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CORPORATE SOCIAL RESPONSIBILITY AND FIRM INVESTMENT EFFICIENCY: MODERATING ROLE OF FIRM SIZE

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Abstract

This research aims to evaluate the impact of corporate social responsibility (CSR) on the firm investment efficiency with moderating role of firm size. The sample is collected from companies listed on the Pakistan Stock Exchange (PSX) between 2015 and 2024. The study uses several methodological framework including pooled ordinary least square, fixed effects, two steps system generalized method of moment to test the hypotheses. The results confirm the hypothesis that corporate social responsibility (CSR) positively influences firm investment efficiency by reducing information asymmetry, in alignment with stakeholder theory. Furthermore, the moderating effect of firm size enhances the positive impact of CSR on investment efficiency, consistent with agency theory. The propensity score matching technique is used to handle endogeneity concerns. Alternative definition of investment efficiency is used to support the baseline findings. This study reveals in sub sample analysis that large size and CSR strength firms exhibit a more significant impact on the investment efficiency than small size and CSR concern firms. This study to the best of the researcher's knowledge is the first to empirically associate the impact of CSR on investment efficiency, with firm

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size serving as a moderating variable, in the underdeveloped market, Pakistan. The outcomes of this research may assist policymakers and practitioners in implementing CSR initiatives to enhance investment efficiency in firms.

Key Words: CSR, Investment Efficiency, Firm Size, Robustness, Endogeneity, Pakistan

1. Introduction

The success of any firm or organization depends on numerous factors, including workplace environment, capital structure, information technology, corporate governance and corporate social responsibility (Kumar, Connell, & Bhattacharyya, 2021). Companies with high CSR that consider stakeholder expectations are probably able to improve their financial performance through investment efficiency. Corporate Social Responsibility actions are conducted solely when their advantages exceed their expenses. The extent of resources allocated to CSR activities mostly depends on the availability of resources not allocated in other uses. Consequently, it is essential to periodically assess performance and investment efficiency of firms with the environmental and social changes.

Literature shows the advantageous dimensions of CSR with business value, information quality, staff morale and consumer loyalty and inverse relationship between CSR and financial restrictions, investment-cash flow sensitivity and agency conflicts (Shabbir, 2021; Sulbahri, Fuadah, & Sidiq, 2022). Rachmat, Sumirat, and Nainggolan (2024) find that implementing CSR in firms will benefit the business's environment, society, and economy. Benlemlih and Bitar (2018) find positive link between CSR with investment efficiency by two primary mechanisms: reduced information asymmetry and enhanced management practices. This correlation between CSR and investment efficiency is supported by stakeholder theory. Additionally, companies that practice good corporate social responsibility (CSR) are more likely to present a positive image of themselves to stakeholders and investors. Benlemlih and Bitar (2018) discover that while low CSR firms shows lower

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investment efficiency, high CSR firms increase investment efficiency. Godfrey (2005) clarifies that there exists an optimal threshold of CSR that managers should not exceed as any further CSR spending will provide no extra benefits. Building on this line of research, we investigate the potential impact of corporate social responsibility participation of firms on investment efficiency.

Additionally, the gap is to determine the moderating variable in the context of the relationship between corporate social responsibility and investment efficiency for the smooth operation of businesses. The size of a corporation significantly influences its capacity to launch new products or services. In corporate finance research, firm size is considered a major variable by researchers; nevertheless, some studies only use it as a control variable to examine the link between the independent and dependent variables (Zona, Zattoni, & Minichilli, 2013). Theoretically, the organizational structures of small and large businesses differ. Larger companies, for example, have more financial resources than small ones because they have access to more funding options for business expansion (Amato & Burson, 2007). Banks are consistently more inclined to extend loans to businesses with higher creditworthiness (Ibhagui & Olokoyo, 2018). Consequently, our model employs firm size as a moderating variable to determine whether the empirical findings regarding the relationship between CSR and investment efficiency have been strengthened or weakened.

Hence, this study has two goals: to find out how CSR affects firm investment efficiency and to investigate the moderating effect of firm size. The Pakistani market has been selected to achieve the research objectives. The sample originates from non-financial public listed companies on the PSX. The final sample of the study included 371 companies with 3,089 firm-year observations from 2015 to 2024. This study utilizes multivariate regressions to evaluate the hypotheses, using Ordinary least square (OLS), Fixed effect approach (FE), and Generalized methods of moments (GMM).

