

MODERATING EFFECT OF CORPORATE GOVERNANCE INDEX BETWEEN DIVIDEND POLICY AND FIRM PREPERFORMANCE: A CASE STUDY ON PAKISTAN CEMENT SECTOR

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Abstract

In this study, how the Corporate Governance Index (CGI) moderated the relationship between dividend policy and firm performance of listed cement companies in Pakistan has been investigated. Both quantitative research design and longitudinal research design have been employed in the study while the panel data is taken from the annual reports of the cement companies listed on the Pakistan stock exchange (PSX) from 2018 to 2022. The above two indexes, Return on Assets (ROA) and Return on Equity (ROE) are used to evaluate the performance of the firms, while the dividend policy is evaluated by means of dividend capacity and dividend payout ratio. The Corporate Governance Index (CGI) is used to moderate the above two indexes. Proposed relationships are tested with the application of panel data regression techniques like the fixed effects and random effects models. The hypotheses of the study are tested with descriptive statistics and regression analysis. The findings revealed that dividend policy (Dividend capacity and Dividend payout ratio) positively affected the performance of cement listed companies in Pakistan as reflected in ROA and ROE. The results also show that the Corporate Governance Index has a significant positive moderating effect on the link between dividend policy and firm performance, thus indicating that a stronger corporate governance mechanism would strengthen the positive impact of dividend policy on firm performance. The study has been limited to listed Cement Industry of Pakistan and the time frame of the study period is from 2018-2022. The findings of the study could be furthered by including the variables of developed and developing economies, the mediating variables of other corporations and financial variables, and by using mixed methods approaches, which would integrate the quantitative findings with qualitative findings.

Keywords: Dividend Policy; Corporate Governance; Firm Performance; Cement Sector; Pakistan.

Introduction and Background of the study

The inception of 21st century driven the world into impulsion by competitive forces globally forcing organization towards relentless pursuit of excellence. In today's evolving landscape, characterized by digitally disrupted environment and interconnected markets financial performance of the organizations became a critical factor for determining their growth and success (Alabdullah et al., 2022). Financial performance metrics such as revenue growth, return on assts and equity has now been of much importance to navigate the competitive force globally (Khan et al., 2022). It does not only reflect operational efficiencies of the organization, further it also denotes organization's ability to attract investors, securing capital and enhancing stakeholders' confidence. A strong financial performance empowers an organization to capitalize on investing projects, innovation while incrementing their competitiveness in the market (Bondinuba et al., 2022). Dividend policy plays a pivotal role in constructing and maintaining the financial performance of the organization. This can have a multidimensional impact on both shareholder and firms value itself (Ben Salah & Ben Amar, 2022). A well-maintained dividend policy can enable to attract investors seeking regular income thus enhancing stock price and market capitalization of a firm. Conversely injudicious dividend policies can obstruct firms' liquidation, hindering its ability towards growth investments while

meeting its financial obligations (Sari et al., 2022). Thus, striking the right balance between distributing and retaining profits for reinvestments is critical for maintaining sustainable financial performance. Effective corporate mechanism can be of paramount importance in devising prudent strategies for distributing profits or retaining them for future growth (Dawood et al., 2023). Corporate governance can ensure transparency, accountability and integrity within the firm's operational activities while safeguarding the interest of stakeholders. These practices can aid in decision making process, aligning the interest of stakeholders with the organization's success, with mitigating the potential conflicts arising over the course of organizational procedures (Silpachai, 2023). Thus, corporate governance can lay the foundation for dividend policies and robust financial performance while nurturing long term value creation towards organizational resilience.

Overview of cement industry

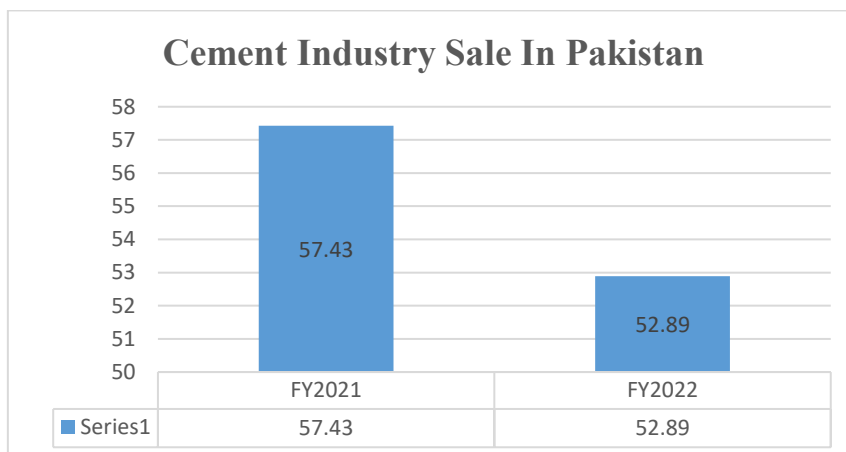
Overview of Industry Growth and profitability of industry plays an important role in social well-being of society (Hermelo & Vassolo, 2007). The production and performance of firms and overall sector is directly related to economic and fiscal gain (Gupta, Guha, & Krishnaswami, 2013). Further, it also elevates and create employment opportunities for citizens in turn overall impacting the work life style (Arrighetti & Lasagni, 2013). Cement industry is one of the considerable sectors for the growth and development of country. It has huge impact on the economic and social well-being of the country. It is one of the basic mineral industries and a fundamental element in infrastructure development. The country's development plans are directly regulated by the performance of cement sector. Pakistan is the 14th largest producer of cement in the world. Manufacturing industry took an active part towards the contribution of country's gross domestic product. In FY 22 manufacturing sector contributes 12.4 % of dominant presence in GDP (Pakistan Economic Survey, 2021-20). Among large- and small-scale manufacturing accounts for 9.2 and 2.0 percent of total GDP respectively. The third components slaughtering presents for 1.2 of Pakistan GDP (PES, 2022). Cement sector constitutes 17 companies among them 16 are operational. Sector is divided in two regions namely north and south with north covering Punjab, Khyber Pakhtunkhwa and Azad Jammu Kashmir and south covering Sindh and Baluchistan (Pacra, 2022).

The overall market capitalization shares of cement industry

Industry	Market capitalization
Cement	240.2 billion

Source: Pakistan Stock Exchange (2022)

According to statistical statistics, this industry experienced a 6.3 percent year-over-year (YoY) decrease in March FY2022 brought on by a precipitous drop in exports. 5.04 million tons (mt) of cement were dispatched in total, a decrease from 5.38 mt the previous year. From 4.56 mt in March of that year to 4.75 mt in March of FY2021, domestic consumption increased by 4.02 percent. Exports took the worst damage, with dispatches sharply falling from 0.82 mt in March FY2022 to 0.30 mt, a decrease of 63.8 percent in the corresponding month the previous year. This was mostly linked to increased international freight costs, Afghanistan's political and economic unrest, and a trade embargo with India. Total cement dispatches, according to the All-Pakistan Cement Manufacturers Association (APCMA) during FY21-22 (July 2021-June 2022) were 52.89 mt, 7.9 percent less than the 57.43 mt shipped during the previous fiscal year FY2021. Domestic consumption fell by 1.0 percent to 47.63 mt from 48.11 mt during this period, while exports collapsed by 43.6 percent to 5.25 mt from 9.31 mt in FY2021.



source: all Pakistan cement manufacturers association (APCMA)

Industry insiders reported that local growth has stagnated this year due to inconsistent strategies and internal political behavior. At the same time, exports fell due to the unavailability of coal as prices rose dramatically. In addition, budget constraints (the government imposes a one-off 10 percent surcharge on the budget for FY22-23) suggest growth will be bearish or in the single digits next year. In addition, a sustained increase in local fuel prices will also push up cement prices.

