

CEO compensation and financial distress: the role of corporate social responsibility

Qadri Al-Jabri

*School of Business Administration, University of Business and Technology,
Jeddah, Saudi Arabia*

South Asian
Journal of
Business Studies

43

Received 11 November 2024
Revised 3 March 2025
24 June 2025
Accepted 12 July 2025

Abstract

Purpose – The present study examines the effect of CEO compensation on the likelihood of financial distress (FD). Further, the mediating role of corporate social responsibility (CSR) is investigated in this study.

Design/methodology/approach – The study's sample comprises 140 non-financial Pakistan Stock Exchange (PSX) listed firms from 2010 to 2021. CEO compensation includes salary and bonuses, perquisites and stock options to the CEO. The FD was measured through Altman's Z-score. A multidimensional financial approach is utilized to assess the firm's CSR engagement. The analysis was conducted using panel data estimate techniques such as FEM and REM. Several additional tests are performed to check the robustness of the results.

Findings – Based on the four-step procedure for mediation analysis outlined by Baron and Kenny (1986), we discovered that CSR has a significant inverse effect on FD, CEO compensation has a significant positive influence on CSR, where the significant inverse effect on FD, and finally, this association between CEO compensation and FD is not direct instead it is mediated through the CSR.

Practical implications – The government and authorities must compel or encourage businesses to pay their CEOs competitive cash-based compensation. Furthermore, better pay encourages managers to employ corporate social responsibility as a business strategy. This will improve the firm's performance and keep it out of financial distress.

Originality/value – Several studies have investigated the influence of CEO salary on corporate performance, but the impact on FD has yet to receive much attention. The current study's goal is to fill this gap. Furthermore, the mediating role of CSR has substantially added to the research.

Keywords CEO compensation, Financial distress, Corporate social responsibility

Paper type Research article

1. Introduction

Leadership is critical to the performance and growth of organizations of all sizes and shapes (Wood and Vilkinas, 2005). The CEO manages all corporate activities, makes crucial strategic decisions, and determines how well the company's resources are used. Researchers and practitioners are becoming more interested in examining how CEO compensation affects the organizations they manage due to the strategic significance of the CEO's function. The empirical literature strongly supports the notion that CEO decisions have a significant impact on firms' strategic choices, such as capital budgeting decisions (see Zor *et al.*, 2019), financial reporting policy (Huang *et al.*, 2012), corporate risk-taking (Martino *et al.*, 2020), dividend policy (Briano-Turrent *et al.*, 2020), investment decisions (Gupta *et al.*, 2018), R&D spending (Lefebvre and Lefebvre, 1992), corporate leverage (Nilmawati *et al.*, 2021), merger and acquisition (Brown and Sarma, 2007), earnings management practices (Bouaziz *et al.*, 2020), and CSR practices (Xu and Hou, 2021), among others.

The literature contains numerous studies on the effect of CEO compensation on firm performance. However, it is silent on its impact on financial distress (hereafter, FD), which is



© Qadri Al-Jabri. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at [Link to the terms of the CC BY 4.0 licence](https://creativecommons.org/licenses/by/4.0/).

South Asian Journal of Business Studies
Vol. 15 No. 1, 2026
pp. 43-62
Emerald Publishing Limited
e-ISSN: 2398-6298
p-ISSN: 2398-628X
DOI 10.1108/SAJBS-11-2024-0423

often ignored by academics. FD occurs when a firm fails to honor its debt obligations when they fall due. When a company's performance deteriorates so that its financial commitments to preferred stockholders and other stakeholders can no longer be maintained, it faces FD ([Habib et al., 2020](#)). Following the global economic crises of 2008 and the financial scandals of reputable businesses around the world, such as World COM, Lehman Brothers, and American Investment Group, predicting the FD rests a significant area of concern for all company stakeholders, including business owners, managers, creditors, and investors. Given the devastating consequences of FD, firms must prioritize developing ways to reduce the possibility of FD. Except for the most recent study by [Chatterjee et al. \(2023\)](#), which examines the effect of CEO compensation on FD in Australian companies, a developed market, research has yet to investigate the potential link between the two, particularly in emerging markets.

According to [Chatterjee et al. \(2023\)](#), research on the association between CEO compensation and FD is scarce. According to agency theorists, attractive CEO compensation is an effective governance tool that mitigates this conflict of interest, increases the CEO's involvement in accomplishing the shareholder's objectives, and, as a result, improves the firm's performance. In contrast to the preceding arguments, some researchers believe that CEOs can benefit in a variety of ways, including empire building ([Garvey, 1997](#)), extracting rent ([Bebchuk et al., 2002](#)), retaining excess cash ([Liu and Mauer, 2011](#)), and protecting their wealth through golden parachutes at the expense of existing shareholders ([Hartzell et al., 2004](#)). All of this increases the chance of FD. These contrasting explanations prompt us to investigate the CEO compensation-FD relationship. According to the author's knowledge, only one study, [Chatterjee et al. \(2023\)](#), in a developed country, i.e. Australian enterprises, has explored the impact of CEO compensation on FD, leaving a research gap to be filled, particularly in the context of a developing economy. Furthermore, [Buvanendra et al. \(2017\)](#) argued that developing markets differ from industrialized countries in terms of economic, institutional, cultural, and corporate governance traits, as well as residual non-economic components. As a result, the findings of the developed-country study cannot be generalized to other developing countries. Hence, there is a need to investigate the relationship between CEO compensation and FD in emerging countries. The current study intends to fill this gap in the literature by investigating the relationship between CEO compensation and FD in a developing country, namely Pakistan.

Additionally, we argued that the impact of CEO compensation on FD is mediated by the firm's participation in CSR-related activities. Recently, CSR has evolved as an essential concept, frequently utilized as an alternative measure of business success, particularly for long-term corporate financial performance and viability ([Ioannou and Serafeim, 2019](#)). CEO compensation influences CEOs' CSR decisions ([Karim et al., 2018](#)). According to [Pareek and Sahu \(2024\)](#), executive compensation can match executives' personal goals with the firm's "common good" strategy, leading to more socially responsible behaviors. Most recently, [Larbi et al. \(2024\)](#) analyzed French-listed enterprises and concluded that CEO incentive compensation acts as an effective disciplinary mechanism in favor of CSR, resulting in improved CSR performance. Similarly, researchers like [Farooq et al. \(2023\)](#), [Boubaker et al. \(2020\)](#), [Do \(2022\)](#), [Zheng et al. \(2019\)](#), [Shahab et al. \(2018\)](#), and [Albuquerque et al. \(2019\)](#) argued that CSR has a significant impact on the firm's likelihood of FD. Based on the findings presented above, it is reasonable to assume that CSR is a potential mechanism through which CEO remuneration impacts the likelihood of FD. [Albuquerque et al. \(2019\)](#) argued that a firm's CSR efficiency increases business value and minimizes systematic risk. As a result, CEO compensation is the key motivator for a firm's participation in CSR activities, and this firm's CSR engagement significantly impacts its likelihood of FD. There is no study in the literature that investigated the role of a firm's participation in CSR-related activities in this CEO compensation and FD risk relationship. Hence, there is a potential research gap available in the literature, which the present study intends to fulfill. Therefore, the current study attempts to achieve two research objectives: first, what is the impact of CEO compensation on the level of FD, and second, how does CSR mediate this CEO compensation-FD relationship?

We chose Pakistan because it possesses many characteristics of an emerging market economy, such as low investor activism and weak regulatory and institutional systems. In addition, the poor governance mechanisms in Pakistani firms are characterized by ownership concentration, director interlocking, pyramid ownership, and proxy directorship (Farooq and Noor, 2021). Khan *et al.* (2025) remarked that Pakistan has a relatively weak corporate governance system. Furthermore, CEOs are more powerful than boards in Pakistan because they are the heads of controlling families or have close ties to controlling shareholders (Kamran and Shah, 2014). Strong ties between the CEO and his family or controlling shareholders suggest minority shareholder expropriation (type-II agency problem). Minority shareholder expropriation rises when formal institutions such as the legal system and investor protection are weak. Furthermore, the underdeveloped capital market, the financial sector's inability to meet corporate sector liquidity needs, and the concentrated ownership structure in Pakistani firms provide a unique opportunity to study corporate social contribution to the ease of FD. All of this motivates me to investigate the relationship between CEO compensation and FD.

To achieve the research objectives, we analyzed the data of 140 non-financial PSX-listed firms for 12 years from 2010 to 2021 (1,668 firm-year observations). This period is selected because, after the subprime crises of 2007–2008, the Securities and Exchange Commission of Pakistan (SECP) presented new reforms for listed companies to reveal the compensation details in annual reports. Following the research of Boubaker *et al.* (2020), we calculate the level of FD of sample firms using the Altman Z-score. CEO pay is calculated by adding the total paid to the CEO in terms of salary, bonuses, perquisites, and stock options, if any. Firms' CSR engagement is measured using a multidimensional financial approach (hereafter, MFA), which is the sum of corporate spending on charity and donations, employee welfare, and research and development. We used Baron and Kenny's (1986) four-step technique to evaluate the mediating role of CSR in the CEO compensation-FD connection. We have employed the fixed effect model (FEM) and random effect model (REM) based on the Hausman test.

