel to the world best practices, therefore revising the CCG. It has first revised in 2012 and then in 2017.

It is evident from the literature that the CG measures, like presence of independent directors on the board, are implemented to minimize the agency conflicts, which resulted in reduction in agency costs and inducing managers to maximizes shareholders wealth (Al-Najjar and Clark, 2017). Therefore, it be postulated that the CG measures, like independence of directors, size and composition of the BOD, separation of CEO and chairmanship, independence of BOD sub-committees for governance and control, ownership structures, etc. act as catalyst that mitigates the detrimental practices of the managers and resulted in firms better financial performance (**?**). Further, CG measures are also associated with the market value of the firms as well (**?**). As Pakistan is in continues process of developing the CG laws, regulations and rules, both at the firm-level and country-level, as discussed above, therefore, to find out that these CG measures and introduction of independence over the BOD in Pakistan are aiding the corporate firms in improving financial performance and catching better value in capital markets or these measures are acting as hindrances in the ease of doing business for the corporate sector, more specifically, the firm listed in the cement sector over Pakistan Stock Exchange (PSX). The study is conducted with objectives to gauge the impact of board composition/independence over the financial performance of the firms, to gauge the impact of independence of boards sub-committees over the financial performance of the firms, to gauge the impact of the independence of the chairperson of the BOD over the financial performance of the firms and to gauge the impact of the institutional holding over the financial performance of the firms listed in the cement sector over the PSX. The research provides answers related to questions such as: does the board composition/independence have impact over the financial performance of the firm; does the independence of boards sub-committees have impact over the financial performance of the firm; does the independence of the chairperson of the BOD have impact over the financial performance of the firm; and does the institutional holding have impact over the financial performance of the firm. The study contributes in the current stream of literature in two ways. Since Pakistani corporate firms have concentrated ownership structures, i.e. few individuals or a family have majority of shares, which results in agency problems for non-controlling shareholders and the CCGs focuses on the BOD (Sheikh et al., 2018) require firms to have independent directors on board to represent the non-controlling shareholders. Therefore, the study contributes towards the literature in a manner that how the presence of majority independent directors on the BOD, representing the non-controlling shareholders, contribute in the financial performance of the firm. Institutional investors have the experience, expertise and sometimes power to influence the decision making by the BOD and they generally invest in firms that have better CG practices (Al-Sartawi and Sanad, 2019). Therefore, second contribution towards the CG literature is

how the presence of the institutional shareholding in the firm contribute towards the financial performance of the firm.

2 Literature Review

During 1970s, America was the place where the word Corporate Governance was first surfaced and used, while framing corporate scandals of that period, by Securities and Exchange Commission (SEC) (Ocasio and Joseph, 2005). Various corporate scandals and failures raised the need for effective corporate governance systems (Dash et al., 2008). It not only caters to the rights of the shareholders rather it caters the rights of the stakeholder like creditors, debtors, suppliers, customers, employees and also sets out roles and responsibilities for the shareholder, BOD and management (Cheema and Din, 2013). CG does not focus on returns of the firms but on better business practices and utilization of firms resources in optimal manner that eventually transformed in better results (Naveed et al., 2011). Investors prefer to invest in firms and countries with good CG practices, as CG enhances confidence over the future earnings ability, growth and firms value (Haque and Arun, 2016). Thus, CG means assurance to the providers of the finance that their finances will be utilized in the most appropriate manner by the managers resulting in enhanced firm value, which means the basic premise of the CG is to deal with agency problem (Shleifer and Vishny, 1997).

The governance of the firms is responsibility of the BOD and the management is accountable to them; governance is not the responsibility of the shareholder, their role to is satisfy themselves through the appointment of directors and auditors that apposite structure of CG is in position; now it is the responsibility of the BOD to set strategic goals, lead management towards these goals and supervise them for any mismanagement and provide report to the shareholder about the stewardship role of the management; all these activities of BOD are subject to laws and regulations of the land and approval of the shareholder in general meetings (Council and Britain, 2010). Since directors on the BOD, by and large, do not have enough ownership that they can influence the policies of the firm, therefore, law provides them with rights and defines their duties and expectations about their performance (Volonté, 2015). The BOD is the ultimate control that monitors and manages the agency problem (Said et al., 2016).