As a result, several projects were shelved due to high steel and cement prices. The APCMA attributes the performance to uncertainty in government strategy and historically high prices for fuel, power, coal and other commodities. Due to the high production costs, cement prices remain continue to increase in the local market. It also said that the Pakistani government will develop a policy to help the cement industry export from Pakistan.

Problem Statement

The cement sector is regarded as the foundation for long-term economic and social growth. World average per capita consumption posted an ascending trend during the previous years. Pakistan's cement expenditure relative to population increased proportionately after the revival of pandemic crisis. Large scale manufacturing contributes around 9.2 percent of total GDP of Pakistan's economy. Despite with significant contribution towards country's economic growth and major share in nation's employment, the fact is quite surprising as importance dampens in financial performance. Sector posted an elevated profit from 7 billion relative to last year. Apart from noteworthy improvements in revenues, financial performance of cement industry is declining over the period. Consequently, return on assets experienced a decline of 7% (13%: 2016, 6%: 2022) and return on equity decrements from 8% (21%: 2016, 13%: 2022) highlighting the deteriorated performance of cement sector. Numerous factors contributed towards the financial performance of cement sector drawn from previous studies. Among them most important are the dividend policy and corporate governance. This argument is further enhanced and supported by various studies conducted in Pakistan economy (Mohy-Ud-Din & Raza, 2021; Murtaza et al., 2020; Yousaf et al., 2019). Along with this empirical issue, there exist disparities in available literature. some studies found to have significant and positive impact of dividend policy on firm performance (Chosiah et al., 2019; Foong & Malek, 2022; Gul et al., 2020; Ukpung & Ukppe, 2023) while others report as negative implications of dividend policy (Bossman et al., 2022; Hassan, 2023; Olaoye & Olaniyan, 2022). Along with this theoretical gap previous studies mainly focuses towards the developed economies outlining the importance of financial performance and dividend policy (Kadim et al., 2020; Khan et al., 2019; Turkson et al., 2021), while pertaining little attention towards the developing regions where financial performance of organization is impacting the overall growth (Dang et al., 2021; Ukpung & Ukppe, 2023). Further the discrepancies in direct relation tends towards the need for

introducing a moderator (Baron & Kenny 1986). Corporate governance found to have major implications towards firm performance (Alodat et al., 2022; Huynh et al., 2022). These mechanism have profound effect on devising dividend policies for the firms as well (Das Mohapatra & Panda, 2022; Kanojia & Bhatia, 2022). With the stated relationship of corporate governance with the firm performance and dividend policy the study aims to bridge the theoretical and contextual gap by looking into direct as well as moderating impact.

Research objectives and Questions

The following study goals are outlined below and are based on the problem statement section above as to investigate whether dividend policy (dividend capacity, dividend payout ratio) has a significant impact on firm performance (ROA, ROE) of cement industry in Pakistan. As well to investigate whether the moderating effect of corporate governance index has a significant impact between the relationship of dividend policy (dividend capacity, dividend payout ratio) and firm performance (ROA, ROE) of cement industry in Pakistan. What is the impact of dividend policy (Dividend Capacity, Dividend Payout) on firm performance (ROA, ROE) of cement industry in Pakistan? Does corporate governance index significantly moderates between the relationship of dividend policy (dividend capacity, dividend payout ratio) and firm performance (ROA, ROE) of cement industry in Pakistan?

Scope and Significance of the study

The cement industry is known to be the foundation of any developing economic growth. It also contributes largely and significantly towards economic and social development. The impact of the dividend policy is enormous on the performance of the company. The research model is the measuring constructs of dividend policy, which are dividend capacity, dividend payout. Return on assets, return of equity and the market value of the firm are considered as a measuring instrument of firm performance. The moderating effects of corporate governance index is also taken into consideration in the research framework. All the variables which are comprising of the problem will be collected and gathered from annual reports of listed cement companies reported in Pakistan stock exchange for a period of 2010-2022. The data gathered is of a panel and longitudinal type. The study is about the dividend capacity, dividend payout, free cash flows and the performance of a company, and size of the board is the moderator. This study is another contribution to the literature on moderating the impact of corporate governance index between the dividend policy practices decisions and firm performance. The study is performed on the listed cement industry in Pakistan. As there is significant neglect remains in this context particularly in previous studies. This study provides some beneficial guidance to study the adoption of dividend decisions on firm performance. This study has been particularly useful for the practitioners and management of the Cement industry in the context of dividend decision, corporate governance and firm performance.

Research Methodology

Variable operation definitions

An operational description of a variable outlines how a variable is assessed and considered in a research project. The operational meanings of the study's independent, dependent, and moderator variables are explained in Table.1.

Table.1. The operational meanings of the study's independent, dependent, and moderator variables

Variables	Definition
Dividend Capacity	Dividend capacity refers to the sums that, as of the conclusion of the full Fiscal Year that ended before the end of the test period, the Insurance Subsidiaries could pay as dividends to the borrower in line with the

Variables	Definition
	policies and procedures of the relevant Departments under the relevant Law.
Dividend Payout	The ratio for the company's net income compared with the whole number of dividends given to shareholders is known as the dividend payout ratio. It refers to the portion of profits that are paid out as dividend to shareholders. The business keeps the surplus funds instead of distributing them to shareholders and either pays down debt or reinvests it in its core operation. The ratio of payouts alone may be applied when referring to it at times.
Return on Assets	The profitability ratios known as return on assets (ROA) show how profitable a company is in relation to its total assets. ROA and corporate leadership can be used by analysts and investors to evaluate how effectively a company uses its finances in order to turn a profit.
Return on Equity	Divide the income from operations by shareholders' equity to get return on equity (ROE), a measure of financial success. Because a company's shareholders' equity is calculated by deducting its debt from its assets, ROE is known as the return on net assets.
Board Size	According to (Abigail Levrau, & Lutgart Van den Berghe, n.d.) a board's size is determined by the entire number of directors on the board. According to Goshi et al. (2002), the ideal board size should have both executive and non-executive directors. For the company's governance, the board's organisational effectiveness is essential.

Research Design

Research design refers to the selection of entire procedure of research. It encompasses the whole processes from selection of research method till its final analysis and conclusions (Flick, 2022). The research design of the current study is developed according to the research questions and aims. Universally two approaches are considered to pursue a research namely deductive and inductive (Sekaran & Bougie, 2016). The deductive approach pursues to testify the existing theory through hypothesis development process (Wiles et al., 2011). This approach is backed with generalized theory with narrowing down to specific portion of knowledge gained through research process (Kothari, 2004). The inductive approach is one that begins with a specific or particular point, and also makes generalization of the concept (Bell et al., 2022). The ongoing study is deductive approach by doing means testing on existing theories which were tested and justified with the formulation of hypothesis. Other research goals and questions will also be quantified to research design. Only quantitative data is used to investigate the relations in the data set.