We found that CSR has a significant inverse effect on FD, CEO compensation is significantly positively associated with CSR, CEO compensation has a significant inverse effect on FD, and finally, at the fourth step of the mediation analysis procedure, we discovered that this relationship is not directed but rather mediated by CSR. We test the results' robustness using alternative measures of FD and CSR and other econometric approaches. Our research contributes to the existing literature in various ways: First, in the context of an emerging market where corporate governance mechanisms and CSR frameworks are ineffective and the firm's likelihood of facing FD is high, our research improves our understanding of the relationship between CEO compensation and FD risk, particularly in Pakistan, where it has not previously been tested. Second, we looked into the mediating role of a firm's involvement in CSR in the CEO compensation-FD relationship, arguing that the relationship between CEO compensation and FD is mediated by the firm's involvement in CSR-related activities, which had not previously been investigated. The findings will be helpful to policymakers in Pakistan and other developing countries in developing regulatory frameworks for CEO compensation, stimulating firms' CSR engagement, and saving the firm from FD.

The rest of the paper is organized as follows: Chapter 2 elaborates on the literature evaluation and hypothesis development, followed by Chapter 3 on the research technique. Chapter 4 covers the results and discussion, the Robustness of the results elaborated in Chapter 5, and Chapter 6 offers the study's conclusion.

2. Literature review

2.1 CEO compensation and financial distress

The influence of CEO compensation and FD can be better understood using agency theory and optimum contract theory. Because there is a division of ownership and control in organizations, it is in the best interest of the executive to increase his own monetary and

non-monetary wealth (Fama and Jensen, 1983). Many academics have proposed attractive CEO compensation to help align the interests of the CEOs with the interests of shareholders (Zandi *et al.*, 2019), thus improving firm performance (Kweh *et al.*, 2022; Pathak and Chandani, 2023; Elias *et al.*, 2024) and saving the firm from FD (Ashraf *et al.*, 2022). According to Edmans *et al.* (2009), incentive compensation for the CEO helps resolve broad agency problems, such as strategy decisions, while smaller concerns, such as perk use, are best addressed by direct monitoring.

Furthermore, according to optimal contracting theory, adequate executive remuneration may result in the highest performance. According to Gibbons and Murphy (1990), CEO compensation is significantly and positively related to a company's stock market return but negatively and significantly related to industry and market returns. Attractive compensation packages aid in selecting and retaining a suitable executive for the firm, reducing the risk of unfavorable selection. Chatterjee *et al.* (2023) added that CEOs are more likely to contribute to more significant greater returns and lesser changes of FD for the companies in which they operate if they earn proportionately greater performance-based compensation. The CEOs of these companies may be motivated to significantly lessen the potential of the company's FD because cash and share-based compensation are closely correlated with after-tax earnings. We postulate that CEOs will adopt a particular style of business strategy and make better use of resources to affect the outcome of economic fundamentals (such as cash flows and solvency-related risks). According to Mukherjee and Sen (2022), increased CEO pay would boost CEO output and business performance.

On the other hand, Stewardship theory contends that executives do not require attractive compensation because they know their role entails maximizing shareholder wealth. Furthermore, some researchers have argued that incentive CEO compensation would raise firm expenses, reducing profitability. Several empirical studies have shown that CEO salary and a firm's profitability are inversely correlated. Examining the relationship between CEO pay and firm performance in Pakistan, Aslam *et al.* (2019) discovered an inverse correlation between executive pay and accounting performance. This significant negative impact on financial performance resulted in increased FD. On the other hand, Ozkan (2011) and Tosi *et al.* (2000) fail to find any relationship between CEO compensation and firm performance. Based on the above discussion, we framed the following hypothesis:

- H1. There is a negative association between CEO compensation and the probability of financial distress.

2.2 CEO compensation, corporate social responsibility, and financial distress

Importantly, the motivations for CEOs to participate in agency-related opportunistic behavior will depend on the CEO's propensity towards CSR participation, whether based on shareholder or stakeholder views of CSR. Karim *et al.* (2018) state that CEO compensation is the primary driver of firms' CSR activity. Yin *et al.* (2024), Pareek and Sahu (2024), Karim *et al.* (2018) and Hong *et al.* (2016) discovered similar equity-based and total compensation impacts on CSR decisions. Zhang *et al.* (2024) selected China's A-share listed firms from 2018 to 2022 to examine the influence of CEO salary on the firm's ESG performance and discovered a positive correlation between the two. Most recently, Larbi *et al.* (2024) examined French-listed companies and concluded that CEO incentive remuneration is an effective disciplinary mechanism in favor of CSR, resulting in enhanced CSR performance.

CEO's involvement in CSR initiatives can be explained by agency theory, which claims that CEOs prefer to promote their interests over maximizing shareholder profit. If this is the case, CEOs may spend in CSR to conceal wrongdoings, such as corporate misbehavior (Hemingway and MacLagan, 2004), or to boost their benefits, such as strengthened reputation and bargaining power (Barnea and Rubin, 2010). This supports the shareholder view of CSR, which eventually reduces corporate performance and leads the firm towards FD. This self-

serving behavior not only harms corporate performance but also leads to FD. Taking the sample of PSX-listed firms, [Farooq and Noor \(2021\)](#) studied the CSR-FD relationship and found that a firm's engagement in CSR enhances the probability of FD. As a result, CEO compensation increases the risk of FD, possibly by accepting CEOs' shareholder views of CSR, which not only deteriorates firm performance but also leads to FD.

Conversely, the opposing perspective is that CEOs view CSR as a business strategy that progresses corporate performance and aligns their interests with those of shareholders ([Karim et al., 2018](#); [Farooq et al., 2025](#); [Alhajjeah et al., 2025](#); [Ang et al., 2022](#); [Mushafiq et al., 2023](#)). [Deng et al. \(2013\)](#) supported this theory by claiming that building relationships with stakeholders leads to them being more inclined to support a firm's operations, increasing firm value. According to this reasoning, the CEO's CSR commitments minimize the agency problem between insiders and outsiders. If this is the case, CSR will be reimbursed more for improving the company's social performance. This supports the CSR stakeholder perspective. Research by [Attig et al. \(2013\)](#), [Sun and Cui \(2014\)](#), and [Cheng et al. \(2014\)](#) suggests that participating in CSR activities improves a company's trustworthiness and facilitates access to financing. CSR initiatives can improve equity financing terms ([El Ghoul et al., 2011](#)), reduce credit risk ([Hsu and Chen, 2015](#)), and lead to reduced interest rates on bank loans ([Goss and Roberts, 2011](#)), resulting in cost savings from FD. [Al-Hadi et al. \(2019\)](#) evaluated the impact of CSR on FD in a sample of 651 publicly listed Australian enterprises from 2007 to 2013, discovering that positive CSR activities significantly lowered the risk of FD. Similarly, [Rahman et al. \(2023\)](#) investigated the CSR-FD relationship using a sample of 1,257 Chinese listed enterprises from 2011 to 2021 and discovered that CSR is inversely related to the risk of FD. Similarly, [Do \(2022\)](#), using a large sample of enterprises from 36 countries between 2002 and 2016, evaluated the influence of CSR on default risk and discovered that CSR is negatively related to the chance of default, with the effect being larger in the long run than in the short run. Based on the discussion above, we developed the following hypotheses:

H2. The firm's involvement in CSR initiatives mediates the association between CEO compensation and financial distress, either positively or negatively.

2.2.1 *Theoretical framework of the study.* [Figure 1](#) presents the theoretical framework of the study.

3. Methodology

3.1 Sample and population

The study's population consists of 531 enterprises grouped into 35 categories that were listed on the Pakistan Stock Exchange (PSX) on December 31, 2021. Following the rationale of previous research that financial firms have distinct accounting norms and regulations, capital structure, and governance systems ([Farooq et al., 2023](#)), we opted to exclude financial firms

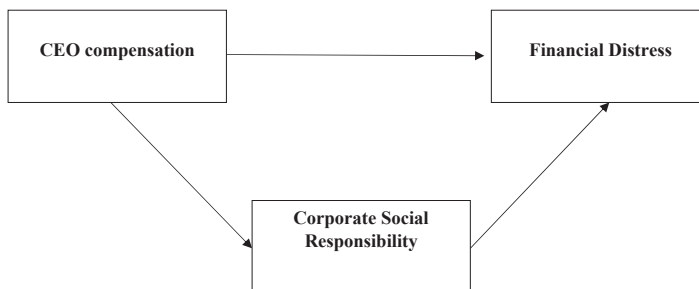


Figure 1. Theoretical framework of the study. Source: Author's own work

from the sample. Similarly, public utilities and state-owned enterprises were excluded from the study's sample. Second, to be included in the study, sample firms must have complete variable data for the whole study period, remain listed for the complete study period, and have no mergers or acquisitions throughout the sample period. Based on the above sample selection criteria, 140 non-financial enterprises meet the standards. Hence, the study's final sample consists of 140 non-financial firms from 2010 to 2021, accounting for 26% of all PSX-listed firms as of December 31, 2021. After gathering data for all linked variables, we winsorized the data at 1% on both ends.

