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The Double-Edged Sword of Buyer Power: Customer Concentration, Institutional Ownership, and Corporate Social Responsibility in an Emerging Market

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Abstract

Corporate Social Responsibility (CSR) is a critical pillar of sustainable business, yet powerful market forces often influence its adoption. This study investigates the complex interplay between market concentration—specifically, a firm's reliance on major customers—and its commitment to CSR in the unique context of an emerging market. Drawing on stakeholder, agency, and resource dependence theories, we argue that high customer concentration (CC) creates a power asymmetry, pressuring firms to prioritise the short-term financial demands of key buyers over long-term societal investments. Analysing a decade of data from the Tehran Stock Exchange, our findings confirm that CC significantly erodes CSR engagement. More intriguingly, we challenge the conventional view of institutional investors as uniform champions of sustainability. Instead, we find that their moderating role is contingent upon certain conditions. Under extreme customer dependence, institutional ownership may paradoxically exacerbate the negative impact on CSR, potentially due to heightened pressure for short-term financial performance. This research contributes to the literature on sustainable business administration by demonstrating that governance mechanisms do not operate in a vacuum but are shaped by underlying market structures. For policymakers and managers, our results underscore the need for strengthened governance and incentives that safeguard sustainability commitments against the pressures of concentrated buyer power, particularly in emerging economies. The study underlines that achieving sustainability goals requires a nuanced understanding of the market environments in which firms operate.

Keywords: market concentration; corporate social responsibility; management accounting and decision making; stakeholder power; governance; emerging markets; sustainable development

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1. Introduction

In an era of global sustainability challenges, Corporate Social Responsibility (CSR) has evolved from a voluntary initiative to a fundamental pillar of resilient and legitimate business practice [1,2]. The pursuit of sustainability, however, does not occur in a vacuum. It is profoundly shaped by powerful market forces and governance structures that can either facilitate or hinder a firm's commitment to its environmental and social obligations. This study delves into this complex interplay by examining a critical, yet underexplored, market dynamic: the effect of customer concentration (CC)—a firm's strategic reliance on a limited number of major buyers—on its CSR engagement.

The central question is how the power imbalance in concentrated buyer relationships influences a firm's ability and willingness to invest in long-term societal goals. Drawing on an integrative framework of stakeholder, agency, and resource dependence theories, we posit that high CC creates a power asymmetry that pressures firms to prioritise the short-term financial and operational demands of key customers over long-term investments in sustainability. This tension lies at the heart of sustainable business administration, representing a classic agency problem where short-term pressures can override the long-term interests of a broader set of stakeholders.

Furthermore, we complicate the conventional narrative surrounding corporate governance. While institutional investors are often championed as stewards of long-term value and Environmental, Social, and Governance (ESG) principles, their role may not be uniformly positive. We investigate whether institutional ownership serves as a mitigating force, encouraging CSR despite customer pressures, or if, under conditions of extreme customer dependence, it paradoxically amplifies the focus on short-term financial performance at the expense of social and environmental responsibility.

To test these propositions, we focus on the vibrant and under-researched context of an emerging market—the Tehran Stock Exchange. Emerging economies, often characterised by institutional voids and concentrated market structures, provide a critical setting for understanding how unique institutional environments shape corporate sustainability strategies. Our findings offer nuanced insights that complement and challenge existing findings from developed markets, thereby contributing directly to the literature on sustainable business administration.

This research makes several key contributions to the special issue themes:

It illuminates the "double-edged sword" of buyer power, demonstrating how market concentration can be a significant barrier to CSR implementation.

It challenges simplistic views of corporate governance by revealing the contingent role of institutional investors in promoting sustainability, particularly in the face of influential external stakeholders.

It bridges theories of stakeholder power, agency problems, and resource dependence to provide a more holistic understanding of the determinants of CSR in concentrated markets.

For policymakers and managers, our findings underscore the imperative of designing governance mechanisms and incentives that can shield sustainability commitments from the corrosive pressures of concentrated buyer power. Ultimately, achieving the United Nations Sustainable Development Goals requires a nuanced understanding of the market structures in which firms are embedded, and this study makes a significant contribution in that direction.