Nature and Sources of Data

For research purposes, data will be collected from all the annual reports within the period of 2010-2022 to attain the research goals. All the figures will be derived from the financials of listed cement companies from Pakistan stock exchange. Because data have both time series and cross sectional characteristics of data unit observations, the given data can be called panel or longitudinal (Wooldridge, 2015). Panel data has a number of advantages over other types of data, including more freedom, less multicollinearity, and greater effectiveness in empirical discoveries (Gujarati, 2009).

Population and data collection

In the overall cement sector of Pakistan 16 local and international companies are listed on Pakistan stock exchange which will comprises the population and sample size of the current study. Data will be collected through published annual reports. The data for 16 listed cement companies will be collected and empirically tested, the measurement of variables mentioned in Table.2.

Table .2. Measurement of various variables

Variable	Measurement	References
ROA	$ROA = \text{Net income} / \text{Total Assets}$	(Bossman et al., 2022a)
ROE	$ROE = \text{Net income} / \text{Shareholders Equity}$	(Bossman et al., 2022a)
Dividend Capacity	Free cash flow for the year ($FCF = EBIT(1 - T) + CAPEX$)	(Bossman et al., 2022a)
Dividend Payout	Dividend Payout Ratio = $\text{Dividends Paid} / \text{Net Income}$	(Bossman et al., 2022a)
Measurement control variable		
Leverage	Total debt/ total equity	(Bossman et al., 2022a)

Corporate Governance Index

Corporate governance was constructed by utilizing four governance variables (Mansour et al., 2020) namely board size (number of directors on board), board independence (number of independent variables on board), gender diversity (number of female directors on board), board composition (number of non-executive directors on board) (Index & Of, 2022). The index was constructed using principal component analysis which is the most utilized approach for constructing the index (Garde Sanchez et al., 2020; Labrín & Urdinez, 2020). Principal component analysis reduce the dimensionality of large data set while still capturing the most of the information of gathered information (Ewaid et al., 2020; Orazalin & Baydauletov, 2020).

Econometric models of the study

Panel data will be employed in this investigation, which includes both the characteristics of unit of observation or entities all through time t. On the basis of the panel data assumption (where the number of observation or entities is greater than one and time is greater than one), the models that followed were employed in the present investigation to achieve the research objectives.

Panel Regression Models

- Pooled Regression Model (PRM)
- Fixed Effect Model (FEM)
- Random Effect Model REM (REM)

Both research objectives will be addressed by testing H1-H12 through above mentioned panel regression models.

Pooled Regression Models

Researchers can successfully hold the effects of other factors (error terms) thanks to a well-known statistical technique termed a pooled regression model (PRM) depending on its parameters, it is known as a linear model and aids in describing the relationship between a

certain collection of variables. To estimate the multiple regression equation, ordinary least-squares regression will be used (Wooldridge, 2015).

General equation for regression model is given below

$$Y = a + b_1 * X_1 + b_2 * X_2 + \dots + b_n * X_n + \varepsilon$$

By replacing the above general equation following models are developed for the study

FOR DV 1

$$Y(FP - ROE) = \partial + \beta_1 DC + \beta_2 DP + \beta_3 Leverage + \varepsilon (M - 1)$$

FOR DV 2

$$Y(FP - ROA) = \partial + \beta_1 DC + \beta_2 DP + \beta_3 Leverage + \varepsilon (M - 2)$$

Where,

- FM = Financial Performance
- ROA = Return on Assets (DV 1)
- ROE = Return on Equity (DV 2)
- DC = Dividend Capacity
- DP = Dividend Payout
- FCF = free cash flow

Fixed Effect Method

The fundamental advantage of the fixed-effect model (FEM) is that it makes it easier for researchers to analyze the impacts of variables that are subject to temporal variation (Torres-Reyna, 2007). According to (Gujarati, 2009), I FE examines the link between the collection of predictors and the outcome(s) variables in the entity or units of observations. Each observation unit has unique characteristics that could influence or not the study's predictions (Torres-Reyna, 2007). Organizations, nations, or individuals are the main examples of I (Wooldridge, 2015). Due to the fact that the FE regression model is predicated on the possibility of an internal influence or bias on the result variables or predictors, this effect must be carefully managed (Torres-Reyna, 2007). Additionally, several time-invariant traits are positing to exist, therefore there shouldn't be any relationship between the traits of the people or the things (Nwakuya & Ijomah, 2017). The assumption for utilising the FE is inappropriate if the entities are associated (Torres-Reyna, 2007). As a result, the researcher should switch to a different model, possibly one that uses random effect (RE).

The equation for the FE becomes:

$$Y_{it} = b_1 x_{it} + a_i + u_{it}$$

Where,

- α_i ($i=1 \dots n$) is the unidentified intercept value for each entity or unit of observation.
- y_{it} is the outcome factor for a separate equation where i = unit of observation and t = time?
- X_{it} denotes one independent variable or predictor factor of the study.
- b_1 is the coefficient for that IV or predictor factor of the study?
- u_{it} is the error term.

Now by converting the above general fixed effect equation into the more specific format, it is as follow:

FOR DV 1

$$Y("ROE") = \beta_0 + \beta_1 DC_{it} + \beta_2 BP_{it} + \beta_3 Leverage + \gamma_2 E2 + \gamma_3 E3 + u_{it} (M - 1)$$

FOR DV2

$$Y("ROA") = \beta_0 + \beta_1 DC_{it} + \beta_2 BP_{it} + \beta_3 Leverage + \gamma_2 E2 + \gamma_3 E3 + u_{it} (M - 2)$$

Where,

- FM = Financial Performance
- ROA = Return on Assets (DV 1)
- ROE = Return on Equity (DV 2)
- DC = Dividend Capacity
- DP = Dividend Payout
- FCF = free cash flow

$\beta_0, \beta_1, \dots, \beta_{11}$ = regression parameters for outcome, predictors, and control variables of the study.

- $\gamma_2, \dots, \gamma_{16}$ = coefficients for the binary entities
- u_{it} = is the error term

Random Effect Model

As per (Bell & Jones, 2015; Torres-Reyna, 2007), the random effect (RE)'s basic tenet is that variability should be randomized across the chosen entities. As a result, it has nothing to do with the set of predictors or explanatory variables Greene (2005) added that "the important distinction between fixed and random effects is whether the unobserved individual effect includes features that are linked with the regressors in the model, not whether these effects are stochastic or not" Additionally, the RE should be employed if the researcher can convincingly demonstrate how the model's entity heterogeneity affects the outcome components (Torres-Reyna, 2007). A random effect also makes it easier to incorporate a model's time-invariant variables, that are taken in by the FE's intercept (Torres-Reyna, 2007).