From the above discussion, it clear that the strategic guidelines are provided by the BOD to the firms so that the managers may not pursue the strategies of their own benefit. Therefore, there is nothing wrong in linking the financial performance (FP) of the firms with the BOD. Several studies have been conducted to find the association between financial performance and various factors of the BOD. Kalsie and Shrivastav (2016) investigated the relationship between the size of the BOD and FP of the firms listed over National Stock Exchange (NSE) of India. Their results supported the proposition that board size acts as a mean that influences the FP of the firm and larger board sizes have more positive impact on the FP because diversity on the board helps in understanding and addressing diverse stakeholder issues. Tulung and Ramdani (2018) examined the impact of board size, board independence on the performance of the regional development banks in Indonesia. The authors results significantly supported the relationship between FP and board size and board independence. Rathnayake and Sun (2017) conducted a study over the Asian countries, including China, India, Singapore, Pakistan, Malaysia and Sri Lanka, to find the impact of CG, corporate ownership and FP. The authors included board size, independence of shareholders, (i.e. no association with the firm other than the shareholding) and age of the firm as CG factors. Their results concluded that the firms performance can be

enhanced by improving the quality of the CG and the region show similar kind of trend. Overall, their results showed a significant link between the FP and CG especially in case of Pakistan and India.

2.1 Corporate Governance in Pakistan

Developing economies like Pakistan can reap more benefits by implementing CG. By adopting CG, accountability and transparency increase which eventually improve the corporate structure and business environment. After coming to operations in 1999, SECP enacted the foremost CCG in 2002 to enhance governance, transparency, accountability of the corporate sector. Much criticism was attracted by this CCG from the corporations but it was revolutionary and opened a new window in the field of governance (Ibrahim, 2006). The basic objective of this CCG is to protect the rights of the diversified stakeholders by introducing the best practices for directors to control and direct the firm (Javid and Iqbal, 2010). As the CCG was a sprout, therefore, many governance practices were not made mandatory to be adopted. The CCG of 2002 introduces the term of independent director and encourages corporates to give a valuable representation to the independent non-executive directors on the board so that the minority shareholders interests are represented effectively on the board. It requires corporates to establish audit committees and inter audit functions. It made it mandatory for directors to disclose their interest in the firm [Code of Corporate Governance (2002)]. This code was included in the listing regulations as mandatory compliance requirement of the firm, which is listed, or in process of listing on the stock exchanges of Pakistan (during that time there were three stock exchanges of Karachi, Lahore, and Islamabad) must have to comply with CCG.

After receiving feedback from the corporates, experts, and changes in the regulatory environment of the world, SECP in 2012 revised the CCG of 2002. This was aligned to the policy of fostering the standards of the CG in Pakistan and to catch up the intricacies of persistently advancing financial markets and corporate sectors of the world. This is far inflexible than the previous code of 2002. CCG of 2012 made it obligatory for the firms that they must have one independent director on the board and encouraged to have 1/3 of the total strength of the board. The criteria for being independent were made stricter. Restricting the executive directors to one-third of the size of the board reduced the influence of management on the board. It also provided the concept of the boards evaluation and restraining the CEO from becoming the Chairman of the board. Along with the chief financial officer and company secretary, appointment and removal of the head of internal audit comes under the responsibilities of BOD. It also introduces the concept of HR and Remuneration Committee. The internal audit committee must be chaired by an independent director and comprise of non-executive directors only. Various other measures are also made stricter. In 2017, SECP revisits the CCG of 2012 and revised it in the light of The Companies Act, 2017 which replaces the older company law, i.e. The Companies Ordinance, 1984. Since, at the time of conducting this study, the implementation effects of the CCG of 2017 cannot be reflected in the financial results of the corporates, therefore the CCG of 2012 has taken into consideration while performing this study.

Several studies are also conducted in Pakistan to gauge the impact of corporate governance measures over the FP of the firms. **?**, analyzed the relationship between the board size, chief executive status (i.e. it holds the CEO and chairperson position simultaneously), annual general meeting (number of held in the year), audit committee and FP of the firms listed in the Oil and Gas Companies of, then, Karachi Stock Exchange (KSE), now Pakistan Stock Exchange (PSX). Their results suggested a positive relationship between the board size and annual general

meeting, whereas negative relationship between the audit committee and chief executive status with performance of the firm. Yasser et al. (2011) conducted a study over the firm listed over the KSE-30 to find the impact of CG variables over the FP. They included board composition, board size, audit committee and CEO/chairperson duality in their study as CG variables and found that these variables have significant positive association except for the CEO/chairperson duality, which did not show any significance in the study. Patel (2018) performed study over the food, personal care and cement sectors of Pakistan. The results suggest that presence of independent directors on the board negatively affected the FP of the firms in these sectors. This is because of the non-implementation of the CG in letter and spirit. In a study performed over the 10 cement sectors firms listed over PSX, Kazi et al. (2018) used the board structure, ownership structure, leverage and size of the firms as CG variables and examined its impact over the FP of the firm. Their results suggested that the implementation of the CG in Pakistan is poor due to which the CG measures showed a mixed trend over the FP of these firms. In another study over the cement sector of Pakistan, Shahid et al. (2018) used board size and leverage as CG variables and found no significant relationship between the board size and FP. They studied the CEO duality with board size but results were not significant, however, introduction of CEO duality changed the direction of impact from positive to negative.