3.2 Measurement of the variables

3.2.1 Financial distress. Following Chatterjee et al. (2023), Boubaker et al. (2020), and Farooq et al. (2023), we evaluated the FD of sample firms using Altman's (1968) Z-score, which measures the risk of FD inversely. A higher Z-score indicates a lower probability of distress.

$$\begin{aligned} Z_Score = & 1.2 \left[\frac{\text{Net working capital}}{\text{total assets}} \right] + 1.4 \left[\frac{\text{Retained earnings}}{\text{total assets}} \right] \\ & + 3.3 \left[\frac{\text{Earnings before interest and taxes}}{\text{total assets}} \right] + 0.6 \left[\frac{\text{Market value of equity}}{\text{book value of debt}} \right] \\ & + 1.0 \left[\frac{\text{Sales revenue}}{\text{total assets}} \right] \end{aligned}$$

Before performing regression analysis, we manually determined the value of the Z-score by entering the necessary variables and dates into an Excel sheet. We obtained single-digit Z-score values for each sample firm in each year and then conducted regression analysis using these alongside other explanatory and control variables.

3.2.2 CEO compensation. Following the research of Nazir (2015), Nazir and Afza (2018), and Farooq et al. (2023), we measure the CEO's remuneration by aggregating salary, bonuses and perquisites, and stock options, if any. These are gathered from the annual reports of the companies under examination. CEO compensation is an annual figure that is taken from the annual reports of respected firms. For the analysis, we take the natural log of the sum of the remuneration paid to the CEO.

3.2.2.1 Corporate social responsibility. Several approaches for evaluating CSR have been presented in the current literature, including the disclosure methodology, reputational indices, a single dimension-based measure, and forced-choice questionnaire surveys (Ehsan, 2019). In this study, we used an MFA to measure the firm's involvement in CSR-related activities, similar to Ehsan (2019), Khan et al. (2021), Aljabri (2024), and Farooq et al. (2023, 2025). In a MFA approach, the firm's contribution to CSR-related activities can be quantified using the following formula:

$$CSR_ratio = \frac{\text{Firm's spending on Charitable donations, employees' welfare, and Research \& Development}}{(\text{Earnings after tax})}$$

3.2.3 Control variables. Following Chatterjee et al. (2023), we incorporate the following control variables that influence FD. Size is defined by taking the natural logarithm of total assets. Larger organizations have higher debt ratios, which increases their chance of bankruptcy. As a result, we anticipate a positive association between the size and financial hardship risk. Leverage (LEV), defined as short-term and long-term debt divided by total assets, measures a company's indebtedness. The cash and cash equivalent ratio (slack) is the ratio of cash to total assets. According to the pecking order theory, enterprises with more financial slack are less dependent on external financing and have less debt (Verwijmeren and Derwall, 2010). As a result, we anticipate that SLACK is negatively related to the chance of financial difficulty. Tang (asset tangibility) refers to the ratio of total fixed assets to total assets.

According to [Sharpe and Stadnik \(2007\)](#), having more tangible assets increases the firm's ability to collateralize debt, potentially leading to additional debt financing. We consequently anticipate a positive relationship between TANG and financial distress risk. Sales growth represents the firm's sales growth over the previous year. Finally, industry and year fixed effects (Industry FE and Year FE) are included as control variables in our model because financial distress varies across industries and time. (see [Table 1](#)).

3.3 Econometric methodology

We use panel data models more appropriate for firm-year observations than typical regression approaches ([Farooq and Ahmad, 2023](#); [Ni et al., 2020](#)). Panel data combines time-series observations from several entities to provide more data points, reduce variable collinearity, and improve estimation efficiency ([Hsiao, 2007](#)). The most common estimation methods for panel data analysis are ordinary least squares (OLS), FEM, and REM ([Bokpin and Arko, 2009](#)). The researchers employed the conventional least squares regression to estimate the equations, assuming that the invisible individual impact was zero. This assumption raises the issue of heterogeneity in industries and corporations. As a result, the researchers recommend employing FEM and REM to solve this problem. Therefore, the current study utilized FEM and REM for the analysis. The distinction between FEM and REM refers to the unobserved behavior of individual cross-sections across time. Fixed impact intercepts may differ in each cross-section due to historical changes in observations ([Greene, 2012](#)). The Housman test finds which of the two models is most suited to data analysis.

Literature witnesses two most commonly used approaches to test the variable's mediating effect, i.e. [Baron and Kenny \(1986\)](#), three-step procedure, and a Sobel test bootstrapping approach for mediation analysis. Following the work of [Galbreath \(2018\)](#), [Farooq et al. \(2024\)](#), and [Xu et al. \(2022\)](#), we utilized [Baron and Kenny's \(1986\)](#) four-step model to assess the mediating role of CSR in the CEO compensation-FD relationship. To ensure the robustness of the results, we used the Sobel test bootstrapping approach for mediation analysis.

Following this strategy, we went through the four steps listed below. In the first step of the mediation analysis, we investigated the impact of CSR on FD. The following regression equation is used:

Table 1. Description of variables

Name	Symbol	Description
CEO compensation	CEO_comp	Natural log of the (salary + bonus + perquisites) paid to the CEO
Financial distress	Zscore	Z-Score = $1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5$ Where X1 = net working capital/total assets, X2 = retained earnings/total assets, X3 = EBIT/total assets, X4 = market value of equity/book value of debt, X5 = sales revenue/total assets (Altman, 1968)
Corporate social responsibility	CSR_ratio	The ratio of firms' spending to charitable donations, employee welfare, and research and development to net income of the respective firm
Firm Size	Fsize	Log of total assets
Leverage	Lev	Total debt/Total assets
Sales growth	Sgth	Percentage of change in revenue from year t-1 to year t
Asset tangibility	Tang	The ratio of fixed assets to total assets
Cash and Cash Equivalence	Slack	The ratio of cash and cash equivalence to total assets

Note(s): Values were calculated based on firm balance sheet information

Source(s): Author's own work

$$FD_{it} = \beta_0 + \beta_1 CSR_ratio_{it} + \sum \beta_{it} Control + \varepsilon_{it} \quad \text{Model (1)}$$

In the second step of the mediation analysis, the impact of CEO compensation on CSR is investigated. The following regression equation is used:

$$CSR_{it} = \beta_0 + \beta_1 CEO_rum_{it} + \sum \beta_{it} Control + \varepsilon_{it} \quad \text{Model (2)}$$

In the third step of the mediation analysis, the impact of CEO compensation on FD is investigated. The following regression equation is used:

$$FD_{it} = \beta_0 + \beta_1 CEO_rum_{it} + \sum \beta_{it} Control + \varepsilon_{it} \quad \text{Model (3)}$$

Finally, a regression analysis was performed with CEO compensation, and CSR was included in the equation to predict firm FD. The following equation is used for this purpose:

$$FD_{it} = \beta_0 + \beta_1 CEO_rum_{it} + \beta_2 CSR_{it} + \sum \beta_{it} Control + \varepsilon_{it} \quad \text{Model (4)}$$

4. Result and discussion

We begin our analysis with the descriptive analysis. The result of descriptive statistics is presented in Table 2. The first variable is FD, which is measured using Altman’s Z-score. The mean value of Zscore is 3.231, with a standard deviation of 2.611. The mean value of CEO compensation is 15,302.941 Thousand Pak rupees. The minimum and maximum compensation paid to the CEO is 0 and 55,904.38 thousand Pak rupees. The mean value of the CSR ratio is 0.278, demonstrating that, on average, sample firms spend 27.8% of earnings after tax on CSR-related activities. The mean value of firm size is 6.832, with a range from 4.893 and 8.885, respectively. The mean leverage value is 0.536, with a standard deviation of 0.302. The mean value of asset tangibility is 0.423, with minimum and maximum values of asset tangibility of 0 and 3.198, respectively. The cash and cash equivalence level is 0.088, with a standard deviation of 0.131. The mean value of sales growth, the last control variable, is 0.34, ranging from –1 to 261.068.

After the descriptive analysis, we performed a correlation analysis to check for any multicollinearity issue among the variables in the data. Results are presented in Table 3. Anderson *et al.* (2016) and Gujarati *et al.* (2012) define multicollinearity between two variables as a correlation value of more than 0.70. Such data could produce biased and ungeneralizable regression results. Since the results show that no value is at or above 0.70, data is free from multicollinearity issues.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. dev	Min	Max
Zscore	1,680	3.231	2.611	–0.075	9.941
CEO_comp (Thousand PKR)	1,680	15302.941	15493.31	0	55904.358
CSR_ratio	1,680	0.278	0.461	–0.302	1.733
Fsize	1,680	6.832	0.719	4.893	8.885
Lev	1,680	0.536	0.302	0.007	0.780
Tang	1,680	0.423	0.244	0	3.198
Slack	1,680	0.088	0.131	0	1.422
Sgth	1,680	0.340	6.442	–1	261.068

Source(s): Author’s own work

Table 3. Correlations result

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Zscore	1.000							
CEO_comp	0.251**	1.000						
CSR_ratio	0.188**	0.013**	1.000					
Fsize	0.051**	0.537**	−0.128***	1.000				
Lev	−0.454***	−0.082*	−0.077	−0.021*	1.000			
Tang	−0.379*	−0.136	−0.090*	−0.057*	0.117**	1.000		
Slack	0.380**	0.142	−0.028**	0.035	−0.217*	−0.354*	1.000	
Sgth	0.069	−0.029*	−0.016	−0.042	−0.015	−0.038*	0.034*	1.000

Note(s): *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source(s): Author's own work

As previously indicated, we used the FEM and REM based on the Hausman test results for the analysis. The Hausman test results demonstrate that REM best fits the analysis, with p -values greater than 0.05 in all four models. The results are presented in Table 4.