The general equation for the above will be as follows

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \epsilon_{it}$$

Where,

- Y_{it} = dependent variable of the model
- β = regression coefficient
- X_{it} = explanatory variable for each entity i and time t
- u_{it} = between-entity error
- ϵ_{it} = within-entity error

Replacing the above equation in the present study, it is expressed as follows:

FOR DV 1

$$Y_{it}(ROE) = \beta_0 + \beta_1 DC + \beta_2 DP + \beta_3 Leverage + u_{it} + \epsilon_{it} (M - 1)$$

FOR DV 2

$$Y_{it}(ROA) = \beta_0 + \beta_1 DC + \beta_2 DP + \beta_3 Leverage + u_{it} + \epsilon_{it} (M - 2)$$

The next stage will include comparing the fixed with random impact regression models that have been applied. A final recommendation for embracing the research ideas will come from this comparison. To do this, the Hausman (HM) test is going has been used to analyze data from research by (Adkins et al., 2012; Hausman, 1978).

For HM test, the followings were the null and alternative hypotheses (Torres-Reyna, 2007).

- H_{mo} : unique errors or μ_i are correlated with the regressors of the model.

or

The preferred model is random effect.

- H_{m1} : unique errors or μ_i are not correlated with the regressors of the model.

or

The preferred model is Fixed Effect.

Overall results of the HM test have demonstrated that RE is preferable to fixed and random effects. By accepting the RE, a final model is suggested by comparing the RE with OLS

regression. The Breusch-Pagan Lagrange multiplier (B. P. LM) test will be used for this purpose while taking the following two hypotheses into account, as recommended by (Torres-Reyna 2007).

- H_{LM0} : across the selected entities, the variance is zero.
- H_{LM1} : across the selected entities, the variance is not zero.

Regression models for corporate governance index, dividend policy and firm performance

The study's second goal is to investigate the moderating impact of CGI on the association between DP and FP in Pakistan's cement industry. In order to investigate the moderating impact of CGI on CGI-DPROE and CGI-DPROA, an identical strategy is used. To investigate the moderating impact of BS in the DP-FM relationship, this study will utilize the following econometric models.

FOR DV 1

$$Y_{it}(ROE) = \beta_0 + \beta_1 DC + \beta_2 DP + \beta_3 Leverage + \beta_4 (CGI * DC) + \beta_5 (CGI * DPR) + u_{it} + \varepsilon_{it} (M - 3)$$

FOR DV 2

$$Y_{it}(FM - ROA) = \beta_0 + \beta_1 DC + \beta_2 DP + \beta_3 Leverage + \beta_5 (CGI * DC) + \beta_6 (CGI * DPR) + u_{it} + \varepsilon_{it} (M - 4)$$

Where,

- FM = Financial Performance
- ROA = Return on Assets (DV 1)
- ROE = Return on Equity (DV 2)
- DC = Dividend Capacity
- DP = Dividend Payout
- FCF = free cash flow

(CGI*DC) = Interactive effect between corporate governance index and dividend capacity

(BS*DPR) = Interactive effect between corporate governance index and dividend capacity

Data analysis

The data will undergo both descriptive and inferential analyses. For this purpose, the data will be analyzed on STATA software. The data set is defined using descriptive statistics using the median, mode, mean, standard deviation, and other normalcy measures (Lind et al., 2017). The reason for adoption of descriptive statistics is to analyze data trends.

Results and Discussion

Descriptive statistics

The descriptive statistics for all models of research variables are presented in the table below as a mean value and standard deviation. mean value for ROE is 0.519 and a standard deviation for ROE is 0.844. Mean value and standard deviation of ROA stand out at 0.164 and 0.26 respectively. The other hand, mean value of DC is 7.998 and its standard deviation is 0.972. mean value of DPR is 1.501 and its standard deviation is 1.458. mean value of CGI is -4.85 and its standard deviation is 1.966. mean value of LEV is 35.978 and its standard deviation is 9.639. The figures of Descriptive statistics for Mean, Standard Deviation, Range Min, Max are shown below in Table.3.

Table .3. Descriptive statistics

	Mean	Std. Dev.	Range	min	Max
ROE	.519	.844	2.679	.062	7.661
ROA	.164	.26	1.340	0.08	5.7
DC	7.998	.972	5.430	3.44	8.11
DPR	1.501	1.458	4.700	0	7.4

CGI	-.485	1.966	7.983	-3.235	4.648
LEV	35.978	9.639	7.884	6.734	23.56

Note: *ROA*- return on assets, *ROE*- return on equity, *DC*- dividend capacity, *DPR*-dividend payout ratio, *CGI*-corporate governance index, *LEV*-leverage

Unit Root Test

One of the key issues in the analysis of panel data is to determine whether the data is stationary or not. The next table is the result of the unit root test applied to all the variables of the framework. Levin-lin-chu test is used by the study to determine the stationarity of the panel data. This test is widely used by the previous literature (Kim et al., 2005; Westerlund, 2009) with the null hypothesis of common unit roots in the data and the alternative hypothesis of stationarity when the cross-sectional units of panel data are independent of each other. The llc test is based on the Augmented Dickey-Fuller test and is used to determine whether the cross sectionals are stationary for several time periods. The llc test detect the stationarity of individual unit roots, and form panel statistics. The test incorporates both time specific and individual specific time effects thereby controlling heterogeneity and panel serial correlation in data. The p value of llc for determining the stationarity of data should be less than 0,05 in order to reject the null hypothesis of unit roots hence accepting the alternative hypothesis of stationarity of data. The given table shows all values less than 0.05 (M1-0.000, M2-0.0001, M3-0.0000 and M4-0.0310) which shows the stationarity of panel data of all the variables. Above reported figures are show below in a Table.4.

Table .4. Unit root test of the data

Models	Statistics	P- value
<i>ROE</i>	-5.4261	0.0000
<i>ROA</i>	-4.5093	0.0001
<i>DC</i>	-1.9×10^2	0.0000
<i>DPR</i>	-3.0988	0.0310
<i>CGI</i>	-5.0432	0.0090

Note: *ROA*- return on assets, *ROE*- return on equity, *DC*- dividend capacity, *DPR*-dividend payout ratio, *CGI*-corporate governance index, *LEV*-leverage

Correlation analysis of the data

Below is the table representing the correlation analysis among the variables namely return on assets, equity, dividend capacity, dividend payout ratio and corporate governance index, lev. It presents the positive correlation among DC and ROA, ROE. Whereas DPR is negatively related with ROA, ROE. On other hand CGI is positively related with ROA, ROE negatively related with DPR and DC. Correlation coefficients and pairwise correlation are shown below in a Table.5.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) ROA	1.000					
(2) ROE	0.408 (0.000)	1.000				
(3) DC	0.392 (0.000)	0.195 (0.014)	1.000			
(4) DPR	-0.067 (0.278)	-0.084 (0.448)	-0.022 (0.466)	1.000		
(5) CGI	0.059 (0.787)	0.067 (0.511)	-0.148 (0.008)	0.340 (0.000)	1.000	
(6) LEV	-0.025 (0.295)	-0.027 (0.607)	0.060 (0.480)	-0.180 (0.093)	0.002 (0.466)	1.000