According to Al-Sartawi and Sanad (2019), institutional holdings in the firms can serve the purpose of monitoring tool and influence the performance of the firms. But not all institutional investors play an active part in monitoring the firms activities, which does not mean that their presence as shareholder will influence the performance of the firm (Lin and Fu, 2017). Both of these studies have concluded differently. Lin and Fu (2017) found a positive association between the institutional holding and FP, whereas, Al-Sartawi and Sanad (2019) found negative association.

2.2 Board Independence (BODI)

According to the Code of Corporate Governance, promulgated by Securities and Exchange Commission of Pakistan (SECP), independent director is said to be independent when he does not have direct or indirect relationship with the firm other than the directorship. The reason for having non-executive independent directors over the board to reduce the agency cost, as these directors have no dependence over the management and provide an independent and impartial view about the business decision made by the firm and due to their independence shareholders trusted them as their representative (Fuzi et al., 2016). A board is said to be independent when the number of independent directors are greater than executive directors on the BOD (Pearce II and Patel, 2018).

In a study performed by Rashid (2018) to find the association between the independence of the BOD and FP. The author did not find any positive association between the same. Kazi et al. (2018) suggested a positive relationship between FP and BODI but the result failed to show significance. Fuzi et al. (2016) performed a study across difference countries and found a mixed trend between the relationship of BODI and FP. Saad et al. (2019) performed a study in which no impact was found of the independence of directors over the FP.

Therefore, based on review of past studies it has been hypothesized that:

H_1: *Independence of the board of the directors has no impact on firms performance.*

2.3 Board Committees Independence (BODCI)

According to the Code of Corporate Governance (2012), promulgated by Securities and Exchange Commission of Pakistan (SECP), it recommended to have at least Audit Committee (AUC) and Human Resource and Remuneration Committee (HR&RC). Each committee composed of at least three directors, preferably headed by an independent director but not in any case chairperson of the board cannot head any committee. However, in HRRCM, CEO can be a member but cannot head the committee. It is obvious the BOD oversees every important matter of the firm (Chambers, 2017). The BOD requires sub-committees which enhances the monitoring process of the BOD and enhances firms performance (Singh et al., 2018). Committees are formed to effectively utilize the time of the non-executive directors as they have limited time to give to the firm (Choi et al., 1992). The independence of the committees is preferred because of the objectivity of the non-executive directors over the executive directors, their unbiased monitoring of the management activities and objectively ensuring that the control are effectively placed over management (Stapledon and Lawrence, 1997). Singhchawla et al. (2011) conducted a study to discover the impact of board and its sub-committees independence over the firms financial performance in Australia. Their results did not find any significant association between the independence of committees and FP; however, this insignificant impact was negative in case of Australia. Kallamu and Saat (2015) performed a study to find the impact of the presence of the independent director in the AUC. The results suggested a positive association between the two. Yasser et al. (2011) found a positive association between the independence of the AUC and FP. Agyemang-Mintah (2016) conducted research to find the impact of having a remuneration committee over the financial performance and found a positive significant association between the committee and FP. Muhammad et al. (2016) found positive impact over the performance of the firm in relation to presence of the audit committee in the firm which is chaired by an independent director.

Therefore, based on review of past studies it is hypothesized that:

H_2: Board committees independence has an impact on firms financial performance.

2.4 Institutional Ownership/Shareholding (INOS)

Having institutional ownership in firm results in effective monitoring of activities and decisions of the management (Nashier and Gupta, 2016). Institutions may have such an amount of investments that enabled them to get director(s) appointed in the firms BOD (Singh et al., 2018). Institutions induce manager to perform well by exerting their influence over the BOD and reduced agency costs (Al-Matari et al., 2013). Institutions also have the skills and expertise to help firms in crisis situations and aid the firms from coming out of the crisis (Singh et al., 2018).

Sheikh et al. (2013) conducted a study to find link between the INSO and FP and found that in contrast to dispersed shareholders, institutional shareholders can effectively monitor the firms business activities, therefore, resulting in positive association between the two variables. Al-Matari et al. (2013) and Dash et al. (2008) also found positive correlation between INSO and FP in their conceptual study. However, Singh et al. (2018) did not establish any relationship between institutional ownership and firms performance.

Therefore, based on review of past studies it is hypothesized that:

H_3: Institutional ownership/shareholding has an impact on firms financial performance.

H_4: Presence of the institutional director(s) on the BOD has an impact on firms financial performance.

3 Methodology

3.1 Research Approach

The study is performed using the quantitative approach over the secondary data available in the published financial statement of the firms listed on the PSX in the cement sector. The published financial statements were downloaded from the respective websites of the firms.