Results indicate a significant positive relationship between CSR and Zscore (Coefficient 0.022; $p < 0.05$). The more the firm's CSR engagement, the better the Z score. It shows that the probability of FD is significantly inversely connected to CSR. This finding supports the stakeholder concept of CSR; a firm's participation in CSR activities creates relationships with stakeholders, fosters goodwill, and provides easy access to money in times of need, thus preventing the organization from FD. Our findings are consistent with Farooq *et al.* (2023),

Table 4. Regression results

Variables	FD (REM) Model 1	CSR_ratio (REM) Model 2	FD(REM) Model 3	FD(REM) Model 4
CSR_ratio	0.022** (0.093)			0.032* (0.092)
CEO_comp		0.061*** (0.000)	0.051** (0.000)	0.057* (0.000)
Fsize	0.056** (0.133)	0.133** (0.031)	0.294** (0.144)	0.272* (0.141)
Lev	−1.901*** (0.160)	−0.0579 (0.042)	−1.891*** (0.159)	−1.917*** (0.159)
Tang	1.098 (0.248)	−0.094* (0.063)	−1.021* (0.247)	−1.064 (0.247)
Slack	3.722*** (0.388)	0.151 (0.101)	3.727*** (0.384)	3.735*** (0.385)
Sgth	0.0125* (0.005)	0.018 (0.001)	0.012** (0.005)	0.012* (0.005)
Constant	4.767*** (0.934)	1.243*** (0.212)	6.180*** (0.994)	6.071*** (0.978)
Industry effect	Yes	Yes	Yes	Yes
Years effect	Yes	Yes	Yes	Yes
Observations	1,680	1,680	1,680	1,680
Wald stat	314.53***	27.98***	328.70***	335.97***
R-square	0.337	0.103	0.332	0.331
Number of coid	140	140	140	140

Note(s): Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source(s): Author's own work

Boubaker *et al.* (2020), and Khan *et al.* (2021). Among the control variables, firm size, slack, and sales growth have a significant inverse connection with FD risk; whereas leverage shows a significant positive impact on FD. Asset tangibility has no significant impact on FD.

In the second step of the mediation analysis, the effect of CEO compensation on the firm's engagement in CSR is investigated, and results are presented in model 2 of Table 4. CEO compensation has a strong positive effect on CSR (Coefficient 0.061; $p < 0.01$). This suggests that CEOs of PSX-listed companies who are paid more are more likely to participate in CSR activities. These results are congruent with Callan and Thomas (2011) and Peng (2020). Among control variables, the results show that a firm's size and asset tangibility have a significant positive impact on its CSR engagements; whereas leverage slack and sales growth have no discernible impact on CSR.

In the third part of the analysis, the impact of CEO compensation on FD is investigated. The results reported in Model 3 of Table 4 reveal that CEO salary has a significant positive impact on Zscore (Coefficient 0.051; $p < 0.05$), indicating that firms that pay their CEOs more than their peers have a lower risk of FD. This supports the argument of Chatterjee *et al.* (2023) that CEOs who drive substantially more performance-based compensation are likely to help their companies generate higher returns and experience lower levels of FD. Moreover, this result also supports the findings of Chatterjee *et al.* (2023) and Aslam *et al.* (2019) that CEO compensation is positively related to firms' financial performance, lowering the risk of FD.

Finally, in the fourth model, we added CEO compensation and CSR into the equation to check the mediation effect of CSR between the CEO compensation-FD relationship. The findings show that CSR directly affects Zscore (Coefficient 0.032; $p < 0.10$), showing that CSR reduces the likelihood of FD. However, the previously significant link between CEO compensation and FD becomes less significant, suggesting partial mediation (Baron and Kenny, 1986). CEOs of PSX-listed enterprises employ CSR as a business strategy to align the interests of owners and stakeholders, saving the firm from FD. The mediation test suggests that the link between CEO compensation and FD is indirect: CSR appears to mediate the relationship entirely.

5. Robustness test

5.1 System GMM estimation

We used dynamic models to ensure robustness because static models do not account for explanatory factors' autocorrelation, heteroscedasticity, and endogeneity, which could lead to skewed estimates (Hasan *et al.*, 2021). Furthermore, many corporate finance scholars are aware of the endogeneity problem with panel data, which can have a detrimental impact on inference but can be addressed using the GMM method (Lin *et al.*, 2019). As a result, we applied panel data models as system-GMM (Arellano and Bond, 1991; Bond *et al.*, 2001). We used the internal instrumental variable in the system GMM, which is the lagged difference between the dependent and endogenous variables. Table 5 shows the system's GMM estimation results, which align with our baseline result.

5.2 Sobel test and bootstrapping test for mediation

Following the studies of Agustia *et al.* (2022) and Farooq *et al.* (2023), we used the Sobel test to ensure the results were robust. Table 6 shows the results of the Sobel test, which determines if CEO salary indirectly affects FD. The Sobel calculator (<https://quantpsy.org/sobel/sobel.html>) indicates a p -value of $0.05977 < 0.10$. Baron and Kenny (1986) suggest partial mediation as the p -value becomes less significant after adding the mediating variable. Galbreath (2018) proposed in his study that partial mediation happens when independent and mediating variables are included in the equation and the correlation between independent and dependent variables decreases significantly. This is consistent with our baseline finding shown in Table 4.

Table 5. System-GMM regression results

Variables	Model 1 FD	Model 2 CSR_ratio	Model 3 FD	Model 4 FD
Zscore (−1)	0.565*** (0.032)		0.551*** (0.032)	0.550*** (0.032)
CSR_ratio (−1)		0.163*** (0.027)		
CSR_ratio	0.026** (0.104)			0.033* (0.102)
CEO_comp		0.0293*** (0.000)	0.089*** (0.000)	0.094* (0.000)
Fsize	0.708*** (0.199)	0.316*** (0.087)	1.762*** (0.262)	1.744*** (0.264)
Lev	−0.966*** (0.179)	−0.007 (0.057)	−0.952*** (0.176)	−0.949*** (0.177)
Tang	0.0708 (0.385)	−0.294** (0.122)	−0.145 (0.380)	−0.131 (0.382)
Slack	2.328*** (0.486)	0.268* (0.158)	2.401*** (0.479)	2.395*** (0.480)
Sgth	0.004 (0.005)	0.001 (0.002)	0.003 (0.005)	0.003 (0.005)
Constant	6.524*** (1.388)	2.555*** (0.589)	13.240*** (1.754)	13.110*** (1.768)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Wald statistics	509.14(0.000)	84.63(0.000)	564.28(0.000)	558.33(0.000)
AR(1)	0.000	0.000	0.000	0.000
AR(2)	0.314	0.305	0.324	0.363
Sargent test (<i>p</i> -value)	0.692	0.582	0.683	0.692
Hansen J-statistics (<i>p</i> -value)	0.891	0.901	0.921	0.916

Note(s): Standard errors in parentheses. ****p* < 0.01, ***p* < 0.05, **p* < 0.1

Source(s): Author's own work

Table 6. Sobel test result of CEO remuneration effect on financial distress through CSR as a mediating variables

	Input	<i>t</i> -statistics	Std. error	<i>p</i> -value
A	0.312892	1.88241737	0.2257725	0.05977937
B	1.35829			
Sa	0.1394218			
Sb	0.3928631			

Source(s): Author's own work. Use interactive calculator for mediation test @ <https://quantpsy.org/sobel/sobel.htm>

Further, Zhao *et al.* (2010) recommended using a precise test instead of Baron and Kenny (1986) by applying one test: the bootstrapping test of direct and indirect impacts. The bootstrapping tests by Preacher and Hayes (2004) generate empirical sampling distribution and rely on a confidence interval of 95% (*p* < 0.05).

Table 7 shows the direct impact of CEO compensation on FD (0.00 < 0.05). To analyze the mediating effect, Preacher and Hayes (2004) explain that if 0 (zero) does not lie in a confidence interval that is between the upper and lower limit of the BootLLCI and BootULCI, the indirect impact is significant and there is mediation between dependent and independent variable.