Table.5. Correlation analysis of the research data

Note: *ROA*- return on assets, *ROE*- return on equity, *DC*- dividend capacity, *DPR*-dividend payout ratio, *CGI*-corporate governance index, *LEV*-leverage

Multicollinearity statistics

One of main assumptions made before operationalization of the linear regression model for the data obtained is the presence of multicollinearity between the independent variables which are the conclusion of the research framework before operationalization. Multicollinearity refers to the concept if one or more independent or predictor variables are related to each other. It also estimates the extent of increment in the R square value of regression model due to the presence of correlation among the explanatory variables. To assess the multicollinearity among the independent variables variance inflation factor is used to quantify the correlation among the variables. The previous existing literature widely uses this statistical method (Craney & Surles, 2002; Stine, 1995; Thompson et al., 2017). All the independent variables used in the research framework have a value of VIF less than 5. The VIF statistics shown in the table below indicates that there is no degree of correlation between the predictor variables as all the VIF figures are below 5 (VIF of the ROE is 1.23, ROA is 1.46, DC is 1.198, DPR is 1.41, and LEV is 1.85). Also, the mean VIF statistics for the variables incorporated in the research framework is less than 5 hence identifying non-existence of correlation among predictors, and shows in Table.6.

Table.6. Variance inflation factor of the data

Variables	M1 – M3 (VIF)	1/VIF
ROE	1.23	0.889434
ROA	1.46	0.859409
DC	1.98	0.845134
DPR	1.41	0.904360
LEV	1.85	0.540540
Mean VIF	1.586	

Note: *ROA*- return on assets, *ROE*- return on equity, *DC*- dividend capacity, *DPR*-dividend payout ratio, *CGI*-corporate governance index, *LEV*-leverage

Autocorrelation and Heteroscedasticity

The major assumption of the static model of panel data is Autocorrelation and Heteroscedasticity. Autocorrelation represents how a variable is correlated with itself over time or in other the correlation among time series values and its lagged values. The correlation among between various observation and within entities. Past literature has been extensively adopted and used to investigate the problem of autocorrelation between the variables, such as

Wooldridge test (Born & Breitung, 2016; Drukker, 2003; Erdem & Sun, 2001). This test proposes null and alternative hypothesis identifying no autocorrelation and presence of autocorrelation among the variables respectively. the p value should be higher than 0.05 to address the non- existence of autocorrelation among the variables. The table below shows p value greater than 0.05 (M1-0.75, M2-0.23, M3- 0.35, M4-0.52,) for all 4 models examining the non-existence of autocorrelation among the variables. on the hand check for Heteroscedasticity is also essential while dealing panel data. Violation of variances of error terms across observations over entities is called heteroscedasticity. It is an alternate definition of Homoscedasticity that involves the fact that the error terms are changing for all the observations. There can be a variation of data in different panel observations, which may lead to heteroscedasticity. To solve the problem of identifying the variance of the error terms across observations, many tests are available, e.g., Breusch Pagan test and white test. The most widely used test adopted by previous literature is Breusch Pagan test hence also utilized in the current study (Onifade & Olanrewaju, 2020; Uyanto, 2022). This test puts forward two proposed hypothesis such as null hypothesis of constant variance of error terms and alternative hypothesis of existence of variance of error terms across all variables. All the p values of the panel data shown in the Table.7 above show that there was no evidence of heteroscedasticity in the panel data (M1-0.71, M2-0.41, M4-0.30, M4-0.62) as the p value is greater than 0.05.

Table.7. Autocorrelation and Heteroscedasticity

Model	Autocorrelation		Heteroscedasticity	
	P-value	Chi2	P-value	F-value
M1	0.75	0.83	0.71	0.31
M2	0.23	0.33	0.41	1.56
M3 (Moderation)	0.35	1.45	0.30	0.48
M4 (Moderation)	0.52	0.78	0.62	0.34

Note: *ROA-* return on assets, *ROE-* return on equity, *DC-* dividend capacity, *DPR-*dividend payout ratio, *CGI-*corporate governance index, *LEV-*leverage

Normality of Models

Panel data: Data collected over time from several entities. The normality assumptions are important and fundamental concepts in panel data analysis. It plays an important role in hypothesis testing and statistical inference. Some major statistical test like linear regression, T-test and Anova (etc) lies in the assumptions of normality of data. Major test was founded to verify the normality of panel data but the most widely used and applied in previous researches is Jarque Bera Test for normality(Alejo et al., 2015; Chuang & Wang, 2009; Meintanis, 2011). Can be used to a single variable or to a panel. The null hypothesis is used to test normality of panel data while the alternative hypothesis will be used to test the non-normality of panel data. The test depicts the normality of panel data on based on the concepts of skewness and kurtosis of the data. For panel data to exhibit normality the chi2 value should be above 0.05. the table below refers the chi2 value and its relevant p value for all the 6 models of framework. All the models show normality as the chi2 value for all the research models is greater than 0.05 (M1-0.676, M2-0.561, M3-0.943, M3-0.943, M4-0.621) the values are obtained after running the pooled ordinary least square regression models as shown in the Table.8.

Table.8. Normality of models

Model	chi2	p- value
M1	0.783	0.676
M2	0.831	0.561
M3 (Moderation)	0.1168	0.943
M4 (Moderation)	0.456	0.621

Note: *ROA*- return on assets, *ROE*- return on equity, *DC*- dividend capacity, *DPR*-dividend payout ratio, *CGI*-corporate governance index, *LEV*-leverage

Panel Cointegration Test (Kao)

Testing the panel cointegration among all the models is another important assumption of static panel model. panel cointegration is an important aspect to testify the long-term linear relationships among the variables. Panel data represents different observations across a number of entities over a series of time periods. The panel cointegration test is used to test the existence of long-term linear relationships among the variables. The longer run illustrates this linear relationship between the movement of all variables in the same direction. The panel cointegration is further addition towards the stationarity of variables while predicting the linear relationship among the variables of all model in a longer run. (Kao, 1999) introduced an extended version of llc test for stationarity to identify the panel cointegration among the variables. The present study opt the Kao test for identifying the panel cointegration among the variables. The Null hypothesis for kao test is that there is no cointegration between the variables while the alternative hypothesis is the variables are cointegrated. All the p value of 6 models of research framework in the given table below must be accepted as alternative hypothesis if the p value of t statistics is below 0.05. The values of statistics p (shown in the Table.9) for all the variables are below 0.05, indicating a panel cointegration between the variables.