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The hypotheses testing results confirm hypothesis 1, in alignment with stakeholder theory, indicating that firms having participation in CSR invest more efficiently by alleviating issues related to information asymmetry and free cash flow agency concerns (Benlemlih & Bitar, 2018; Cui, Jo, & Na, 2014). The results further confirm the second hypothesis, aligning with agency theory (Fiana & Endri, 2025) that firm size enhance the positive effect of CSR on firm investment efficiency. The baseline findings remain robust when utilizing an alternative definition of investment efficiency. The propensity score matching (PSM) method is employed to address endogeneity issues. This study shows in sub sample analysis that larger organizations and CSR strength firms demonstrate a more pronounced influence on firm investment efficiency.

This study extends the existing knowledge by analyzing the effect of CSR on investment efficiency in an underdeveloped market. This study is the first effort to examine the moderating influence of business size on the link between corporate social responsibility and firm investment efficiency. Furthermore, we enhance the literature by illustrating that a mechanism connecting CSR success and investment efficiency is the mitigation of capital-market defects, including information asymmetry and agency conflicts.

2. Literature Review and Development of Hypotheses

Corporate social responsibility (CSR) in corporations shows management's reaction to shareholder inquiries and regulatory requirements. In today's era, firms voluntarily incorporate their operations in social and environmental considerations. In the achievement of goals, businesses can avoid stakeholders' hindrance by paying attention to their expectations and concerns. Hence, enhancing CSR provide more information available to stakeholders, enabling and motivating external entities to enhance their investment opportunities (Sundarasen, Je-Yen, & Rajangam, 2016). The corporate social responsibility increases mutual trust between managers and various stakeholders by enhancing managerial knowledge, alleviating short-

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term performance pressures, enabling a focus on long-term corporate objectives, facilitating more rational resource allocation, and improving investment efficiency (Sulbahri et al., 2022).

It has been widely demonstrated in previous research that CSR in firms increase the firm investment efficiency by lowering information asymmetry. Huang, Chen, and Liu (2023) demonstrate that firms engaging in voluntary CSR experience a reduction in equity capital costs and increase investment efficiency. Similarly, Zhang, Xing, and Tripe (2021) find that environmentally conscious companies who have higher environmental CSR are able to secure better and more appropriate loan agreements than other non-CSR companies. Moreover, Sutrisno (2021) provides evidence of the positive impact of CSR on the firm efficiency in investment decisions. According to stakeholder theory, Freeman (1984) states that investors, suppliers, employees, and customers who have control over resources can influence how business decisions are carried out.

Dhaliwal, Li, Tsang, and Yang (2011) provide empirical evidence that companies with corporate social responsibility (CSR) possess more information about their financial and non-financial operations than companies with poor CSR. Benlemlih and Bitar (2018) find that not fulfilling stakeholders' expectations is likely to increase market anxiety, consequently reducing the company's potential for profit. Furthermore, organizations with CSR are linked to improved information quality, increased transparency, and diminished earnings management. Companies with minimal corporate social responsibility are more prone to ineffectiveness due to their failure to fulfil the environmental and social obligations (Cui et al., 2014). Consequently, based on above studies our first hypothesis is as follows:

H1: CSR has a positive impact on the firm investment efficiency

Researchers have examined the impact of firm size on the profitability of businesses, yielding varied conclusions that range from negative to positive, or weak for the chosen variables. The impact of firm size on CSR is clarified by

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agency theory, which posits that corporations incur significant agency costs, compelling them to reveal more information (Cherian et al., 2020). Ibhagui and Olokoyo (2018) find a positive impact of firm size on profitability. Though it shows a substantial disparity in profitability across medium, small, and large firms. As, larger businesses and companies are more significance in commercial activity. Their commercial operations may also exhibit more pronounced and substantial processes to provide increased product output, hence insuring higher sales volumes and profitability. This conclusion aligns with the findings of Sulbahri et al. (2022) and Mohsni and Shata (2021) indicating that larger companies have more stock investment information and options, suggesting that firm size positively and significantly influences and investment decisions.