3.2 Sample and Data

Firms listed in cement sector of PSX and involved in the manufacturing of cement have been selected as sample. The reason for selection of the cement sector is due to its substantial role in the development of the Pakistan (Kazi et al., 2018). The firms that were trading over the stock exchange on 30.06.2018 are selected. Two firms, i.e. Zeal Pak Cement Factory Limited and Dadabhoy Cement Industries Limited are not included due to being in the defaulter segment of the PSX. In 2015, Bestway Cement Limited acquired Lafarge Pakistan Cement Limited; therefore, both the firms are excluded due to incomparable and incomplete information of the respective firms. Safe Mix Concrete Limited and Javedan Corporation Limited are also excluded because both firms are not involved in cement manufacturing. Remaining 15 firms (see table 1) are included in the sample. Corporate governance and financial performance data have been obtained from published annual report and financial statements for a period of 2014 to 2018, comprising 75 firm year data.

3.3 Variables

3.3.1 Independent Variables

Independent variables are selected using the literature review.

1. Board Independence (BODI) is measured by the composition of the non-executive independent directors on the board; it is calculated by sum of non-executive directors plus independent directors divided by the size of the BOD.

2. Board Committees Independence (BODCI) there are two mandatory committees of the board in the publicly listed firms in Pakistan, i.e. audit committee and human resource and remuneration committee. The independence of the both the committees are measured at a single dummy variable. The variable will have a value of 1 when both the committees are chaired by independent directors, or otherwise it will be assume a value of 0

3. Institutional Ownership/Shareholding (INOS) is the percentage of the ordinary shares held by the institutions divided by total number of ordinary shares outstanding.

4. Institutional Director on BOD (INOS_D) is measured by a dummy variable and it has a value of 1when institutions nominated director(s) is/are present on the board other it will assume a value of zero.

3.3.2 Dependent Variables

Selection of dependent variables is made through the literature review, following variables are considered to be taken as dependent variables, which predict the financial performance of the firm.

1. Return on assets (ROA) i.e. profit after tax (PAT) divided by total assets of the firm.
2. Return on equity (ROE) i.e. PAT divided by (Paidup equity capital + reserves).

3.3.3 Control Variables

Following are the control variables:

1. Leverage (LEVER) is the Leverage, i.e. Total Borrowings divided by total assets
2. Size (LNSIZE) is the Natural log of total sales.

3.4 Data Analysis

Statistical analysis is performed using the EViews 9.0. Descriptive analysis is performed

3.5 Descriptive Analysis

Descriptive analysis performed over the data and the results are presented in table 9. The analysis is performed in results and discussion section.

3.6 Model Specification

From the literature, it is observed that the firms financial performance (FP) is a function of board independence, board committees independence, institutional shareholding in the firm and presence of institutional director over the board. Our empirical model general form can be written as:

FP = f(BODI, BODCI, INOS, INOS_D)
FP = α + β_1 BODI + β_2 BODCI + β_3 INOS + β_4 INOS_D

Where:

FP = Financial Performance of the firm.
BODI = Composition of the board of directors, i.e. percentage of independence over the BOD of the firm
BODCI = Independence of board of directors committees.
INOS = Institutional ownership/shareholding in the firm.
INOS_D = Presence of Institutional Director(s) on the board of directors of the firm.

3.7 Test of Multicollinearity

The values are evaluated using the rule that if centered VIF is equal to or higher than 10, there is a very high multicollinearity. Since the value of R squared is too small and all the independent variables are insignificant, this indicates that data have no multicollinearity (Gujarati, 2011) (for details refer table 2).

3.8 Test of Heteroscedasticity

Heteroscedasticity is a result of variation in variance of the error term at different observation in the dataset and unbiasedness of the OLS estimators does not get affected, although they do not remain efficient (Long and Ervin, 1998). Therefore, it is a good practice to inspect for this problem in your data.

3.8.1 Abridged Whites Test

Abridged Whites test is performed to find that the problem of heteroscedasticity in the data. The test is performed on following equation:

$$e_i^2 = \alpha_1 + \alpha_2 \text{ ROEf} + \alpha_3 \text{ ROEF}^2 + v_i$$
$$e_i^2 = \alpha_1 + \alpha_2 \text{ ROAf} + \alpha_3 \text{ ROEF}^2 + v_i$$

Where ROEf is the forecast value of return on equity and ROAf is the forecast value of return on assets. The p value of F-statistics is insignificant thus, the null hypothesis is retained (Gujarati, 2011) that the data do not have the problem of heteroscedasticity (for details see table 3).

3.9 Test of Autocorrelation

It is also known as serial correlation and it is common problem in time series. It is level of correlation between values of variables at different observations. Durbin Watson (DW) Test is performed to ascertain the presence of autocorrelation.

3.9.1 Durbin Watson (DW) Test

DW test can be performed in two ways by using value of DW tabulated and DW calculated or by applying the rule of thumb (Gujarati, 2011). We applied rule of thumb that since the value of DW calculated/DW stats in the near to zero, therefore, there is a sign of positive autocorrelation (for details refer table 2).