Table .9. Panel cointegration test

Models	Statistics	P- value
M1	-3.1063	0.0009
M2	-5.3252	0.0000
M3	-4.4177	0.0001
M4	-3.0496	0.0011

Note: *ROA*- return on assets, *ROE*- return on equity, *DC*- dividend capacity, *DPR*-dividend payout ratio, *CGI*-corporate governance index, *LEV*-leverage

Breusch Pagan Language Multiplier Test

One of the basic regression models to analyze the impact of explanatory variables on outcomes variables chosen in the framework is pooled ordinary least square regression model. The model assumes that all the entities in the framework have common or identical intercept or slope coefficient. This model combines all the entities and individuals that are organized into a panel data, and treats it as a large cross section data (Balestra & Nerlove, 1966; Sayrs, 1989). This is in contrast with random effect model which assumes the existence of unobserved individual or entity specific effect that can impact the dependent variable. It is believed that such unobserved effects are random throughout the panel data set that connects uncorrelation with the explanatory variables. Such hidden factors are considered to be additional sources of error in studying the results of this model (Geisser, 1974; Raudenbush, 1994). The first basic step for the analysis of panel data is to conduct a Breusch Pagan Language Multiplier Test between the two models (pooled OLS and Random effect model) after the exposure of the panel observation towards both models. If P statistic of BP test is above the significance that is 0.05, we move towards the results of pooled OLS results otherwise if lower than 0.05 we accept the results of Random effect model. The values of BP test are given for all six models of the framework in the below table. It displays the P value of model1 is greater than the P value of the significance (M1-0.0895) which lead us towards the direction of the pooled OLS model. While on the other hand p value for M2-M4 (M2-0.000, M3-0.0023, M4-0.0012) is significant at 0.05 which leads towards the accepting of random effect model show in the Table.10.

Table 10 Breusch Pagan Language Multiplier Test

Model	Dependent Variable	Independent Variables	Chi2	Prob>Chi2	(Modelling Technique)
M1	TDR	EM, BS, BI	16.89	0.0849	Pooled Effect
M2	LDR	EM, BS, BI	30.29	0.0000	Random Effect
M3 (Moderation)	TDR	EM, BS, BI, BS*EM, BI*EM	35.21	0.0023	Random Effect
M4 (Moderation)	LDR	EM, BS, BI, BS*EM, BI*EM	25.23	0.0012	Random Effect

Note: ROA- return on assets, ROE- return on equity, DC- dividend capacity, DPR-dividend payout ratio, CGI-corporate governance index, LEV-leverage

Resul for Hausman test

Once the BP test and the appropriate selection between pooled OLS and random effect models are done, we take a step further in the analysis and apply the fixed effect model on the dataset. This is in contrast to the fixed effect model which assumes panel data includes some time invariant or individual specific effects that do not vary over the time but may affect the outcome variable. Then, fixed effect controls the influence of such time-invariant individual specific effects in the panel data and moves on to the more accurate estimation of the effect of independent on outcome variable. Another major assumption of fixed effect model is no correlation among these invariant features with the explanatory variables. By adjusting these effects in panel data, it results in more accuracy about the results. Previous studies (Amini et al., 2012; Pace & LeSage, 2008) use Hausman diagnostic test to store the results of random effect model. An important difference between the two is related to the p statistics for Hausman test, if the p statistic for the Hausman test is insignificant at the 0.05 level then we accept the random effect model, otherwise, the head is towards the fixed effect model. Table below showing the values for Hausman test for all the 6 models of study's framework. M1-M2 for ROA, ROE stands at above significance level at above 0.05 (M1-0.089, M2-0.095) heading towards random effect model whereas M3-M4 falls within the significance range at 0.05 (M3-0.010, M4-0.023) which leads towards the acceptance of fixed effect model, show in the Table.11.

Table.11. The result for Hausman Test

Model	Dependent Variable	Independent Variables	chi2 = (bB)'[(V _b V _B) ⁻¹](b-B)	Prob>Chi2	FEM/REM (Modelling Technique)
M1	TDR	EM, BS, BI	10.23	0.089	Random Effect
M2	LDR	EM, BS, BI	9.670	0.095	Random Effect
M3 (Moderation)	TDR	EM, BS, BI, BS*EM, BI*EM	13.71	0.010	Fixed Effect
M4 (Moderation)	LDR	EM, BS, BI, BS*EM, BI*EM	14.67	0.023	Fixed Effect

Note: ROA- return on assets, ROE- return on equity, DC- dividend capacity, DPR-dividend payout ratio, CGI-corporate governance index, LEV-leverage

The Model 1, Return on Assets

The table below representing the figures for accepted model of pooled ordinary least square model for ROA one of the selected proxies to measure capital structure. The reported model explains the direct relationship among DC and DPR. the P-value for DC is less than 0.05 (DC-0.000) hence depicting the significance of relation. Further examining the impact of BS, it has been found that coefficient of DC is positive and stands at (12.779) concluding positive and significant impact on ROA a major change brought by DC on ROA decisions. P value for DPR is significant at 0.05 (DPR-0.019) hence leading towards the acceptance of hypothesis. Also, the coefficient represents (0.0077) positive impact on DPR around 0.078 percent impact on ROA, in the Table.12.

Table.12. Model 1 Return on Assets

ROA	Coef.	St. Err.	T-value	P-value	(95% Conf Interval)	Sig
DC	12.779	4.322975	4.86	.000	-1.456804 20.91126	***
DPR	0.077	.0295329	6.63	.019	.0197352 .1367569	***
LEV	0.053	.0135987	7.12	.009	.0291692 .0825451	***
Constant	-.7390	.10932454	-8.58	0.008	-.936313 -.5033571	***
R-squared	0.174	Number of obs		198		
F-test	7.161	Prob > F		0.000		

*** $p < .01$, ** $p < .05$, * $p < .1$

Note: ROA- return on assets, ROE- return on equity, DC- dividend capacity, DPR-dividend payout ratio, CGI-corporate governance index, LEV-leverage

The Model 2, Return on equity

The table below representing the figures for accepted model of Random Effect model for ROE another of the selected proxies to measure firm performance. These values are obtained by applying logarithmic data transformation to the panel dataset. The reported model explains the direct relationship among DC, DPR, and ROE, the P-value for DC is less than 0.05 (DC-0.000) hence depicting the significance of relation. Further examining the impact of DC, it has been found that coefficient of DC is positive and stands at (18.4%) concluding positive and significant impact on ROE and 18% major change brought by DC on ROE decisions. P value for DPR is significant at 0.05 (DPR-0.029) hence leading towards the acceptance of hypothesis. Also, the coefficient represents (-1.5%) negative impact on ROE around 1.5% percent impact on ROE, in the Table.13.

Table.13. Model 2 Return on equity

ROE	Coef.	St. Err.	t-value	p-value	(95% Conf Interval)	Sig
DC	1.845994	0.6198231	7.80	0.000	0.5218771 2.957511	***
DPR	-0.154759	0.069776	-8.36	0.029	-0.3029408 -0.0277475	***
LEV	-.0152256	0.024545	-0.32	0.555	-0.0632903 0.03299652	
Constant	1.712479	0.6475764	8.64	0.068	0.4436481 2.98548	***
R-squared	0.1798	Number of obs		198		
Wald chi2	14.62	Prob > Chi2		0.0623		

*** $p < .01$, ** $p < .05$, * $p < .1$

Note: ROA- return on assets, ROE- return on equity, DC- dividend capacity, DPR-dividend payout ratio, CGI-corporate governance index, LEV-leverage

Model 3, The Moderation-Return on assets

The table below shows the moderating impact of corporate governance index between dividend policy a return on assets. These values are obtained by applying logarithmic data transformation to the panel data the reported model explains the moderating relationship among DC, DPR and CGI and ROA. the P-value for DC*CGI is less than 0.05 (DC*CGI -0.008) hence depicting the significance of relation. Further examining the impact of DC*CGI it has been found that coefficient of DC*CGI is negative and stands at (-76%) concluding negative and significant impact on ROA. P value for DPR*CGI is significant at 0.05 (DPR*CGI -0.006) hence leading towards the acceptance of hypothesis. Also, the coefficient represents (0.03%) positive and significant impact on ROA, in the Table.14.