2. Literature Review

2.1. Corporate Social Responsibility

CSR refers to voluntary corporate actions addressing social, environmental, and ethical issues beyond legal requirements [3–5]. Traditional definitions often focus on visible behaviours such as financial donations or short-term social programmes [6,7]. However, these approaches are limited because they may overlook the depth of organisational commitment, strategic orientation, and the integration of CSR into core business practices. For example, companies engaging only in superficial CSR may claim social responsibility despite causing negative societal or environmental impacts.

CSR serves both strategic and normative purposes. Strategically, CSR can enhance a corporation's reputation, strengthen customer loyalty, and mitigate business risks [8]. Normatively, it reflects the firm's role as a responsible societal actor, responding to the expectations of multiple stakeholders. Three main theoretical perspectives help explain CSR

behaviour: legitimacy theory emphasises gaining social approval through ethical actions; stakeholder theory highlights the importance of addressing the interests of diverse groups, including shareholders, employees, customers, governments, and local communities; and signalling theory focuses on transparent disclosure of social and financial performance to build trust and attract resources [3,4].

Despite these insights, prior research often remains descriptive, focusing on definitions rather than linking CSR to specific corporate conditions or strategic choices. This creates a gap in understanding how external pressures, such as CC, and internal governance mechanisms, like institutional shareholders, shape CSR engagement. Moreover, prior studies offer mixed evidence regarding CSR drivers, highlighting the need for more nuanced investigation into these relationships.

2.2. Customer Concentration

CC occurs when a substantial portion of a firm's sales is derived from a limited number of key customers [9]. Firms with high CC may experience stable revenue streams and close relationships with key customers, which can provide predictable resources for strategic initiatives such as CSR [10,11]. At the same time, high dependence on a few customers increases the firm's exposure to customer demands and bargaining power, which can influence managerial decisions and resource allocation [12–14].

From a theoretical perspective, CC relates to resource dependence and stakeholder considerations. Firms must manage relationships with key customers to secure essential resources while balancing the expectations of other stakeholders, such as shareholders and employees [12,13].

Although prior studies recognise the significance of CC, research findings are not entirely consistent. Some evidence suggests it may encourage CSR by creating stable financial conditions, while other studies indicate potential constraints due to customer influence. These inconsistencies highlight the need to investigate the mechanisms and conditions under which CC affects CSR, which will be addressed in the section on hypothesis development.

This study employs three distinct measures of CC to capture different dimensions of customer dependence. The first measure reflects the proportion of sales to major customers, providing insight into the firm's revenue reliance. The second measure captures sales distribution across customers, addressing concentration risk and minimising outlier effects. The third measure uses a Herfindahl-type index to account for the number and size of key customers, reducing potential biases from extreme values and providing a more robust assessment of CC.

2.3. Institutional Shareholders

Institutional shareholders are large investors, such as banks, insurance companies, and investment funds, which hold significant equity stakes in firms. Over recent decades, their role has evolved from passive investors to active monitors, capable of influencing managerial decisions and corporate policies. Institutional shareholders can encourage firms to adopt long-term strategies and engage in socially responsible initiatives by exercising their monitoring power.

From a theoretical perspective, institutional shareholders are relevant to CSR through multiple lenses. According to agency theory, they can reduce managerial opportunism and short-termism by monitoring corporate actions. Stakeholder theory suggests that institutional investors, with a long-term orientation, can help firms balance the demands of key customers and other stakeholders, thereby supporting sustained CSR engagement. Resource dependence theory highlights that institutional shareholders provide critical resources and legitimacy, enabling firms to undertake socially responsible projects.

Although prior research acknowledges the potential of institutional shareholders to influence CSR, the specific mechanisms and conditions under which they moderate the relationship between external pressures, such as CC, and CSR remain underexplored. This gap motivates the investigation of their moderating role in the present study.