3.10 Model Specification Errors

Model specification errors occur when irrelevant variables are included or relevant variables are excluded from the model, i.e. model is overfitted or underfitted respectively. In case of underfitted model, the results will be biased and estimates will be unreliable. However, in case of overfitted model, the coefficients are not biased but inefficient. In order to ascertain that the model is not underfitted, we use Ramseys RESET Test as follows.

3.10.1 Ramsey Regression Specification Error (RESET) Test

This test is used to ascertain that all the necessary variables are included in the model. This test is performed on the existing model, i.e. equation (1). Table 4 and table 5 depict the results of the test; the results are discussed in next section.

3.11 Remedial Measures

3.11.1 Multicollinearity

The data did not have the problem of multicollinearity; therefore, no remedial measures were applied.

3.11.2 Heteroscedasticity

The statistics used in the model did not suffer from the issue of heteroscedasticity; hence, no remedial procedure were employed.

3.11.3 Autocorrelation

Since the data had the problem of autocorrelation, we do not use simple OLS regression to find out the relationship between the financial performance and corporate governance measures. Therefore, in order to get rid of autocorrelation, we use HAC (Newey West) as covariance method in generalized linear models (GLM) regression analysis.

3.12 Estimation through GLM Regression

Generalized linear models (GLM) is regression type will result in optimal properties for the regressors and model is fitted using Maximum Likelihood estimation (6.1 - Introduction to Generalized Linear Models — STAT 504, n.d.) The results of the GLM are presented in table 6 and table 7. The discussion will be done in results section.

$$FP = \alpha + \beta_1 \text{ BODI} + \beta_2 \text{ BODCI} + \beta_3 \text{ INOS} + \beta_4 \text{ INOS\_D} + \beta_5 \text{ Size} + \beta_5 \text{ Leverage}$$

4 Results and Discussion

4.1 Descriptive Analysis

The descriptive statistics are presented in table 9.

4.2 Return on Equity (ROE)

ROE has a mean value of 17.71% with a standard deviation of 9.10%, which means that the firms under discussion earned an average 17.71% over their equity. The standard deviation 9.10% means the return in the cement sector will deviate just by $\pm$1.61percentage. This indicates the firms in this sector have similar returns over their equities. The skewness, kurtosis and Jarque-Bera (JB) indicates the data is not normally distributed and negative skewness shows that the data has long left tail which means the return on equity will increase in the posterior years of study.

4.2.1 Return on Assets (ROA)

ROA is 9.26% with a standard deviation of 8.69%. This indicates that the firms under study earn an average 9.26% over their assets. The standard deviation is 8.69%, which indicates that the firms in the cement sector earn a consistent ROA with just 0.80%. The firms returns are more on their equity and lesser on their assets it means that cement sector has high leverage. The skewness, kurtosis and JB indicate that data is normal and have negative skewness. As discussed in ROE, the negativity indicates better return in the later years of the sample under study.

4.2.2 Board Independence (BODI)

The mean value for BODI is 76% and standard deviation is 12.66%. This is an indication that the boards in the cement sector comprised of 76% of independent non-executive directors. With $\pm$ deviation of 9.62% at this standard deviation. This indicates that firms BOD are apparently quite independent. The skewness, kurtosis and JB indicate that data lag normality. The negativity in the skewness indicates that in the initial years of study the BOD has less independence which increases over the period.

4.3 Board Committees Independence (BODCI)

The mean value indicates that 82.67% of the firm years have independent directors chairing the BOD committees. It has a higher standard deviation of 38.11%, which indicates that independence of the committees varies in the sector. It also has negative kurtosis and the values of skewness and JB indicate that data is not normally distributed.

4.4 Institutional Ownership/Shareholding (INOS)

The data of INOS is not perfectly normally distributed but it is near to normal. It has a mean value of 12.66% and a low standard deviation of 9% indicates that average holding does not fluctuate too much in the firm years under study.

4.4.1 Presence of Institutional Director on the Board of Directors (INOS_D)

The mean value of 13.33% indicates very low presence of institutional directorship in this sector with a higher standard deviation of 34%. The data is also not normally distributed and positively skewed. This means in the initial years under study BOD had independence which later on decreases.

4.4.2 Ramsey Regression Specification Error (RESET) Test

Ramseys RESET test was applied to find that the model is not underfitted. The results are presented in table 4 and 5. Table 4 represents ROE as dependent variable and according to the results, at alpha = 0.10, the p-value 0.4622 of F-statistics implied that the null hypothesis has been retained. On the other hand taking ROA as dependent variable, the results at alpha = 0.10, the p-value 0.4826 of F-statistics implied that the null hypothesis has been retained. This means that the existing model has not omitted any variables and it is not underfitted. Hence, using this model as specified in the equation (1), the regression provided unbiased coefficients and the estimates are reliable.