Suraya and Gantino (2022), also indicates a significant positive correlation between firm size and CSR. Amato and Burson (2007) shows that increase in sales and profitability is largely dependent on the size of the company. Andries and Faems (2013) investigate the correlation between firm size and profitability through the utilization of financial and economic data. Papadogonas (2007) asserts that firm size influences the productivity and profitability across all kinds of business firms. Using a fixed-effects model on a sample of more than 7,000 publicly traded US companies, positive impact of firm size is found on firm performance (Lee, 2009). Zona et al. (2013) find more resources and market reputation in larger companies as compared to smaller companies. Larger companies are typically more sophisticated and structured in their responses to market fluctuations, possess greater proficiency in launching new items and attaining specified objectives (Andries & Faems, 2013). Conversely, Liow (1995) examines the concept that a firm's size does not influence its investment decisions. Based on above discussion, we propose the following hypothesis.

H2: Firm size moderates the relationship between CSR and investment efficiency

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3. Methodology

The sample for this study is collected from listed companies on the Pakistan Stock Exchange (PSX) in Pakistan. The final sample of the study includes 371 firms with 3,089 firm-year observations covering the period from 2015 to 2024. To assess the study's hypotheses, we develop the following two models in Equation (1) and Equation (2).

$$\begin{aligned} \text{InvEff}_{it} = {} & \alpha_0 + \beta_1 \text{CSR}_{it} + \beta_2 \text{Firm Leverage}_{it} + \beta_3 \text{Sales Growth}_{it} + \beta_4 \text{CFO}_{it} \\ & + \beta_5 \text{Cash}_{it} + \beta_6 \text{DIV\_DUM}_{it_{it}} + \sum \beta_7 \text{ Industry dummies} \\ & + \sum \beta_8 \text{ Year dummies} + \varepsilon_{it} \quad (1) \end{aligned}$$

$$\begin{aligned} \text{InvEff}_{it} = {} & \alpha_0 + \beta_1 \text{ CSR}_{it} + \beta_2 \text{ Firm Size}_{it} \\ & + \beta_3 (\text{CSR} \times \text{Firm Size})_{it} + \beta_4 \text{Firm Leverage}_{it} + \beta_5 \text{Sales Growth}_{it} \\ & + \beta_6 \text{CFO}_{it} + \beta_7 \text{Cash}_{it} + \beta_8 \text{DIV\_DUM}_{it} \\ & + \sum \beta_9 \text{ Industry dummies} + \sum \beta_{10} \text{ Year dummies} + \varepsilon_{it} \quad (2) \end{aligned}$$

The study's dependent variable is investment efficiency, quantified by the absolute values of the residuals from the investment model designated as IE (Chen, Hope, Li, & Wang, 2011). The independent variable CSR is quantified using a dummy variable, where a value of 1 indicates existence of CSR and 0 indicates absence (Poddi & Vergalli, 2009). firm size, a moderating variable, is defined as the natural logarithm of total assets (Mubeen, Han, Abbas, Álvarez-Otero, & Sial, 2021). This research measures firm leverage by dividing total debt at book value by total assets (Nadeem, Suleman, & Ahmed, 2019). The sales growth rate is the percentage change in sales from one year to the next. Operating income is adjusted by deducting income before depreciation and interest payments to ascertain cash flow (Shahid & Abbas, 2019). Cash is calculated by dividing total assets by cash and short-term investments (C.-C. Lee, Wang, Chiu, & Tien, 2018). The dividend payout dummy variable is assigned a value of 1 for companies that distribute dividends and 0 otherwise (Triani & Tarmidi, 2019). Industry dummy variables are generated using the first two digits of the SIC code. We utilize dummy variables for each year in

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our sample period (i.e., year fixed effects) to address fluctuations in economic conditions (Nainggolan, Susanti, & Azwar, 2022).

This study utilizes three models to assess the hypotheses. Ordinary Least Squares (OLS) regression relies on the assumption of robust standard errors, including industry and year fixed effects (Hao, Chen, & Chen, 2022). Fixed effect (FE) regression is a useful technique for improving detection and removing time-invariant omitted variable bias which is the principal source of endogeneity in panel data (Dehaan, 2021). Simultaneity and dynamic endogeneity are two other biases that the GMM method seeks to address (Naz, Bhutta, Sheikh, & Sultan, 2023). The PSM technique addresses biases of endogeneity, including functional misspecification, observable biases, and sample selection (Roberts & Whited, 2013). Alternative definition of investment efficiency is used to check the robustness of baseline findings. Additional sub sample analysis based on size and CSR strength of firms is also the part of study.