2.4. Background and Development of Hypotheses

2.4.1. Explaining the Relationship Between CC and CSR

CC, defined as a situation where a substantial portion of a firm's sales is derived from a limited number of key customers [9], can influence CSR activities through multiple mechanisms. Empirical evidence indicates positive and negative effects, depending on firm-specific and contextual factors.

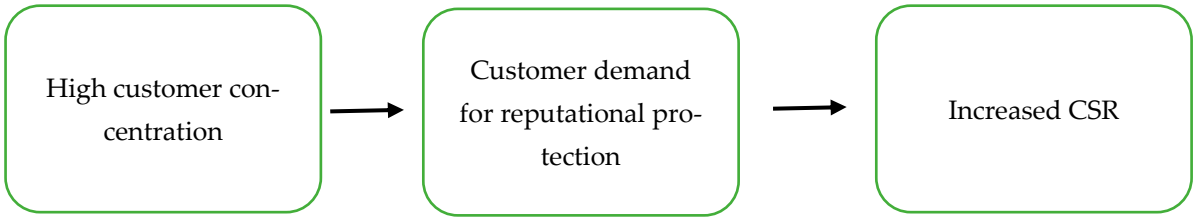
High CC can motivate firms to engage in CSR to protect their reputation and satisfy major customers [15]. When firms engage in unethical actions, primary customers may also be affected, increasing reputational risks [16,17]. CSR thus serves as reputational insurance, mitigating potential adverse effects [18].

Stable, long-term relationships with key customers generate predictable revenue streams, enabling firms to allocate resources to CSR initiatives. For instance, Cao, Dong [11] report that firms with high CC are more likely to engage in CSR, likely due to customer expectations. Roberts [17] documents a significant positive relationship, and Zhu, Yeung [19] emphasise that information transparency further strengthens this effect. And Lin [9] finds that CC can facilitate overinvestment, indirectly supporting increased CSR spending. As illustrated in Conceptual Model 1, these mechanisms capture how customer demand for reputational protection encourages CSR activities.

Based on the mixed empirical evidence and theoretical discussions presented above [11,20], we develop two conceptual models to summarise the key mechanisms through which CC may influence CSR outcomes. Conceptual Model 1 (please see below) represents the positive pathway, while Conceptual Model 2 represents the negative pathway.

Conceptual Model 1 illustrates this positive pathway:

Conceptual Model 1: Positive Customer Concentration and CRS



The above Conceptual Model shows the positive pathway through which high CC may lead to increased CSR, driven by increased customer demand for reputational protection.

Although the primary effect is positive, CC can constrain CSR under certain conditions. Heavy reliance on a few customers increases their bargaining power, potentially pressuring firms to cut costs and reduce discretionary expenditures such as CSR. Park [21] shows that firms with high CC may prioritise satisfying key customers rather than investing in CSR. Luo and Bhattacharya [21] report similar findings, attributing reduced CSR to limited resource flexibility.

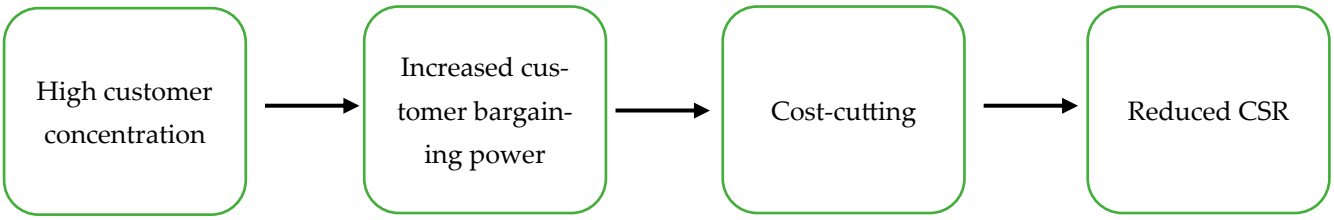
Muringani, Fitjar [22], found a negative correlation between CC and all five dimensions of CSR. Wen, Ke [20], show that the adverse effect is stronger in firms without foreign customers or investors. Additional nuances include the industry and regulatory context: Cao, Dong [11] demonstrates that CC reduces corporate risk-taking, but this effect varies by industry competitiveness, firm innovativeness, and ownership structure. Ma, Wang [23] report that high CC increases the risk of stock price crashes, particularly in firms with

poor information environments. Crawford, Huang [24] indicate that large customers can access private information at lower costs, indirectly influencing CSR decisions. Habib, Hasan [25] distinguishes between corporate and government CC, showing that corporate concentration increases CSR while government concentration reduces it.