Table 7. Direct effect test

Hypothesis	t-value	p-value	BootLLCI	BootULCI	Decision
H1	11.198	0	0.498	0.803	Supported
Source(s): Author’s own work					

The output in [Table 8](#) under “Indirect Effect of X on Y” shows BootLLCI and BootULCI for CSR are 0.031 and 0.161 since zero does not lie in the confidence interval; therefore, the mediation of CSR is also established. The outcomes of PROCESS reveal a direct significant relationship between dependent and independent variables, CEO compensation and FD, and their relationship is mediated by the mediating variable, i.e. CSR.

5.3 Alternative measures of financial distress (ZM score)

Following the study of [Boubaker et al. \(2020\)](#) and [Farooq et al. \(2023\)](#), we computed the level of FD of the sample firm using ZM-score and repeated the regression analysis. The higher the value of the ZM-Score, the higher the chances of FD. The ZM score is measured with the help of the following formula:

$$\mathbf{ZM} = -4.336 - 4.515 (\text{NI/TA}) + 5.679 (\text{TL/TA}) + 0.004 (\text{CA/CL}) \quad (2)$$

The results are presented in [Table 9](#). The findings are consistent with our baseline findings, presented in [Table 4](#).

5.4 Impact of individual components of CSR on FD

Further, to improve the analysis, we investigated the impact of various components of CSR on FD, and the findings are shown in [Table 10](#). In the first three columns of [Table 10](#), we computed the FD using the Altman Z Score. We performed the analysis, whereas, in the following three columns, we computed the FD using the ZM Score and reported the findings. Both distress measures demonstrate that pay and perquisites have a strong inverse connection with the FD, validating our basic conclusions; however, stock options do not impact FD. This supports the findings of [Aslam et al. \(2019\)](#) that cash and cash-based payments are more influential in saving the firm from FD. It is believed that stock options are uncommon in Pakistan, with only a few companies providing stock options to their CEOs. As a result, stock options have no significant impact on the risk of FD.

6. Conclusion

The current study examines the effect of CEO compensation on FD and the role of CSR as a mediator in this relationship. Our primary research questions were “What is the effect of the CEO compensation on the likelihood of FD?” and “Does the CEO’s CSR-related behavior mediate this relationship?” The study’s sample covers 140 non-financial PSX-listed firms from 2010 to 2021. Our findings based on [Baron and Kenny’s \(1986\)](#) four-step median

Table 8. Mediation analysis of CSR

Hypothesis	Indirect effect	Total effect	p-value	BootLLCI	BootULCI	Status	Decision
H2	0.094	1.930	0	0.031	0.161	Partial mediation	Supported
Source(s): Author’s own work							

Table 9. Robustness test (Financial distress measured through ZM score)

Variables	Model 1 ZM score	Model 2 CSR_ratio	Model 3 ZM score	Model 4 ZM score
ZM Score (−1)	0.627*** (0.030)		0.631*** (0.030)	0.629*** (0.030)
CSR_ratio (−1)		0.163*** (0.027)		
CSR_ratio	−0.081*** (0.064)			−0.082* (0.064)
CEO_comp		0.029*** (0.000)	−0.028*** (0.000)	−0.022** (0.000)
Fsize	0.151** (0.132)	0.316*** (0.087)	−0.195 (0.162)	−0.196* (0.163)
Lev	1.113*** (0.109)	−0.007 (0.057)	1.113*** (0.109)	1.114*** (0.109)
Tang	−0.0466 (0.236)	−0.294** (0.122)	0.022 (0.237)	0.043 (0.237)
Slack	−0.392** (0.303)	0.268* (0.158)	−0.367** (0.304)	−0.389* (0.304)
Sgth	−0.005* (0.003)	0.001 (0.002)	−0.005* (0.003)	−0.005* (0.003)
Constant	−2.145** (0.918)	2.555*** (0.589)	−2.440** (1.086)	−2.420** (1.089)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Wald Stat	807.07(0.000)	84.63(0.000)	805.47(0.000)	806.87(0.000)
AR(1)	0.000	0.000	0.000	0.000
AR(2)	0.272	0.315	0.332	0.321
Sargent test (<i>p</i> -value)	0.681	0.596	0.619	0.627
Hansen J-stat (<i>p</i> -value)	0.910	0.913	0.911	0.925

Note(s): Standard errors in parentheses. ****p* < 0.01, ***p* < 0.05, **p* < 0.1

Source(s): Author's own work

analysis showed that CSR has a significant inverse effect on FD, CEO compensation is significantly positively linked with the firm's commitment to CSR, CEO compensation is significantly inversely associated with FD, and finally, this relationship between CEO compensation and FD is not direct; instead, it is mediated by CSR. CSR partially mediated the relationship between CEO compensation and FD. Results show that firms that remunerate their CEOs relatively well are likely to reduce the risk of FD.

Our preliminary study results are consistent with the agency theory, which holds that an efficient remuneration plan is essential in managing agency issues related to luring, inspiring, and keeping professional CEOs. These findings also support the idea that CEOs should engage in CSR as a business activity to enhance stakeholder relationships, increase firm value, and prevent FD. Finally, unlike most previous studies that only used CEO compensation (e.g. [Kato and Kubo, 2006](#)), the study found that, while CEO compensation, in general, may have a negative impact on FD, not all components of CEO compensation have the same significant negative impact on FD. The current study has several contributions to the existing theoretical and empirical literature. First, it contributes to the current literature by studying the CEO compensation-FD association in an emerging market context, i.e. Pakistan. Furthermore, we analyze the mediating influence of CSR in this CEO compensation-FD link, a largely new area in the literature in developed and developing economies. We performed several additional tests to check the robustness of the results and finds support our baseline results.

Table 10. Impact of CEO components (salary, perquisites, and stock options) on the risk of financial distress

Variables	Zscore	Zscore	Zscore	ZM score	ZM score	ZM score
Zscore (−1)	0.559*** (0.032)	0.563*** (0.032)	0.574*** (0.032)			
ZMscore (−1)				0.629*** (0.030)	0.630*** (0.030)	0.623*** (0.030)
Salary	0.057*** (0.000)			−0.292** (0.000)		
Perquisites		0.019** (0.000)			−0.082* (0.000)	
Stock_opt			0.081 (0.009)			−0.002 (0.011)
Fsize	0.929*** (0.282)	0.662*** (0.142)	0.261 (0.129)	−0.135 (0.151)	−0.182* (0.112)	−0.241*** (0.102)
Lev	−1.614*** (0.109)	−1.772*** (0.192)	−1.672*** (0.129)	2.172*** (0.091)	2.292*** (0.104)	2.257*** (0.118)
Tan	−0.629** (0.281)	−0.715** (0.202)	−0.662** (0.223)	0.492*** (0.132)	0.431*** (0.138)	0.319*** (0.135)
Slack	3.575*** (0.382)	3.102*** (0.353)	3.452*** (0.281)	−1.178*** (0.242)	−1.182*** (0.241)	−1.139*** (0.242)
Sgth	0.0182** (0.051)	0.012** (0.013)	0.010** (0.011)	−0.002 (0.010)	−0.002 (0.013)	−0.002 (0.010)
Constant	9.170*** (1.232)	8.216*** (1.224)	5.792*** (1.612)	−1.723** (0.722)	−1.462** (0.772)	−0.825 (0.781)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Wald Stat	49.50 (0.0000)	47.03 (0.0000)	43.71 (0.0000)	129.11 (0.0000)	128.91 (0.0000)	133.19 (0.0000)
AR(1)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AR(2)	0.321	0.318	0.332	0.327	0.313	0.362
Sargent test (p-value)	0.661	0.652	0.678	0.662	0.649	0.672
Hansen J-stat (p-value)	0.909	0.924	0.918	0.903	0.921	0.928

Note(s): Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source(s): Author's own work

This research has practical implications. Firm management could devise strategic techniques to determine the ideal level and type of CEO compensation. It should be determined by the firm's resource capability and exposure to foreign direct investment. A perfect balance between the CEO's goal and short- and long-term organizational goals can be maintained by instituting a proper remuneration system in favor of executives. This study could also help to raise awareness among decision-makers and regulatory bodies in emerging countries, which appear to be slow to implement and adopt mandatory corporate governance codes, about the importance of executive remuneration policy as a governance mechanism that can have a significant impact on a firm's financial performance and FD risk. Finally, regarding policy formation and execution, this research might be a significant resource for investors and business leaders.

Nevertheless, the study has a few limitations that could be addressed in future research. First, because the sample only includes non-financial firms, generalizing the findings across all types of firms requires some care. Second, while the sample data for this study came from only one country, Pakistan, academicians, research researchers, and managers could expand this study to other countries for comparison. Finally, this study focuses solely on the CEO's salary. Extending the investigation to the salary of other relevant firm executives could be highly beneficial, theoretically and empirically.