4. Empirical Findings

4.1 Descriptive Analysis

Table 1 shows the descriptive statistics of the study variables. The average investment efficiency is 8.91% in firms with median value of 0.0873. From 3089 observations, the median value of CSR is 0.7729, the mean value is 0.7634, and the standard deviation is 0.2095. The mean firm size is 12.569, the median is 13.732, and the standard deviation is 1.6982. The mean (median) value of firm leverage is 0.1039 (0.1209), accompanied by a standard deviation of 0.1980. The mean value of sales growth of firms is approximately 12.19%. The mean (median) cash flow is 0.0832 (0.0791) with a standard deviation of 0.1329. Firms, on average, maintain 7.94% in cash and short-term investments. Approximately 46.23% of companies distribute a cash dividend, with a standard deviation of 0.4871.

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Table 1: Descriptive Statistics

	N	Mean	Median	Std. Dev.	Min	Max
IE_Chen	3089	0.0891	0.0873	0.039	0.017	0.598
CSR	3089	0.7729	0.7634	0.2095	0.000	1.000
Firm Size	3089	12.569	13.732	1.6982	11.8272	19.653
Firm Lev	3089	0.1039	0.1209	0.1980	0.00109	0.8137
Sales Growth	3089	0.1219	0.1170	0.3239	-0.5933	1.7362
CFO	3089	0.0832	0.0791	0.1329	-0.3216	0.3509
Cash	3089	0.0794	0.0701	0.2313	0.0004	0.9352
DIV_DUM	3089	0.4623	0.5308	0.4871	0.000	1.000

4.2 Correlation Analysis

Table 2 shows the correlation among variables. IE exhibits a significant positive correlation with CSR and firm size, with values of 0.061 and 0.392, at the 10% significance level respectively. Cash flow, cash, sales growth, and dividend payments are all control variables that have a positive correlation with firm investment efficiency, with respective values of 0.071, 0.363, 0.089, and 0.223, in contrast to firm leverage, which has a negative value of -0.14. The correlation matrix indicates no abnormally significant correlations among the independent variables, thereby reinforcing the reliability of the ensuing regression analysis. The unreported variance inflation factor (VIF) analysis indicates a mean VIF of 1.76, with all control variable. As VIF values below 2, signifying the absence of multicollinearity in the data (Kalnins & Praitis Hill, 2025).

Table 2: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)IE_Chen	1.0000							
(2) CSR	0.061*	1.0000						
(3) Firm Size	0.392*	0.034*	1.0000					

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(4) Firm Lev	-0.14*	0.029	0.0591	1.0000				
(5) CFO	0.071*	-0.07*	0.199*	0.350*	1.0000			
(6) Cash	0.363*	-0.018	0.081*	0.510*	0.039*	1.0000		
(7) Sales Growth	0.089*	-0.04*	0.125*	0.292*	0.831*	0.398*	1.0000	
(8) DIV_DUM	0.223*	-0.038	0.070*	0.067*	0.090*	0.020*	0.298*	1.0000

*p<0.10

4.3 Regression Analysis

4.3.1 Effect of CSR on Firm Investment Efficiency

Table 3 displays the regression results for equation (1) employing different models. Model 1 presents Ordinary Least Squares (OLS) regression, Model 2 shows fixed effect approach, and model 3 is two-stage system GMM regressions. We employ lagged dependent variables (IE_Chen) as instruments in the two-step system GMM regressions to address relationship.

Findings show the estimated coefficients of CSR in model 1 is 0.529 (insignificant), whereas in models 2 and 3, they are 0.032 and 0.083, respectively, at the 10% significance level. Furthermore, the diagnostic statistics substantiate the validity of the GMM calculations. The results of the first-order autoregressive model AR (1) are significant, however the results of the second-order autoregressive model AR (2) are insignificant, indicating a lack of second-order autocorrelation. The p-values from the Hansen test are not significant, thus validating the over-identifying restrictions and the comprehensive instrument set. Overall, findings support hypothesis 1 that CSR has positive impact of firm investment efficiency consistent with stakeholder theory (Benlemlih & Bitar, 2018).