Conceptual Model 2 illustrates the negative pathway, highlighting how increased customer bargaining power may pressure firms to reduce discretionary CSR expenditures.

Conceptual Model 2 represents this negative pathway:

Conceptual Model 2: Negative Customer Concentration and CRS



The above Conceptual Model shows the negative pathway through which high CC may lead to reduced CSR, driven by increased customer bargaining power and consequent corporate cost-cutting.

These mixed findings highlight that while the primary effect of CC on CSR is positive, it is condition-dependent, influenced by customer power, firm resources, industry characteristics, and external monitoring mechanisms such as institutional shareholders.

These conceptual models synthesise prior empirical evidence and theoretical insights, contributing by explicitly linking the mechanisms of CC to CSR outcomes.

H1: *High Customer Concentration Positively Affects CSR.*

2.4.2. The Moderating Effect of Institutional Shareholders on the Relationship Between CC and CSR

Institutional shareholders, which include large investors such as banks, insurance companies, and investment funds, play a crucial role in monitoring corporate management and influencing strategic decisions. According to agency theory, they can reduce managerial opportunism and prevent short-term decision making that might arise from high CC, such as cutting CSR expenditures to satisfy dominant customers. From a stakeholder theory perspective, institutional shareholders, with their long-term orientation, encourage firms to balance the interests of key customers and other stakeholders, promoting sustained CSR engagement. Additionally, resource dependency theory emphasises that institutional shareholders provide essential resources and legitimacy, allowing firms to undertake socially responsible initiatives while reducing dependence on a few key customers.

Empirical evidence suggests that external factors, such as corporate reputation and the regulatory environment, influence the impact of CC on CSR. For instance, companies with strong reputations can mitigate the potential adverse effects of high CC on CSR [20]. Ma, Wang [23], show that in highly regulated industries, CSR practices are more responsive to customer expectations, highlighting the role of institutional oversight. Due to their investment volume, expertise, and governance capabilities, institutional shareholders can further enhance corporate governance quality, ensure accurate CSR reporting, and encourage meaningful CSR activities.

Institutional shareholders are particularly important when the relationship between CC and CSR is negative. When dominant customers exert bargaining power that pressures firms to cut costs, CSR activities may be reduced. Acting as monitors, institutional shareholders can moderate this negative relationship by safeguarding CSR investments and

ensuring that firms continue to fulfil social responsibilities. When CC positively influences CSR because customers value and reward responsible practices, institutional shareholders reinforce this effect by supporting reputationally beneficial CSR initiatives. In other words, institutional shareholders act as a monitoring and supporting mechanism, ensuring that CSR investments are maintained or enhanced depending on the effect of CC.

H2: *Institutional shareholders moderate the relationship between CC and CSR, such that they mitigate potential CSR reductions when CC pressures the firm and reinforce CSR when CC supports reputationally beneficial initiatives*.

The Iranian market presents unique characteristics that may influence the relationship between the CC, institutional shareholders, and CSR. These include a mixed ownership structure with significant state involvement, specific regulatory frameworks, economic sanctions, and limitations in available corporate data. Such factors suggest that the mechanisms observed in this study may not fully generalise to developed or other emerging markets, highlighting the need for context-sensitive interpretation of the results.

3. Methodology

3.1. Research Context

This study examines the relationship between CC and CSR and the moderating role of institutional shareholders in companies listed on the Tehran Stock Exchange over 10 years from 2013 to 2022. The TSE provides the most comprehensive data on audited companies in the country and is widely regarded as a reliable source of information [26–28].