4.5 Estimations through GLM Regression

The results obtained from the GLM regression, are presented in table 6 and 7. Table 6 considers ROE as dependent variables and measure of financial performance. The table demonstrates that at alpha = 10%, that board independence (BODI) has a negative effect over the return on equity of the firm (ROE), however this relationship is statistically insignificant (p-value =0.3340). Indicating that the data under study did not have a significant relationship between the financial performance represented by ROE and composition of board of directors.

Independence of board committees (BODCI) has a significant negative effect on the ROE with p-value =0.0460. This is an indication that the FP is adversely affected by the independence of the BOD committees. This means that if the chairpersons of the board committees are independent then it will adversely affect the ROE by 4.33%.

Institutional ownership or shareholding (INOS) has a positive impact over the FP of the firms under study. However, this relationship is found to be statistically insignificant. With p-value =0.8314. This means that the ROE of the data under study has failed to establish any association with the INOS.

Presence of institutional director(s) over the BOD (INOS_D) also has an insignificant relationship with financial performance (p-value =0.3952). However, upon analysis it has a positive association.

Control variables, i.e. size of the firm and leverage also failed to show any significance in this model. Table 7 considers ROA as dependent variable and a measure of financial performance. Upon analysis it is found that at alpha = 10%, that board independence (BODI) has a negative effect over the return on assets of the firm (ROA), however, this relationship is statistically insignificant (p-value =0.9550). Indicating that the data under study did not have a significant relationship between the financial performance represented by ROA and composition of board of directors.

Independence of board committees (BODCI) has significant negative effects on the ROA with p-value =0.0590 at alpha = 10%. This is in consistent with our previous model in which BODCI was negatively associated with ROE. This is an indication that the FP is adversely affected by the independence of the BOD committees. This means that if the chairpersons of the board committees are independent then it will adversely affect the ROE by 2.48%.

In this model, unlike previous model, institutional ownership or shareholding (INOS) has a negative impact over the FP of the firms under study. However, this relationship is also found to be statistically insignificant. With p-value =0.9057. This means that the ROA of the data under study has also failed to establish any association with the INOS.

In this model, presence of institutional director(s) over the BOD (INOS_D) also has an insignificant relationship with financial performance i.e. ROA (p-value =0.5767). However, upon analysis it also has a positive association. Unlike the previous model, in this model leverage is found to have negative association with financial performance expressed by ROA with a p-value =0.0000. However, size has also been found to be insignificant.

When we examine the Akaike information criterion of both the models, it found that both models have low value, however, model with ROE as dependent variable has lower absolute value than the model with ROA as dependent variable, which suggests that while selecting model, ROE is found to be better representative of financial performance. Hannan-Quinn criterion also supported the selection.

4.6 Hypotheses Assessment Summary

H_1: Independence of the board of the directors has no impact on firms performance. Accepted
H_2: H2 Board committees independence has an impact on firms financial performance. Accepted
H_3: H3 Institutional ownership/shareholding has an impact on firms financial performance. Rejected
H_4: H4 Presence of the institutional director(s) on the BOD has an impact on firms financial performance. Rejected

4.7 Discussion

4.7.1 Hypothesis 1 Board Independence (BODI)

The hypothesis has been accepted at alpha = 10%, that independence of the board of directors has no impact on the firms performance. This indicates that the FP of the cement industry during the period under study does get affected by the independence of the BOD. Although, the findings suggested a negative impact as hypothesized in this study, but statistically it is insignificant both in the case of ROE and in the case of ROA. This is in line with the findings of **?**, whereas in contrast to findings of Fuzi et al. (2016).

4.7.2 Hypothesis 2 Board Committees Independence (BODCI)

The hypothesis is accepted at an alpha = 10%. Board committees are responsible for looking after the matters, which are not effectively monitored by BOD. The independence of board committees will affect positively the FP of the firms because they review the performance of the management with objectivity. However, our findings suggested that the firms of the cement sector under study have negative association between the FP and BODCI, meaning that independent directors at the BODCI have resulted in reduced financial performance. This finding is in contrast the findings of **?** whereas Singhchawla, Evans, & Evans (2011) found a negative association but it was statistically insignificant.

4.7.3 Hypotheses 3 & 4 Institutional Ownership/Shareholding (INOS) and Presence of Institutional Director on the Board of Directors (INOS_D)

This hypothesis is rejected at alpha = 10%. Institutions are found to be disciplinary forces that restrict the firms to perform in manner that will result in positive financial performance. Presence of the director (s) on the BOD can help the institutions critically monitor the decision making process and restricting firms to divert the resources of unprofitable ventures. However, the data, of the cement sectors firm, under study failed to show any significance on the financial performance of the firm. This is in accordance with the findings of Singh et al. (2018) and in contrast to findings of **?**.