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Table 3: Effect of CSR on Firm Investment Efficiency

	(Model 1: OLS)	(Model 2: Fixed Effects)	(Model 3: System GMM)
VARIABLES	**IE**	**IE**	**IE**
Lag (IE)	---	---	0.298***
	(--)	(--)	(1.930)
CSR	0.529	0.032*	0.083*
	(2.198)	(1.766)	(2.315)
Firm Leverage	-1.387***	-0.133	-0.034
	(-3.532)	(-0.740)	(-1.037)
Sales Growth	0.132	0.209**	0.172***
	(0.307)	(2.430)	(3.624)
CFO	2.053***	0.650***	0.301***
	(5.234)	(4.509)	(3.312)
Cash	0.349**	0.045	0.024
	(1.409)	(0.409)	(1.025)
DIV_DUM	0.240***	0.050*	0.123***
	(5.309)	(1.760)	(8.118)
Industry Effects	NO	YES	YES
Year Effects	YES	YES	YES
Constant	-0.323	0.249	0.132***
	(-0.349)	(0.332)	(6.023)
Observations	3089	3089	3089
R-squared	0.134	0.121	---
AR (1) (z, p-value)	---	---	2.47*
			(0.004)
AR (2) (z, p-value)	---	---	1.35 (0.317)
Sargan Test (chi square, p-	---	---	267.2

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value)			(0.000)
Hansen Test (chi square, p-value)	---	---	183.2 (0.164)

*** p<0.01, ** p<0.05, * p<0.1

4.3.2 Moderating Effect of Firm Size on CSR and Firm Investment Efficiency

Table 4 demonstrates a significant relationship of firm size between CSR and firm investment efficiency, with OLS estimation and fixed-effect regression models yielding values of 0.297 and 0.0311, respectively (at 10% significance level), and GMM estimation producing a value of 0.077 (at 5% significance level). The findings indicate that firm size positively affects the relationship between corporate social responsibility and firm investment efficiency, hence supporting Hypothesis II in accordance with agency theory (Fiana & Endri, 2025).

Table 4: Moderating Effect of Firm Size

	(Model 1: OLS)	**('Model 2: Fixed Effects)**	**(Model 3: System GMM)**
VARIABLES	**IE_Chen**	**IE_Chen**	**IE_Chen**
Lag. IE_Chen	---	---	0.698***
	(--)	(--)	(12.45)
CSR	0.495	0.054*	0.153**
	(3.870)	(0.191)	(2.428)
Firm Size	0.125**	0.057	0.437**
	(1.980)	(1.077)	(2.365)
CSR × Firm Size	0.297*	0.0311*	0.077**
	(0.872)	(0.409)	(1.269)
Control Variables	Included	Included	Included
Industry Effects	YES	NO	YES

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Year Effects	YES	YES	YES
Constant	0.238	0.241	0.265***
	(2.480)	(0.337)	(5.033)
Observations	3089	3089	3089
R-squared	0.137	0.171	---
AR (1) (z, p-value)	---	---	2.45*
			(0.023)
AR (2) (z, p-value)	---	---	-0.13 (0.143)
Sargan Test (chi square, p-value)	---	---	321.5
			(0.000)
Hansen Test (chi square, p-value)	---	---	126.3
			(0.128)

*** p<0.01, ** p<0.05, * p<0.1

4.4 Endogeneity Concerns

Table 5 employs the propensity score matching (PSM) approach. To implement PSM, we create a dummy variable that assumes a value of one if the company possesses a CSR and zero if it does not. We now estimate a probit model by regressing the CSR indicator on firm size and investment efficiency. In matched samples, we find that investment efficiency is related to firm size and CSR by showing qualitatively similar results to baseline findings.

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Table 5: Propensity Score Matching (PSM) Approach

	(2)
VARIABLES	**IE**
CSR	0.332**
	(1.760)
Firm Size	0.321
	(1.233)
CSR × *Firm Size*	0.298***
	(0.657)
Control Variables	Included
Industry Fixed Effects	YES
Year Fixed Effects	YES
Constant	-0.593
	(-0.831)
Observations	3,089
R-squared	0.318

*** p<0.01, ** p<0.05, * p<0.1

4.5 Robustness Checks

This section conducts robustness test to validate the baseline findings. An alternate proxy of firm investment efficiency, IE_Biddle is utilized to evaluate the validity of our baseline findings as calculated in (Biddle, Hilary, & Verdi, 2009). The regression outcomes in Table 6 match confirm the robustness of our baseline findings.