The required data was extracted from the financial statements of companies listed on the Tehran Stock Exchange. This data was collected from the Comprehensive Issuers Information System (KADAL) and stock exchange databases, including the Iran Stock Exchange, Tadbir Pardaz, and Rahavard Novin.

3.2. Instruments

The primary instruments for data collection were the audited financial statements and annual reports of the companies listed on the Tehran Stock Exchange (TSE). These documents were sourced from several reliable and comprehensive Iranian financial databases to ensure the accuracy and completeness of the data. The databases utilised were the Comprehensive Issuers Information System (KADAL), Iran Stock Exchange, Tadbir Pardaz, and Rahavard Novin. These sources provided quantitative and qualitative data for all research variables, including financial figures, CC metrics, ownership structures, and CSR disclosure scores. All data were cross-checked across multiple reliable Iranian databases (KADAL, Iran Stock Exchange, Tadbir Pardaz, Rahavard Novin) to ensure accuracy and completeness. Financial statements were audited, and CSR scores were derived consistently in accordance with [29].

3.3. Statistical Models and Research Variables

We adopt the empirical models of Wen, Ke [20], while adjusting control variables and ownership structures to reflect the characteristics of Iranian listed firms. In particular, variables such as state ownership (SOE), board composition (BIND), and cash holdings (CH) were tailored to account for structural differences in the Iranian market. Given Iran's comparable regulatory environment and financial reporting standards, these models are considered appropriate for examining the relationship between CC and CSR.

The following model is used to test the first hypothesis, following Wen, Ke [20]:

$$\text{Model 1: } CSR_{it} = \beta_0 + \beta_1\, cc_{it} + \beta_2\, age_{it} + \beta_3 Lev_{it} + \beta_4\, ROA_{it} + \beta_5\, Size_{it} + \beta_6\, Profit_{it} + \beta_7 CH_{it} + \beta_8 MB_{it} + \beta_9 ROE_{it} + \beta_{10}\, BIND + \beta_{11}\, SOE + \beta_{12}\, ROE + \sum_{k=1}^{n} \beta_k Industry_{i,t} + \sum_{I=1}^{m} \beta_I\, Year + \varepsilon_{it}$$

To test the second hypothesis, the second model is used as follows:

$$\text{Model 2: } CSR_{it} = \beta_0 + \beta_1\, cc_{it} + \beta_2\, Is_{it} + \beta_3\, (cc * Is)_{it} + \beta_4\, age_{it} + \beta_5\, Lev_{it} + \beta_6\, ROA_{it} + \beta_7\, Size_{it} + \beta_8\, ROE_{it} + \beta_9\, Profit_{it} + \beta_{10}\, SOE_{it} + \beta_{11}\, Bind_{it}\, \beta_{12}\, MB_{it} + \beta_{13}\, CH_i + \sum_{k=1}^{n} \beta_k\, Industry_{i,t} + \sum_{I=1}^{m} \beta_I Year + \varepsilon_i$$

This study incorporates control variables such as firm size, profitability, leverage, age, and ownership structure to address potential endogeneity and reverse causality between CSR and CC. Future analyses could include robustness checks using lagged independent variables and alternative model specifications to ensure the stability of the results further.

3.3.1. Dependent Variable

CSR: According to Saleh and Zulkifli's model [29], CSR encompasses four dimensions: employee disclosure (EMPD), community participation disclosure (COMD), production disclosure (PROD), and environmental disclosure (ENVD).

The CSR disclosure score is calculated by summing the values of the CSR dimensions and can be obtained using Equation (1) [29].

Relationship (1)

$$CSR = EMPD + COMD + PROD + ENVD \tag{1}$$

The overall CSR disclosure score for each dimension is calculated using Relationship 2.

Relationship (2)

$$CSRD_{i,t} = \frac{\sum_{i=1}^{n_j} X_{i,j}}{n_j} \tag{2}$$

where $CSRD_{i,t}$ is the CSR disclosure score of company j at time t, n_j: the number of items estimated for company j,

X_{ij}: If the disclosure items are quantitative and their details are in the form of numbers, images, graphs and tables, the disclosure score is 3; if the information is non-quantitative and the explanations are detailed, the disclosure score is 2; if the disclosure items are qualitative and the explanations are in the form of sentences or paragraphs, the disclosure score is 1, and if no item is disclosed, the disclosure score is zero.