References

- Agustia, D., Harymawan, I. and Permatasari, Y. (2022), "Board diversity, sustainability report disclosure and firm value", *Global Business Review*, Vol. 23 No. 6, pp. 1520-1543, doi: [10.1177/09721509221124125](https://doi.org/10.1177/09721509221124125).
- Albuquerque, R., Koskinen, Y. and Zhang, C. (2019), "Corporate social responsibility and firm risk: theory and empirical evidence", *Management Science*, Vol. 65 No. 10, pp. 4451-4469, doi: [10.1287/mnsc.2018.3043](https://doi.org/10.1287/mnsc.2018.3043).
- Alhajjeah, D., Besim, M. and Al-Hajieh, H. (2025), "Mitigating crisis impact: the influence of corporate social responsibility on non-financial firms' financial performance", *International Review of Economics and Finance*, Vol. 101, 104180, doi: [10.1016/j.iref.2025.104180](https://doi.org/10.1016/j.iref.2025.104180).
- Aljabri, Q. (2024), "Corporate social responsibility and cost of debt: the moderating role of insider and institutional ownership", *Journal of Global Responsibility*. doi: [10.1108/jgr-04-2024-0072](https://doi.org/10.1108/jgr-04-2024-0072).
- Altman, E.I. (1968), "Financial ratios, discriminant analysis and the prediction of corporate bankruptcy", *The Journal of Finance*, Vol. 23 No. 4, pp. 589-609, doi: [10.1111/j.1540-6261.1968.tb00843.x](https://doi.org/10.1111/j.1540-6261.1968.tb00843.x).
- Al-Hadi, A., Chatterjee, B., Yaftian, A., Taylor, G. and Monzur Hasan, M. (2019), "Corporate social responsibility performance, financial distress and firm life cycle: evidence from Australia", *Accounting and Finance*, Vol. 59 No. 2, pp. 961-989, doi: [10.1111/acfi.12277](https://doi.org/10.1111/acfi.12277).
- Anderson, D.R., Sweeney, D.J., Williams, T.A., Camm, J.D. and Cochran, J.J. (2016), *Statistics for Business and Economics*, Cengage Learning, Bebcuk.
- Ang, R., Shao, Z., Liu, C., Yang, C. and Zheng, Q. (2022), "The relationship between CSR and financial performance and the moderating effect of ownership structure: evidence from Chinese heavily polluting listed enterprises", *Sustainable Production and Consumption*, Vol. 30, pp. 117-129, doi: [10.1016/j.spc.2021.11.030](https://doi.org/10.1016/j.spc.2021.11.030).
- Arellano, M. and Bond, S. (1991), "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *Review of Economic Studies*, Vol. 58 No. 2, pp. 277-297, doi: [10.2307/2297968](https://doi.org/10.2307/2297968).
- Ashraf, S., Félix, E.G. and Serrasqueiro, Z. (2022), "Does board committee independence affect financial distress likelihood? A comparison of China with the UK", *Asia Pacific Journal of Management*, Vol. 39 No. 2, pp. 1-39, doi: [10.1007/s10490-020-09747-5](https://doi.org/10.1007/s10490-020-09747-5).
- Aslam, E., Haron, R. and Tahir, M.N. (2019), "How director remuneration impacts firm performance: an empirical analysis of executive director remuneration in Pakistan", *Borsa Istanbul Review*, Vol. 19 No. 2, pp. 186-196, doi: [10.1016/j.bir.2019.01.003](https://doi.org/10.1016/j.bir.2019.01.003).
- Attig, N., El Ghoul, S., Guedhami, O. and Suh, J. (2013), "Corporate social responsibility and credit ratings", *Journal of Business Ethics*, Vol. 117 No. 4, pp. 679-694, doi: [10.1007/s10551-013-1714-2](https://doi.org/10.1007/s10551-013-1714-2).
- Barnea, A. and Rubin, A. (2010), "Corporate social responsibility as a conflict between shareholders", *Journal of Business Ethics*, Vol. 97 No. 1, pp. 71-86, doi: [10.1007/s10551-010-0496-z](https://doi.org/10.1007/s10551-010-0496-z).
- Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182, doi: [10.1037/0022-3514.51.6.1173](https://doi.org/10.1037/0022-3514.51.6.1173).
- Bebchuk, L.A., Fried, J. and Walker, D. (2002), "Managerial power and rent extraction in the design of executive compensation", *University of Chicago Law Review*, Vol. 69 No. 3, pp. 751-846, doi: [10.2307/1600632](https://doi.org/10.2307/1600632).
- Bokpin, G.A. and Arko, A.C. (2009), "Ownership structure, corporate governance and capital structure decisions of firms: empirical evidence from Ghana", *Studies in Economics and Finance*, Vol. 26 No. 4, pp. 246-256, doi: [10.1108/10867370910995708](https://doi.org/10.1108/10867370910995708).
- Bond, S., Hoeffler, A. and Temple, J. (2001), "GMM estimation of empirical growth models", Discussion Paper No. 2048, Centre for Economic Policy Research.
- Bouaziz, D., Salhi, B. and Jarbou, A. (2020), "CEO characteristics and earnings management: empirical evidence from France", *Journal of Financial Reporting and Accounting*, Vol. 18 No. 1, pp. 77-110, doi: [10.1108/jfra-01-2019-0008](https://doi.org/10.1108/jfra-01-2019-0008).

- Boubaker, S., Cellier, A., Manita, R. and Saeed, A. (2020), "Does corporate social responsibility reduce financial distress risk?", *Economic Modelling*, Vol. 91, pp. 835-851, doi: [10.1016/j.econmod.2020.05.012](https://doi.org/10.1016/j.econmod.2020.05.012).
- Briano-Turrent, G.D., Li, M. and Peng, H. (2020), "The impact of family-CEOs and their demographic characteristics on dividend payouts: evidence from Latin America", *Research in International Business and Finance*, Vol. 51, 101086, doi: [10.1016/j.ribaf.2019.101086](https://doi.org/10.1016/j.ribaf.2019.101086).
- Brown, R. and Sarma, N. (2007), "CEO overconfidence, CEO dominance and corporate acquisitions", *Journal of Economics and Business*, Vol. 59 No. 5, pp. 358-379, doi: [10.1016/j.jeconbus.2007.04.002](https://doi.org/10.1016/j.jeconbus.2007.04.002).
- Buvanendra, S., Sridharan, P. and Thiagarajan, S. (2017), "Firm characteristics, corporate governance and capital structure adjustments: a comparative study of listed firms in Sri Lanka and India", *IIMB Management Review*, Vol. 29 No. 4, pp. 245-258, doi: [10.1016/j.iimb.2017.10.002](https://doi.org/10.1016/j.iimb.2017.10.002).
- Callan, S.J. and Thomas, J.M. (2011), "Executive compensation, corporate social responsibility, and corporate financial performance: a multi-equation framework", *Corporate Social Responsibility and Environmental Management*, Vol. 18 No. 6, pp. 332-351, doi: [10.1002/csr.249](https://doi.org/10.1002/csr.249).
- Chatterjee, B., Jia, J., Nguyen, M., Taylor, G. and Duong, L. (2023), "CEO remuneration, financial distress and firm life cycle", *Pacific-Basin Finance Journal*, Vol. 80, 102050, doi: [10.1016/j.pacfin.2023.102050](https://doi.org/10.1016/j.pacfin.2023.102050).
- Cheng, B., Ioannou, I. and Serafeim, G. (2014), "Corporate social responsibility and access to finance", *Strategic Management Journal*, Vol. 35 No. 1, pp. 1-23, doi: [10.1002/smj.2131](https://doi.org/10.1002/smj.2131).
- Deng, X., Kang, J.K. and Low, B.S. (2013), "Corporate social responsibility and stakeholder value maximization: evidence from mergers", *Journal of Financial Economics*, Vol. 110 No. 1, pp. 87-109, doi: [10.1016/j.jfineco.2013.04.014](https://doi.org/10.1016/j.jfineco.2013.04.014).
- Do, T.K. (2022), "Corporate social responsibility and default risk: international evidence", *Finance Research Letters*, Vol. 44, 102063, doi: [10.1016/j.frl.2021.102063](https://doi.org/10.1016/j.frl.2021.102063).
- Edmans, A., Gabaix, X. and Landier, A. (2009), "A multiplicative model of optimal CEO incentives in market equilibrium", *The Review of Financial Studies*, Vol. 22 No. 12, pp. 4881-4917, doi: [10.1093/rfs/hhn117](https://doi.org/10.1093/rfs/hhn117).
- Ehsan, S. (2019), "Corporate social responsibility; measurement, and its nexus with earning's management and corporate governance", Doctoral dissertation, COMSATS Institute of Information Technology, Islamabad.
- El Ghouli, S., Guedhami, O., Kwok, C.C. and Mishra, D.R. (2011), "Does corporate social responsibility affect the cost of capital?", *Journal of Banking and Finance*, Vol. 35 No. 9, pp. 2388-2406, doi: [10.1016/j.jbankfin.2011.02.007](https://doi.org/10.1016/j.jbankfin.2011.02.007).
- Elias, R., Nasr, N. and Farah, B. (2024), "CEO compensation and firm performance: a study on the moderating roles of CEO origin and firm size", *Academy of Management Proceedings*, Vol. 2024 No. 1, 17485, doi: [10.5465/amproc.2024.180bp](https://doi.org/10.5465/amproc.2024.180bp).
- Fama, E.F. and Jensen, M.C. (1983), "Separation of ownership and control", *The Journal of Law and Economics*, Vol. 26 No. 2, pp. 301-325, doi: [10.1086/467037](https://doi.org/10.1086/467037).
- Farooq, M. and Ahmad, N. (2023), "Nexus between board characteristics, firm performance and intellectual capital: an emerging market evidence", *Corporate Governance: The International Journal of Business in Society*, Vol. 23 No. 6, pp. 1269-1297, doi: [10.1108/cg-08-2022-0355](https://doi.org/10.1108/cg-08-2022-0355).
- Farooq, M. and Noor, A. (2021), "The impact of corporate social responsibility on financial distress: evidence from developing economy", *Pacific Accounting Review*, Vol. 33 No. 3, pp. 376-396, doi: [10.1108/par-10-2020-0196](https://doi.org/10.1108/par-10-2020-0196).
- Farooq, M., Khan, M.I. and Noor, A. (2023), "Do financial constraints moderate the relationship between CEO compensation and firm performance: an emerging market evidence", *Managerial Finance*, Vol. 49 No. 8, pp. 1355-1376, doi: [10.1108/mf-10-2022-0474](https://doi.org/10.1108/mf-10-2022-0474).
- Farooq, M., Khan, I., Kainat, M. and Mumtaz, A. (2024), "Corporate social responsibility and firm value: the role of enterprise risk management and corporate governance", *Corporate Governance: The International Journal of Business in Society*, Vol. 25 No. 3, pp. 631-663, doi: [10.1108/cg-08-2023-0341](https://doi.org/10.1108/cg-08-2023-0341).