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Table 6: Alternative Proxy of Firm Investment Efficiency (IE_Biddle)

	(Model 1: OLS)	(Model 2: Fixed Effects)	(Model 3: System GMM)
VARIABLES	**IE_Biddle**	**IE_Biddle**	**IE_Biddle**
Lag (IE_Biddle)	---	---	0.412***
			(2.152)
CSR	0.227*	0.042**	0.237**
	(6.230)	(1.586)	(1.378)
Firm Size	0.276*	0.120	0.001*
	(4.430)	(4.325)	(0.005)
CSR × Firm Size	0.125**	0.026**	0.053***
	(0.349)	(1.693)	(2.346)
Control Variables	Included	Included	Induded
Constant	-0.253	2.007***	-0.235
	(-0.531)	(4.898)	(-0.132)
Observations	3089	3089	3089
R-squared	0.125	0.331	---
AR (1) (z, p-Value)	---	---	- 0.372 (0.0387)
AR (2) (z, p-Value)	---	---	- 1.681 (0.309)
Sargan Test (chi square, p-value)	---	---	68.26 (1.000)
Hansen Test (chi square, p-value)	---	---	129.0 (0.899)

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*** p<0.01, ** p<0.05, * p<0.1

4.6 Additional Subsample Analysis

4.6.1 CSR Strengths / CSR Concerns Firms

Cho, Lee, and Pfeiffer Jr (2013) provide strong evidence that companies with high corporate social responsibility (CSR) are less inclined toward earnings management and are more likely to disclose transparent and reliable information to investors. We utilize two types of data CSR strengths (high CSR) CSR concerns(low CSR) in model 1 and model 2 respectively based on (Benlemlih & Bitar, 2018). The results of table 7 from both models indicate investment efficiency by CSR and firm size. Though, these results are more pronounced for firms with high CSR as compared to low CSR firms.

Table 7: High/Low CSR in Firm

VARIABLES	IE_Chen	IE_Chen
CSR_STR	0.386**	
	(2.807)	
CSR_CON	---	0.230*
		(1.092)
Firm Size	0.338**	0.109*
	(5.471)	(3.381)
CSR_STR × *Firm Size*	0.248***	
	(2.201)	
CSR_CON × *Firm Size*		2.509*
		(1.323)
Control Variables	Included	Included
Constant	0.209	0.421
	(1.398)	(1.610)
Observations	1898	1191
R-squared	0.476	0.398

*** p<0.01, ** p<0.05, * p<0.1

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4.6.2 High/Low Firm Size

Literature indicates that smaller companies tend to be younger, unclear regarding their future capital investment requirements, and may reluctance towards long-term investments due to their limited operational scale, contrary to larger firms due to their economies of scale (Ibhagui & Olokoyo, 2018). Firms are classified into two categories based on size: those exceeding the average value are designated as large firms, while those below the average are classified as small firms (Mubeen et al., 2021). This study incorporated firm size (small/large) as an additional subsample analysis. Findings in table 8 are in line with the literature that the benefit of CSR on investment efficiency would be more positive and significant for firms with large firm size.

Table 8: High/Low Firm Size

VARIABLES	IE_Chen	IE_Chen
CSR	0.338**	0.238*
	(5.471)	(2.183)
Large Firm Size	0.246**	
	(3.486)	
Small Firm Size	---	0.387
		(2.980)
CSR × *Large Firm Size*	0.155**	
	(1.446)	
CSR × *Small Firm Size*		2.873
		(1.982)
Control Variables	Included	Included
Constant	-0.366	-0.362
	(-1.210)	(-1.220)
Observations	1823	1266
R-squared	0.420	0.269

*** p<0.01, ** p<0.05, * p<0.1

Conclusiona

This study investigates the impact of corporate social responsibility on firm investment efficiency also investigate the moderating influence of firm size. The Pakistani market has been selected to achieve the objectives. The sample