Table.14. Model 3 The Moderation-Return on assets

ROA	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
DC*CGI	-0.7623161	0.0156163	-0.85	0.008	-0.3531354	0.9285031	***
DPR*CGI	0.03237	0.5160472	0.65	0.006	-0.3208326	0.4525067	***
LEV	0.0578002	0.8154596	4.39	0.0001	0.0982902	0.9853102	***
Constant	0.0985936	0.7424226	0.56	0.078	-0.4554823	0.5666696	***
R-squared	0.1681	Number of obs		198			
F-test	6.31	Prob > F		0.0004			

*** $p < .01$, ** $p < .05$, * $p < .1$

Note: ROA- return on assets, ROE- return on equity, DC- dividend capacity, DPR-dividend payout ratio, CGI-corporate governance index, LEV-leverage

Model 4, the Return on equity

The table below shows the moderating impact of corporate governance index between dividend policy and returns on equity. These values are obtained by applying logarithmic data transformation to the panel data The reported model explains the moderating relationship among DC, DPR and CGI and ROE. the P-value for DC*CGI is less than 0.05 (DC*CGI -0.007) hence depicting the significance of relation. Further examining the impact of DC*CGI it has been found that coefficient of DC*CGI is negative and stands at (-25%) concluding negative and significant impact on ROE. P value for DPR*CGI is significant at 0.05 (DPR*CGI -0.000) hence leading towards the acceptance of hypothesis. Also, the coefficient represents (85%) positive and significant impact on ROE, in the Table 15.

Table.15. Model 4 the Return on equity

ROE	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
DC*CGI	-0.25336	0.0433596	-0.64	0.007	-0.0494408	0.0427687	***
DPR*CGI	0.850578	0.5244031	3.74	0.000	0.0358935	0.132222	***
LEV	0.903069	0.1909213	0.41	0.041	-1.1780923	0.3387041	***
Constant	2.849615	0.4875761	6.95	0.000	1.825449	3.473782	***
R-squared	0.2974	Number of obs		198			
F-test	8.77	Prob > F		0.000			

*** $p < .01$, ** $p < .05$, * $p < .1$

Note: ROA- return on assets, ROE- return on equity, DC- dividend capacity, DPR-dividend payout ratio, CGI-corporate governance index, LEV-leverage

Dividend policy and firm performance

Panel data results reveal the significant and positive impact of dividend capacity on return on assets. The results reveal the importance of dividend capacity within the context of Pakistan cement industry. The dividend capacity of a company, which reflects its ability to generate and

distribute excess profits to shareholders, has a notably positive impact on its Return on Assets (ROA)(Murtaza et al., 2020; Nguyen Trong & Nguyen, 2021). This relationship particularly in Pakistan cement industry emerges from the fact that a strong dividend capacity often indicates a company's operational efficiency, profitability, and robust cash flow management which are all critical determinants of a healthy ROA(Agung et al., 2021; Romus et al., 2020). When a company can afford to pay dividends consistently, it signals to the market and investors that it is not only generating sufficient profits from its asset base but is also able to convert those profits into cash. This perceived financial stability and profitability can enhance investor confidence, potentially leading to a higher market valuation of the company's assets(Akhmadi & Robiyanto, 2020; Ugwu et al., 2020). Moreover, the discipline required to maintain a dividend payout can encourage management to focus on efficient asset utilization and cost control, further optimizing the company's return on assets. The results are supported by previous studies (Altahtamouni et al., 2020; Marito & Sjarif, 2020; Rahayu & Wardana, 2021). Thus, a significant and positive impact of dividend capacity on ROA underscores the interplay between shareholder value, company performance, and financial health. Furthermore, a robust dividend policy enhances the company's reputation in the financial markets, reducing the cost of capital and making it easier to access external funds when needed (Hillman et al., 2009). This strategic management of resources, as guided by RDT, enables cement companies in Pakistan to optimize their asset utilization, thus significantly improving their return on assets through a virtuous cycle of investment, efficiency, and profitability(Jiang et al., 2023).

Additionally, the results also reveal the positive and significant impact of dividend payout ratio on return on assets in the context of Pakistan cement industry. The dividend payout ratio, which indicates the proportion of earnings a company returns to its shareholders as dividends, can have a significant and positive impact on the Return on Assets (ROA), a key measure of a company's profitability relative to its total assets(Jiang et al., 2023; Septiani et al., 2020). This also further defines the discipline and efficiency of dividends impose on corporate management. When a company commits to a consistent dividend payout, it effectively signals its confidence in ongoing profitability and cash flow generation (Jati, 2020; Novyarni & Permana, 2020). This discipline encourages management to allocate capital efficiently, focusing on profitable ventures and optimizing asset utilization to ensure a steady stream of earnings capable of supporting dividends. As a result of such prudent management and operational efficiency can enhance the company's profitability, as reflected in an improved ROA (Utami, 2020). Furthermore, a healthy dividend payout ratio can attract a stable shareholder base, reducing capital costs over time, which further supports investment in high-return projects, thus reinforcing the positive cycle between dividend policy and asset returns (Sunaryo & Lestari, 2022). The results also support the view of resource dependency theory which indicates when a company ensures that it is investing in high-return projects before distributing dividends, thus directly supporting an improvement in ROA (Artamevia & Almalita, 2021; Prianda et al., 2022).

Panel data results also reveal the positive and significant impact of dividend capacity on return on equity. The industry defines the importance of dividend capacity in elevating return for shareholders. Dividend capacity, which reflects a firm's ability to pay out earnings as dividends, is a direct indicator of financial health and operational efficiency (Renaldo et al., 2023). When a company has high dividend capacity, it not only signifies strong earnings and cash flow but also demonstrates prudent financial management and a commitment to returning value to shareholders (Nurwulandari, 2020). This ability to distribute dividends without compromising growth or operational needs can lead to a more favorable perception among investors, potentially driving up the stock price (Bossman et al., 2022). As ROE measures the profitability of a company relative to shareholder's equity, a firm that skillfully balances reinvestment

opportunities with attractive dividend payouts can achieve a higher ROE. This balance ensures that the company is not only growing and reinvesting in itself but is also rewarding its shareholders, thereby enhancing the overall attractiveness of its equity and positively influencing its return on equity (Agung et al., 2021; Ugwu et al., 2020). The results are supported and in line with the previous research findings (Abbas et al., 2021; Margono & Gantino, 2021).