- Farooq, M., Nawaz Saleem, H.M., Al-Jabri, Q. and Nazir, M.A. (2025), "Corporate social responsibility and firm financial performance: the role of intellectual capital", *Journal of Accounting in Emerging Economies*, Vol. 15 No. 3, pp. 718-738, doi: [10.1108/jaee-04-2024-0164](https://doi.org/10.1108/jaee-04-2024-0164).
- Galbreath, J. (2018), "Is board gender diversity linked to financial performance? The mediating mechanism of CSR", *Business and Society*, Vol. 57 No. 5, pp. 863-889, doi: [10.1177/0007650316647967](https://doi.org/10.1177/0007650316647967).
- Garvey, G.T. (1997), "Marketable incentive contracts and capital structure relevance", *The Journal of Finance*, Vol. 52 No. 1, pp. 353-378, doi: [10.1111/j.1540-6261.1997.tb03820.x](https://doi.org/10.1111/j.1540-6261.1997.tb03820.x).
- Gibbons, R. and Murphy, K.J. (1990), "Relative performance evaluation for chief executive officers", *ILR Review*, Vol. 43 No. 3, pp. 30-S, doi: [10.1177/001979399004300303](https://doi.org/10.1177/001979399004300303).
- Goss, A. and Roberts, G.S. (2011), "The impact of corporate social responsibility on the cost of bank loans", *Journal of Banking and Finance*, Vol. 35 No. 7, pp. 1794-1810, doi: [10.1016/j.jbankfin.2010.12.002](https://doi.org/10.1016/j.jbankfin.2010.12.002).
- Greene, W.H. (2012), "Econometric analysis 7th (international)", in Greene, W.H. (Ed.), *Pearson*, 7th ed., New York University Pearson, Vol. 13.
- Gujarati, D.N., Porter, D.C. and Gunasekar, S. (2012), *Basic Econometrics*, Tata McGraw-Hill education.
- Gupta, G., Mahakud, J. and Debata, B. (2018), "Impact of CEO's characteristics on investment decisions of Indian listed firms: does crisis make any difference?", *Cogent Economics and Finance*, Vol. 6 No. 1, 1439258, doi: [10.1080/23322039.2018.1439258](https://doi.org/10.1080/23322039.2018.1439258).
- Habib, A., Costa, M.D., Huang, H.J., Bhuiyan, M.B.U. and Sun, L. (2020), "Determinants and consequences of financial distress: review of the empirical literature", *Accounting and Finance*, Vol. 60 No. S1, pp. 1023-1075, doi: [10.1111/acfi.12400](https://doi.org/10.1111/acfi.12400).
- Hartzell, J.C., Ofek, E. and Yermack, D. (2004), "What's in it for me? CEOs whose firms are acquired", *The Review of Financial Studies*, Vol. 17 No. 1, pp. 37-61, doi: [10.1093/rfs/hhg034](https://doi.org/10.1093/rfs/hhg034).
- Hasan, M.B., Wahid, A.N., Amin, M.R. and Hossain, M.D. (2021), "Dynamics between ownership structure and dividend policy: evidence from Bangladesh", *International Journal of Emerging Markets*, Vol. 18 No. 3, pp. 588-606, doi: [10.1108/ijoem-06-2020-0711](https://doi.org/10.1108/ijoem-06-2020-0711).
- Hemingway, C.A. and MacLagan, P.W. (2004), "Managers' personal values as drivers of corporate social responsibility", *Journal of Business Ethics*, Vol. 50 No. 1, pp. 33-44, doi: [10.1023/b:busi.0000020964.80208.c9](https://doi.org/10.1023/b:busi.0000020964.80208.c9).
- Hong, B., Li, Z. and Minor, D. (2016), "Corporate governance and executive compensation for corporate social responsibility", *Journal of Business Ethics*, Vol. 136 No. 1, pp. 199-213, doi: [10.1007/s10551-015-2962-0](https://doi.org/10.1007/s10551-015-2962-0).
- Hsiao, C. (2007), "Panel data analysis—advantages and challenges", *Test*, Vol. 16 No. 1, pp. 1-22, doi: [10.1007/s11749-007-0046-x](https://doi.org/10.1007/s11749-007-0046-x).
- Hsu, F.J. and Chen, Y.C. (2015), "Is a firm's financial risk associated with corporate social responsibility?", *Management Decision*, Vol. 53 No. 9, pp. 2175-2199, doi: [10.1108/md-02-2015-0047](https://doi.org/10.1108/md-02-2015-0047).
- Huang, H.W., Rose-Green, E. and Lee, C.C. (2012), "CEO age and financial reporting quality", *Accounting Horizons*, Vol. 26 No. 4, pp. 725-740, doi: [10.2308/acch-50268](https://doi.org/10.2308/acch-50268).
- Ioannou, I. and Serafeim, G. (2019), "Corporate sustainability: a strategy?", Harvard Business School Accounting and Management Unit Working Paper, pp. 19-065.
- Kamran, K. and Shah, A. (2014), "The impact of corporate governance and ownership structure on earnings management practices: evidence from listed companies in Pakistan", *The Lahore Journal of Economics*, Vol. 19 No. 2, pp. 27-70, doi: [10.35536/lje.2014.v19.i2.a2](https://doi.org/10.35536/lje.2014.v19.i2.a2).
- Karim, K., Lee, E. and Suh, S. (2018), "Corporate social responsibility and CEO compensation structure", *Advances in Accounting*, Vol. 40, pp. 27-41, doi: [10.1016/j.adiaac.2017.11.002](https://doi.org/10.1016/j.adiaac.2017.11.002).
- Kato, T. and Kubo, K. (2006), "CEO compensation and firm performance in Japan: evidence from new panel data on individual CEO pay", *Journal of the Japanese and International Economies*, Vol. 20 No. 1, pp. 1-19.