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is derived from firms listed on the PSX. The hypotheses are evaluated by multivariate regression methods. We first hypothesized that investment efficiency is markedly greater for firms engaged in CSR activities and we find statistically significant evidence indicating a positive impact of CSR on investment efficiency. Results arise from the minimum information asymmetry as experienced by CSR companies along with their effective management techniques. The regression analysis results further support second hypothesis that firm size enhances the positive relationship between CSR and firm investment efficiency. Our results remain robust when employing alternative definition of investment efficiency. PSM shows same findings and mitigate endogeneity and self-selection bias. In sub sample analysis, this study further indicates that larger firms outperform than smaller firms and high CSR firms can be regarded as an effective means to enhance investment efficiency than low CSR firms. The research provides both empirical and theoretical contributions to the corporate governance literature. This study examines the relationship for firms included in Pakistan, to generalize the findings of our study, future studies ought to expand the context in other countries/regions. This study may provide corporate manager, policy makers and investors with valuable insight.

References

Amato, L. H., & Burson, T. E. (2007). *The effects of firm size on profit rates in the financial services*. Paper presented at the allied academies international conference. Academy for economics and economic education. Proceedings.

Andries, P., & Faems, D. (2013). Patenting activities and firm performance: does firm size matter? *Journal of Product Innovation Management, 30*(6), 1089-1098.

Benlemlih, M., & Bitar, M. (2018). Corporate social responsibility and investment efficiency. *Journal of business ethics, 148*(3), 647-671.

Volume. 4 Issue No. 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Biddle, Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of accounting and economics, 48*(2-3), 112-131.

Chen, Hope, O.-K., Li, Q., & Wang, X. (2011). Financial reporting quality and investment efficiency of private firms in emerging markets. *The accounting review, 86*(4), 1255-1288.

Cherian, J., Safdar Sial, M., Tran, D. K., Hwang, J., Khanh, T. H. T., & Ahmed, M. (2020). The strength of CEOs' influence on CSR in Chinese listed companies. New insights from an agency theory perspective. *Sustainability, 12*(6), 2190.

Cho, S. Y., Lee, C., & Pfeiffer Jr, R. (2013). Corporate social responsibility performance and information asymmetry. *Journal of Accounting Public Policy, 32*(1), 71-83.

Cui, J., Jo, H., & Na, H. (2014). *Does corporate social responsibility reduce information asymmetry*. Retrieved from

Dehaan, E. (2021). Using and interpreting fixed effects models. *Available at SSRN 3699777, 3*(1), 45-59.

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The accounting review, 86*(1), 59-100.

Fiana, F., & Endri, E. (2025). Corporate Social Responsibility and Financial Performance: The Moderating Role of Firm Size. *International Journal of Economics Financial Issues, 15*(2), 244.

Freeman, R. E. (1984). Strategic management: A stakeholder perspective. In (Vol. 2, pp. 12-18): Englewood Cliffs, NJ: Prentice Hall.

Godfrey, P. (2005). The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of management review, 30*(4), 777-798.

Volume. 4 Issue No. 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Hao, X., Chen, F., & Chen, Z. (2022). Does green innovation increase enterprise value? *Business Strategy and the Environment, 31*(3), 1232-1247.

Huang, F., Chen, M., & Liu, R. (2023). The nature of corporate social responsibility disclosure and investment efficiency: Evidence from China. *Frontiers in Environmental Science, 11*(2), 102-118.

Ibhagui, O. W., & Olokoyo, F. O. (2018). Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics Finance, 45*(2), 57-82.

Kalnins, A., & Praitis Hill, K. (2025). The VIF score. What is it good for? Absolutely nothing. *Organizational research methods, 28*(1), 58-75.

Kumar, A., Connell, J., & Bhattacharyya, A. (2021). Co-opetition for corporate social responsibility and sustainability: drivers and success factors. *Sustainability Accounting, Management Policy Journal, 12*(6), 1208-1238.

Lee. (2009). Does size matter in firm performance? Evidence from US public firms. *International Journal of the economics of Business, 16*(2), 189-203.

Lee, C.-C., Wang, C.-W., Chiu, W.-C., & Tien, T.-S. (2018). Managerial ability and corporate investment opportunity. *International Review of Financial Analysis, 57*, 65-76.

Liow, K. H. (1995). Property in corporate financial statements: the UK Evidence. *Journal of Property Research, 12*(1), 13-28.