On the other hand, results also present the negative but significant impact of dividend payout ratio on return on equity. The results drive from the statistics of Pakistan cement industry. ROE is a key metric used to assess a company's efficiency at generating profits from every unit of shareholders' equity (Renaldo et al., 2023). If a company allocates a large portion of its earnings as dividends, it retains less capital for reinvestment in business operations, such as expanding its market reach, enhancing product lines, or investing in research and development (Marito & Sjarif, 2020). This reduced reinvestment capability can hinder the company's growth prospects and operational efficiency, ultimately leading to a lower rate of return on the shareholders' equity (Altahtamouni et al., 2020). In other words, while a higher dividend payout ratio may provide immediate income to shareholders, it can compromise the firm's ability to reinvest in its core business, potentially stunting future earnings growth and diminishing the long-term value creation for shareholders, thus adversely affecting the ROE. The results are in line and supported by previous studies (Ewaid et al., 2020; Jiang et al., 2023; Nurwulandari, 2020).

Dividend policy, corporate governance and firm performance

The positive and significant moderation in the relationship between corporate governance index and dividend policy and firm performance as revealed by the findings of the prevailing study. Based on the results of the research, it can be concluded that the financial performance indicators improved in the presence of effective corporate governance mechanisms. Financial performance indicators are the relationship between dividend capacity, dividend payout ratio and a firm's performance indicators (return on assets (ROA), return on equity (ROE)) are part of corporate finance theory and practice (Rahayu & Wardana, 2021). Two key indicators that alert investors on a company's operational efficiency and financial health are dividend capacity, which refers to a firm's capacity to pay dividends from its net income, and dividend payout ratio, which is the ratio of dividends paid to investors to their net income (Septiani et al., 2020). When managed appropriately, these factors can significantly moderate and enhance the ROA and ROE, indicating a more efficient use of assets and equity in generating profits (Ugwu et al., 2020).

A positive moderation effect of dividend capacity and payout ratios on ROA and ROE can be as a result of several underlying factors. Firstly, a robust dividend capacity reflects a firm's strong cash flow position, which is crucial for sustaining operations, investing in growth opportunities, and returning value to shareholders (Orazalin & Baydauletov, 2020). It signals to the market that the company is generating sufficient earnings, thus improving investor confidence and potentially leading to an increased market valuation. The direct impact of this is often a more favorable view from investors, which can translate into higher stock prices, indirectly benefiting ROE through the market perception of the firm's value (Rahayu & Wardana, 2021). Furthermore, a sensible dividend payout ratio that balances between rewarding shareholders and retaining earnings for future investment can foster a sustainable growth trajectory, thereby enhancing the return on assets by ensuring that the assets are being used effectively to generate earnings (Romus et al., 2020).

The moderating role of dividend capacity and payout ratios on ROA and ROE highlights the importance of strategic financial management within the framework of RDT. By effectively managing these dividends-related policies, firms can signal their operational efficiency and profitability, enhancing their ability to attract and retain the resources needed from the external

environment (Nurwulandari, 2020). This strategic signaling, supported by strong corporate governance, ensures that firms not only meet the expectations of their current shareholders but also appeal to potential investors, thereby securing the vital external resources needed for sustainable growth (Margono & Gantino, 2021). In essence, the relationship between dividend policy and performance indicators, moderated by corporate governance, highlights how firms navigate their dependencies on external resources, emphasizing the relevance of RDT in understanding corporate financial strategies and their implications for firm performance (Lindgreen & Swaen, 2010)

Theoretical Implications

The theoretical implications of the findings from the study on the Pakistani cement industry highlights the important mix of dividend policy, corporate governance, and firm performance, particularly measured through Return on Assets (ROA) and Return on Equity (ROE). The positive impact of dividend capacity and dividend payout ratios on ROA and ROE, moderated by corporate governance, reinforces the Resource Dependency Theory (RDT). This theory posits that a firm's ability to secure and optimize external resources is pivotal for its survival and growth. The study's findings suggest that effective dividend policies, characterized by a firm's capacity to pay dividends and maintain an optimal payout ratio, serve as important signals of financial health and operational efficiency to investors and the market at large. These signals, when coupled with strong corporate governance mechanisms, not only enhance investor confidence but also facilitate the firm's access to external resources by improving its market valuation and reducing the cost of capital. This strategic management of dividend policies and corporate governance practices, therefore, plays a crucial role in optimizing a firm's asset and equity utilization, ultimately contributing to superior firm performance. The findings highlight the necessity of integrating dividend policies with robust corporate governance structures to navigate the complexities of external dependencies and resource optimization, providing a nuanced understanding of the mechanisms through which firms can enhance their financial performance and shareholder value.

Practical Implications

The practical implications of the above findings are multifaceted, particularly for companies within the Pakistan cement industry and potentially for similar sectors in emerging markets. Firstly, firms should recognize the strategic importance of maintaining a strong dividend capacity and an optimal dividend payout ratio as tools for enhancing financial performance indicators such as ROA and ROE. This entails not only demonstrating operational efficiency and profitability but also carefully balancing between distributing dividends and reinvesting earnings for future growth. Corporate governance plays a crucial role in this balance, as effective oversight and management practices can enhance the firm's ability to implement dividend policies that signal financial health and operational efficiency to the market. Companies should, therefore, prioritize establishing effective corporate governance mechanisms to support strategic dividend policies that can attract and retain investors by signaling the company's long-term growth prospects and financial stability. This approach can lead to increased investor confidence, potentially higher market valuations, and improved access to capital, which are essential for sustaining growth and competitiveness in the market. By aligning dividend policies with strong corporate governance practices, firms can better navigate their dependencies on external resources, securing the vital external funding needed for sustainable growth and enhancing overall firm performance.

Limitations Future

The framework of the study incorporates dividend capacity, dividend payout ratio as independent variables while return on assets and equity as dependent variables. Also, the role of corporate governance index serving as a moderator have also been observed. Information

was only obtained cement sector of Pakistan covering the years of 2010-2022. Corporate governance index is constructed by board size, board independence, board gender diversity and board composition imposing restriction towards the model while examining the impact of corporate governance on capital structure. In future research could be carried on more extensive framework containing diverse background on corporate governance such as corporate governance index formulated on multiple variables. This will enable future researchers to have combined and appropriate image of corporate governance. Incorporating other firm performance indicators such as market value, stock price will help researchers to further analyze the results in a more comprehensive manner. Also, the future research could be carried on more developed sectors in Pakistan such as Textiles sector to have better understanding and insights of the results obtained.

Conclusion

The findings of the present research sheds light on the vital combination of dividend policies, corporate governance and performance of cement industry in Pakistan. Specifically, the results indicate that dividend capacity has a positive effect on both the return on assets (ROA) and return on equity (ROE) and dividend payout ratio has a positive effect on ROA and a negative effect on ROE. This is a stark reminder of the critical balance that any business must strike between payout and reinvestment. Importantly, the studies also show that the positive relationship between dividend policies and the firm performance can be strengthened through the influence of the corporate governance mechanisms on the financial performance of the firm, specifically ROA and ROE. It indicates that good corporate governance improves company performance and also contributes to an increase in the positive impact of strategic dividend policies. Overall, these findings offer valuable insights into the importance of prudent dividend policies and robust corporate governance in optimizing firm performance, particularly in the Pakistan cement industry, and great contribution towards existing literature.

Statement of Interest

All the authors of this manuscript hereby confirm no conflict of interest.

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