5 Conclusion

The study has been conducted with an aim to find out the impact of independence over the board of directors on the financial performance of the firms listed in the cement sector of Pakistan Stock Exchange. The independence over the board of directors were measured using the presence of non-executive and independent directors over the board, the independence was

also captured in the board committees and also taking the institutional presence in the shareholding and board of directors as sign of independence from the management. The financial performance was measured using the return on assets (ROA) and return on equity (ROE).

Pakistan is an emerging economy and it is strengthening its corporate governance measures to catch-up with the already established practices in the world. Code of Corporate Governance is used by the regulator in Pakistan to promote a culture of independence over the board of directors in order to give consideration to all the shareholders not only the controlling shareholders and reduce the role of management in pursuing the objectives of their own benefit. The objectivity in the decision-making will help in reducing the agency costs and resulting in creation of value for the shareholders.

In context to cement industry of Pakistan, the independence and objectivity over the board did not contribute in the creation of value for the firm. The independence on the board directors did not contribute to enhance financial performance of the firms. When the independence is reflected in the sub-committees of the board of directors, it is found to be adversely affecting the financial performance of the firm. Independence on the BOD is also reflected by the presence of the directors by institutions of the firms and since these institutions have time, knowledge and expertise to run the business, therefore their presence on the board and shareholding is found fruitful for the financial performance of the. However, the firms under investigation did not significantly affect the presence of the directors of the institutions and their shareholding in the firm.

Taking the benefit of the objectivity and versatile experience of the independent directors is novel thing for Pakistani firms. According to a report by Pakistan Institute of Corporate Governance, Detailed Analysis Report Survey on Board Composition, Practices & Remuneration 2016, availability of good independent directors with versatile experience and required skills is difficult task in Pakistan. This report also stated the fact that large amount of time and efforts are required to improve the corporate governance structures in Pakistan. CG is evolutionary process and constant monitoring by the regulators, shareholder, and the board of directors of the processes involved will result in better corporate governance and firm performance. Therefore, it is time that will make the firms to learn how to take benefit from the objectivity, independence and corporate governance.

5.1 Limitations

One of the limitations of the study include that the firms of the cement sector were considered to find the impact of the independence, a study considering more sectors of PSX will add further to the literature. Furthermore, the study did not consider the association of the non-executive directors with controlling shareholder, which may have resulted in breach of independence. The study did not consider the availability of the free cash flows that is an important factor for the minority shareholders.

5.2 Recommendations

Further studies with comparative analysis of the independence over the BOD different sectors of the PSX and their financial performance will be beneficial for the stakeholder in understanding the CG environment. The studies may include free cash flows and shareholding concentration by controlling shareholders as control variables to find better association between the

independence and financial performance. Future studies may also be performed to find impact of revision of the Code of Corporate Governance over the time.

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Sample Cement Manufacturers
"Attock Cement Pakistan Limited"
"Cherat Cement Company Limited"
"Dewan Cement Limited"
"D. G. Khan Cement Company Limited"
"Dandot Cement Company Limited"
"Flying Cement Company Limited"
"Fecto Cement Company Limited"
"Fauji Cement Company Limited"
"Gharibwal Cement Limited"
"Kohat Cement Company Limited"
"Lucky Cement Limited."
"Maple Leaf Cement Factory Limited"
"Power Cement Limited"
"Pioneer Cement Limited"
"Thatta Cement Company Limited"
Firms under Defaulter Segment
"Zeal Pak Cement Factory Limited"
"Dadabhoy Cement Industries Limited"
"Ready-Mix Concrete Firm"
"Safe Mix Concrete Limited"
"Real-Estate Firm"
"Javedan Corporation Limited"
Merged Firms-Incomplete Financial Data Available
"Bestway Cement Limited."
"Lafarge Pakistan Cement Limited."

Table 5.1: Test of Multicollinearity

	Dependent Variable: ROE		Dependent Variable: ROA	
Variable	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
C	-0.061746	0.8591	0.081688	0.6693
BODI	-0.105116	0.2414	-0.003213	0.9478
BODCI	-0.04327	0.1416	-0.024792	0.1256
INOS	0.019155	0.8767	-0.006209	0.9271
INOS_D	0.028418	0.4065	0.010355	0.5815
LEVER	0.050294	0.2191	-0.206437	0
SIZE	0.032643	0.33	0.012937	0.4816
R-squared	0.066283		0.690814	
Adjusted R-squared	-0.016103		0.663532	
F-statistic	0.804538		25.322	
Prob(F-statistic)	0.569883		0	
Akaike info criterion	-1.850577		-3.048036	
Schwarz criterion	-1.634278		-2.831737	
Hannan-Quinn criter.	-1.764211		-2.96167	
Durbin-Watson stat	0.829086		0.829441	