Mohsni, S., & Shata, A. (2021). Board Gender Diversity and Firm Performance: The Role of Firm Size. *In Hillsdale Investment Management. CFA Society*.

Mubeen, R., Han, D., Abbas, J., Álvarez-Otero, S., & Sial, M. S. (2021). The relationship between CEO duality and business firms' performance: the moderating role of firm size and corporate social responsibility. *Frontiers in psychology, 12*(2), 66-75.

Volume. 4 Issue No. 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Nadeem, M., Suleman, T., & Ahmed, A. (2019). Women on boards, firm risk and the profitability nexus: Does gender diversity moderate the risk and return relationship? *International Review of Economics & Finance, 64*, 427-442.

Nainggolan, C. D., Susanti, E., & Azwar, K. (2022). Role of Investment Opportunity Set (IOS) in Moderating the Influence of Company Size, Activity, and Profitability on Capital Structure in Multi-Industry Sector Companies for the Period 2015–2019. *Organum: Jurnal Saintifik Manajemen dan Akuntansi, 5*(1), 16-37.

Naz, A., Bhutta, A. I., Sheikh, M. F., & Sultan, J. (2023). Corporate real estate investment and firm performance: empirical evidence from listed non financial firms of Pakistan. *Journal of Corporate Real Estate, 25*(3), 246-262. doi:10.1108/JCRE-05-2022-0013

Papadogonas, T. A. (2007). The financial performance of large and small firms: evidence from Greece. *International Journal of Financial Services Management, 2*(1-2), 14-20.

Poddi, L., & Vergalli, S. (2009). Does corporate social responsibility affect the performance of firms? *, 3*(2), 1-47.

Rachmat, L. M., Sumirat, E., & Nainggolan, Y. A. (2024). The influence of sustainability disclosure on financial performance: a study of indonesian firms. *International Journal of Current Science Research Review, 7*(3), 1857-1879.

Roberts, M. R., & Whited, T. M. (2013). Endogeneity in empirical corporate finance1. In *Handbook of the Economics of Finance* (Vol. 2, pp. 493-572): Elsevier.

Shabbir, U. (2021). The Effect of Diversity on Shareholder Value: Do Gender, Ethnic and CSR Diversity Initiatives Influence Shareholder Value? *Ethnic and CSR Diversity Initiatives Influence Shareholder Value*.

Shahid, M. S., & Abbas, M. (2019). Does corporate governance play any role in investor confidence, corporate investment decisions relationship?

Volume. 4 Issue No. 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Evidence from Pakistan and India. *Journal of Economics and Business, 105*, 105839.

Sulbahri, R. A., Fuadah, L. L., & Sidiq, S. a. (2022). *Effect of sustainable report (CSR) on return on asset (ROA), return on equity (ROE) and good corporate governance (GCG)(Empirical study on banking companies for the 2016-2019 period)*. Paper presented at the 7th Sriwijaya Economics, Accounting, and Business Conference (SEABC 2021).

Sundarasen, S. D. D., Je-Yen, T., & Rajangam, N. (2016). Board composition and corporate social responsibility in an emerging market. *Corporate Governance: The International Journal of Business in Society*.

Suraya, L., & Gantino, R. (2022). Comparison of the Influence of Good Corporate Governance, Return on Asset, Net Profit Margin on Company Value with Corporate Social Responsibility as Moderating Variables *East African Scholars Journal of Economics, Business Management, 5*(1), 22-34.

Sutrisno, T. (2021). The role of corporate social responsibility in the investment efficiency: is it important? *The Journal of Asian Finance, Economics Business, 8*(1), 169-178.

Triani, N., & Tarmidi, D. (2019). Firm value: impact of investment decisions, funding decisions and dividend policies. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 9*(2), 158-163.

Zhang, Y., Xing, C., & Tripe, D. (2021). Redistribution of China's green credit policy among environment-friendly manufacturing firms of various sizes: Do banks value small and medium-sized enterprises? *International Journal of Environmental Research Public Health, 18*(1), 33.

Volume. 4 Issue No. 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Zona, F., Zattoni, A., & Minichilli, A. (2013). A contingency model of boards of directors and firm innovation: The moderating role of firm size. *British Journal of Management, 24*(3), 299-315.