- Khan, N., Malik, Q.A., Saghir, A., Rasheed, M.H. and Husnain, M. (2021), "Does corporate social responsibility reduce financial distress? Evidence from the emerging economy", *Management Science Letters*, Vol. 8 No. 11, pp. 2225-2232.
- Khan, M.I., Farooq, M., Jabri, Q.A., Ullah, S. and Hussain, M. (2025), "Managerial overconfidence and dividend policy: a case study of PSX listed firms", *Managerial Finance*, Vol. 51 No. 8, pp. 1275-1299, doi: [10.1108/mf-09-2024-0710](https://doi.org/10.1108/mf-09-2024-0710).
- Kweh, Q.L., Tebourbi, I., Lo, H.C. and Huang, C.T. (2022), "CEO compensation and firm performance: evidence from financially constrained firms", *Research in International Business and Finance*, Vol. 61, 101671, doi: [10.1016/j.ribaf.2022.101671](https://doi.org/10.1016/j.ribaf.2022.101671).
- Larbi, S.B., Dardour, A. and Elage, A. (2024), "CEO incentive pay and corporate social performance: evidence from French companies", *European Management Journal*.
- Lefebvre, E. and Lefebvre, L.A. (1992), "Firm innovativeness and CEO characteristics in small manufacturing firms", *Journal of Engineering and Technology Management*, Vol. 9 Nos 3-4, pp. 243-277, doi: [10.1016/0923-4748\(92\)90018-z](https://doi.org/10.1016/0923-4748(92)90018-z).
- Lin, W.L., Cheah, J.H., Azali, M., Ho, J.A. and Yip, N. (2019), "Does firm size matter? Evidence on the impact of the green innovation strategy on corporate financial performance in the automotive sector", *Journal of Cleaner Production*, Vol. 229, pp. 974-988, doi: [10.1016/j.jclepro.2019.04.214](https://doi.org/10.1016/j.jclepro.2019.04.214).
- Liu, Y. and Mauer, D.C. (2011), "Corporate cash holdings and CEO compensation incentives", *Journal of Financial Economics*, Vol. 102 No. 1, pp. 183-198, doi: [10.1016/j.jfineco.2011.05.008](https://doi.org/10.1016/j.jfineco.2011.05.008).
- Martino, P., Rigolini, A. and D'Onza, G. (2020), "The relationships between CEO characteristics and strategic risk-taking in family firms", *Journal of Risk Research*, Vol. 23 No. 1, pp. 95-116, doi: [10.1080/13669877.2018.1517380](https://doi.org/10.1080/13669877.2018.1517380).
- Mukherjee, T. and Sen, S.S. (2022), "Impact of CEO attributes on corporate reputation, financial performance, and corporate sustainable growth: evidence from India", *Financial Innovation*, Vol. 8 No. 1, p. 40, doi: [10.1186/s40854-022-00344-7](https://doi.org/10.1186/s40854-022-00344-7).
- Mushafiq, M., Prusak, B. and Markiewicz, M. (2023), "Corporate social responsibility and forward default risk mediated by financial performance and goodwill", *Journal of Cleaner Production*, Vol. 428, 139396, doi: [10.1016/j.jclepro.2023.139396](https://doi.org/10.1016/j.jclepro.2023.139396).
- Nazir, S. (2015), "The relationship between corporate governance and firm value: role of discretionary earnings management", Doctoral dissertation, COMSATS University Islamabad, Lahore Campus.
- Nazir, M.S. and Afza, T. (2018), "Does managerial behavior of managing earnings mitigate the relationship between corporate governance and firm value? Evidence from an emerging market", *Future Business Journal*, Vol. 4 No. 1, pp. 139-156, doi: [10.1016/j.fbj.2018.03.001](https://doi.org/10.1016/j.fbj.2018.03.001).
- Ni, Y., Cheng, Y.R. and Huang, P. (2020), "Do intellectual capitals matter to firm value enhancement? Evidences from Taiwan", *Journal of Intellectual Capital*, Vol. 22 No. 4, pp. 725-743, doi: [10.1108/jic-10-2019-0235](https://doi.org/10.1108/jic-10-2019-0235).
- Nilmawati, N., Untoro, W., Hadinugroho, B. and Atmaji, A. (2021), "The relationship between CEO characteristics and leverage: the role of independent commissioners", *The Journal of Asian Finance, Economics and Business*, Vol. 8 No. 4, pp. 787-796.
- Ozkan, N. (2011), "CEO compensation and firm performance: an empirical investigation of UK panel data", *European Financial Management*, Vol. 17 No. 2, pp. 260-285, doi: [10.1111/j.1468-036x.2009.00511.x](https://doi.org/10.1111/j.1468-036x.2009.00511.x).
- Pareek, R. and Sahu, T.N. (2024), "The nonlinear effect of executive compensation on corporate social responsibility performance", *Rajagiri Management Journal*, Vol. 18 No. 1, pp. 43-55, doi: [10.1108/ramj-06-2022-0094](https://doi.org/10.1108/ramj-06-2022-0094).
- Pathak, M. and Chandani, A. (2023), "Board composition, executive compensation, and financial performance: panel evidence from India", *International Journal of Disclosure and Governance*, Vol. 20 No. 4, pp. 359-373, doi: [10.1057/s41310-023-00179-3](https://doi.org/10.1057/s41310-023-00179-3).

- Peng, C.W. (2020), "The role of business strategy and CEO compensation structure in driving corporate social responsibility: linkage towards a sustainable development perspective", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 2, pp. 1028-1039.
- Preacher, K.J. and Hayes, A.F. (2004), "SPSS and SAS procedures for estimating indirect effects in simple mediation models", *Behavior Research Methods, Instruments, and Computers*, Vol. 36 No. 4, pp. 717-731, doi: [10.3758/bf03206553](https://doi.org/10.3758/bf03206553).
- Rahman, M.J., Zhu, H. and Chen, S. (2023), "Does CSR reduce financial distress? Moderating effect of firm characteristics, auditor characteristics, and Covid-19", *International Journal of Accounting and Information Management*, Vol. 31 No. 5, pp. 756-784, doi: [10.1108/ijaim-04-2023-0081](https://doi.org/10.1108/ijaim-04-2023-0081).
- Shahab, Y., Ntim, C.G., Chengang, Y., Ullah, F. and Fosu, S. (2018), "Environmental policy, environmental performance, and financial distress in China: do top management team characteristics matter?", *Business Strategy and the Environment*, Vol. 27 No. 8, pp. 1635-1652, doi: [10.1002/bse.2229](https://doi.org/10.1002/bse.2229).
- Sharpe, I.G. and Stadnik, A. (2007), "Financial distress in Australian general insurers", *Journal of Risk and Insurance*, Vol. 74 No. 2, pp. 377-399, doi: [10.1111/j.1539-6975.2007.00217.x](https://doi.org/10.1111/j.1539-6975.2007.00217.x).
- Sun, W. and Cui, K. (2014), "Linking corporate social responsibility to firm default risk", *European Management Journal*, Vol. 32 No. 2, pp. 275-287, doi: [10.1016/j.emj.2013.04.003](https://doi.org/10.1016/j.emj.2013.04.003).
- Tosi, H.L., Werner, S., Katz, J.P. and Gomez-Mejia, L.R. (2000), "How much does performance matter? A meta-analysis of CEO pay studies", *Journal of Management*, Vol. 26 No. 2, pp. 301-339, doi: [10.1177/014920630002600207](https://doi.org/10.1177/014920630002600207).
- Verwijmeren, P. and Derwall, J. (2010), "Employee well-being, firm leverage, and bankruptcy risk", *Journal of Banking and Finance*, Vol. 34 No. 5, pp. 956-964, doi: [10.1016/j.jbankfin.2009.10.006](https://doi.org/10.1016/j.jbankfin.2009.10.006).
- Wood, J. and Vilkinas, T. (2005), "Characteristics associated with success: CEOs' perspectives", *The Leadership and Organization Development Journal*, Vol. 26 No. 3, pp. 186-196, doi: [10.1108/01437730510591743](https://doi.org/10.1108/01437730510591743).
- Xu, Z. and Hou, J. (2021), "Effects of CEO overseas experience on corporate social responsibility: evidence from Chinese manufacturing listed companies", *Sustainability*, Vol. 13 No. 10, p. 5335, doi: [10.3390/su13105335](https://doi.org/10.3390/su13105335).
- Xu, E.G., Graves, C., Shan, Y.G. and Yang, J.W. (2022), "The mediating role of corporate social responsibility in corporate governance and firm performance", *Journal of Cleaner Production*, Vol. 375, 134165, doi: [10.1016/j.jclepro.2022.134165](https://doi.org/10.1016/j.jclepro.2022.134165).
- Yin, J., Li, J. and Ma, J. (2024), "The effects of CEO awards on corporate social responsibility focus", *Journal of Business Ethics*, Vol. 190 No. 4, pp. 897-916, doi: [10.1007/s10551-023-05411-2](https://doi.org/10.1007/s10551-023-05411-2).
- Zandi, G., Mohamad, S., Keong, O.C. and Ehsanullah, S. (2019), "CEO compensation and firm performance", *International Journal of Innovation, Creativity and Change*, Vol. 7 No. 7, pp. 316-327.
- Zhang, K., Wan, S. and Zhou, Y. (2024), "Executive compensation, internal governance and ESG performance", *Finance Research Letters*, Vol. 66, 105614, doi: [10.1016/j.frl.2024.105614](https://doi.org/10.1016/j.frl.2024.105614).
- Zhao, X., Lynch, J.G., Jr and Chen, Q. (2010), "Reconsidering baron and Kenny: myths and truths about mediation analysis", *Journal of Consumer Research*, Vol. 37 No. 2, pp. 197-206, doi: [10.1086/651257](https://doi.org/10.1086/651257).
- Zheng, Y., Wang, Y. and Jiang, C. (2019), "Corporate social responsibility and likelihood of financial distress", *Quarterly Review of Business Disciplines*, Vol. 6 No. 3, pp. 219-236.
- Zor, U., Linder, S. and Endenich, C. (2019), "CEO characteristics and budgeting practices in emerging market SMEs", *Journal of Small Business Management*, Vol. 57 No. 2, pp. 658-678, doi: [10.1111/jsbm.12438](https://doi.org/10.1111/jsbm.12438).

Further reading

- Porter, M.E. and Kramer, M.R. (2006), "Strategy and society: the link between competitive advantage and corporate social responsibility", *Harvard Business Review*, Vol. 84 No. 12, pp. 78-92.
- Sobel, M.E. (1986), "Some new results on indirect effects and their standard errors in covariance structure models", *Sociological Methodology*, Vol. 16, pp. 159-186, doi: [10.2307/270922](https://doi.org/10.2307/270922).

Corresponding author

Qadri Al-Jabri can be contacted at: q.aljabri@ubt.edu.sa