Table 5.2: Test of Heteroscedasticity

	Dependent Variable: RESID∧2			
	ROE		ROA	
Variable	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
C	-0.003231	0.9529	-0.009562	0.5325
ROEF	0.191988	0.7525	0.154965	0.364
ROEF∧2	-0.725151	0.665	-0.488208	0.2988
R-squared	0.034836		0.053581	
Adjusted R-squared	0.008026		0.027292	
F-statistic	1.299361		2.038123	
Prob(F-statistic)	0.279023		0.137722	

Table 5.3: Model Specification Error (Dependent Variable ROE)

Ramsey RESET Test			
Equation: OLS_ROE			
Specification: ROE C BODI BODCI INOS INOS_D LEVER SIZE			
Omitted Variables: Squares of fitted values			
	Value	**df**	**Probability**
t-statistic	0.739469	67	0.4622
F-statistic	0.546814	(1, 67)	0.4622
Likelihood ratio	0.546814	1	0.4596

Table 5.4: Model Specification Error (Dependent Variable ROA)

Ramsey RESET Test			
Equation: OLS_ROA			
Specification: ROA C BODI BODCI INOS INOS_D LEVER SIZE			
Omitted Variables: Squares of fitted values			
	Value	**df**	**Probability**
t-statistic	0.706045	67	0.4826
F-statistic	0.498499	(1, 67)	0.4826
Likelihood ratio	0.498499	1	0.4802

Table 5.5: Regression Analysis

	Dependent Variable: ROE			
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
C	-0.061746	0.46258	-0.133482	0.8938
BODI	-0.105116	0.108803	-0.966106	0.334
BODCI	-0.04327	0.021687	-1.995182	0.046
INOS	0.019155	0.089978	0.212882	0.8314
INOS_D	0.028418	0.033425	0.85021	0.3952
LEVER	0.050294	0.042716	1.177392	0.239
SIZE	0.032643	0.042733	0.763894	0.4449
Mean dependent var	0.177079	S.D. dependent var		0.091031
Sum squared resid	0.572563	Log likelihood		76.22236
Akaike info criterion	-1.84593	Schwarz criterion		-1.629631
Hannan-Quinn criter.	-1.759564	Deviance		0.572563
Deviance statistic	0.00842	Restr. deviance		0.613209
LR statistic	4.827231	Prob(LR statistic)		0.566156
Pearson SSR	0.572563	Pearson statistic		0.00842
Dispersion	0.00842			

Table 5.6: Regression Analysis

	Dependent Variable: ROA			
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
C	0.081688	0.258658	0.315814	0.7521
BODI	-0.003213	0.056931	-0.05643	0.955
BODCI	-0.024792	0.013132	-1.887873	0.059
INOS	-0.006209	0.052386	-0.118522	0.9057
INOS_D	0.010355	0.018548	0.558283	0.5767
LEVER	-0.206437	0.021082	-9.791896	0
SIZE	0.012937	0.024651	0.524794	0.5997
Mean dependent var	0.092584	S.D. dependent var		0.086928
Sum squared resid	0.172891	Log likelihood		121.1271
Akaike info criterion	-3.043389	Schwarz criterion		-2.82709
Hannan-Quinn criter.	-2.957023	Deviance		0.172891
Deviance statistic	0.002543	Restr. deviance		0.559182
LR statistic	151.932	Prob(LR statistic)		0
Pearson SSR	0.172891	Pearson statistic		0.002543
Dispersion	0.002543			

Table 5.7: Descriptive Analysis

	ROA	ROE	BODI	BODCI	INOS	INOS_D	LEVER	SIZE
Mean	0.092584	0.177079	0.760101	0.826667	0.126629	0.133333	0.462904	9.955998
Median	0.102494	0.193303	0.750000	1.000000	0.106740	0.000000	0.423081	10.02657
Maximum	0.227865	0.367696	0.900000	1.000000	0.364500	1.000000	1.819890	10.67707
Minimum	-0.183637	-0.051737	0.285714	0.000000	0.000140	0.000000	0.151925	9.028652
Std. Dev.	0.086928	0.091031	0.126579	0.381084	0.090773	0.342224	0.328216	0.409669
Skewness	-1.149073	-0.319215	-1.544585	-1.725951	0.950766	2.157277	2.657699	-0.252255
Kurtosis	4.651402	2.575436	5.776102	3.978908	3.483740	5.653846	10.37976	2.223278
Jarque-Bera	25.02690	1.837020	53.90536	40.23092	12.03071	80.18214	258.4824	2.680710
Probability	0.000004	0.399113	0.000000	0.000000	0.002441	0.000000	0.000000	0.261753
Sum	6.943817	13.28096	57.00754	62.00000	9.497148	10.00000	34.71783	746.6998
Sum Sq. Dev.	0.559182	0.613209	1.185653	10.74667	0.609746	8.666667	7.971691	12.41932
Observations	75	75	75	75	75	75	75	75