The level of disclosure of information related to CSR dimensions is shown in Table 1.

Table 1. Disclosure Criteria and Scoring Formulae for CSR Dimensions.

Dimensions	Criteria	Formula
Employee Relations Disclosure Score (EMPD)	(1) Employee Environment Health, (2) Employee Training, (3) Employee Benefits, (4) Employee Profile, (5) Employee Stock Ownership (6) Employee Safety and Health (ISO 18000)	EMPD = ΣA/6 Employee Relations Disclosure Score (EMPD): A: Disclosure Score for Each Employee Relations Criteria in the Company i 6 in the Denominator, which Represents Six Criteria Related to Employee Relations Disclosure

Table 1. *Cont.*

Dimensions	Criteria	Formula
Social Participation Disclosure Score (COMD)	(1) Cash Donation Programme (2) Charity Programme (3) Scholarship Programme (4) Financial Sponsors for Sports Activities (5) National Pride Sponsors (6) Public Projects	COMD = ΣB/6 Social Participation Disclosure Score (COMD): B: Disclosure Score for Each Social Participation Criteria in the Company i 6 in the Denominator Represents Six Criteria Related to Social Participation Disclosure
Production Disclosure Score (PROD)	(1) Product Safety (2) Product Quality (3) Product Development (4) After-Sales Services	PROD = ΣC/4 Production Disclosure Score (PROD): C: Disclosure Score for Each Production Criteria in the Company i 4 in the Denominator Represents Four Criteria Related to Production Disclosure
Environmental Disclosure Score (ENVD)	(1) Air Pollution Control (2) Damage Prevention and Compensation Programme (3) Protection and Use of Recycled Products (4) Environmental Award (ISO 14000)	ENVD = ΣD/4 Environmental Disclosure Score (ENVD): D: Disclosure Score for Each Environmental Criteria in the Company i 4 in the Denominator Represents Four Criteria Related to Environmental Disclosure

Source: Research findings.

3.3.2. Independent Variable

Customer concentration (CC): The independent variable of this study is CC. In this study, the emphasis on specific customers implies a focus on major customers. In Iran, there is no particular requirement or necessity to disclose major customers. However, according to Statement 131 of the Financial Accounting Standards Board, if the revenue from sales to a customer is 10 per cent or more, the disclosure of such customers in the financial statements is mandatory. In the present study, three criteria are used to measure CC.

1. Using the percentage of major customers ranked based on a quantile, a higher rank means greater CC.

2. Using the Herfindahl-Hirschman index, this index, in addition to considering the number of major customers of the Company, also considers the importance of each customer according to the revenue obtained, which is calculated according to the research of Ak and Patatoukas [30], using the following relationship: Relationship (3)

$$Corp\ Customer\ HH_{i,t} = \sum_{J=1}^{J} \left(\frac{Revenues_{i,j,t}}{Revenues_{i,t}} \right)^2 \quad (3)$$

In this relation, $Revenues_{i,j,t}$ is the revenue of Company i from customer j in year t and $Revenues_{i,t}$ is the total revenue of Company i in year t. The range of this index is between 0 and 1, such that the closer the index is to 1, the greater the CC, and vice versa.

3. Measurement based on sales to the Company's primary customers according to research [31], which is obtained from the following relationship: Relationship (4)

$$Major\ customer\ Sales_{i,t} = \sum_{J=1}^{J} \left(\frac{Revenues_{i,j,t}}{Revenues_{i,t}} \right) \quad (4)$$

Revenues $_{i,j,t}$: Revenue of Company i from customer j in year t
Revenues$_{i,t}$: Revenue of Company i in year t

3.3.3. Modifier Variable

Institutional Shareholders (IS_{it}): The percentage of ownership of institutional shareholders at the beginning of each year, obtained by dividing the number of common shares of the Company held by institutional shareholders by the number of common shares of the Company.

Control variables:

Control variables are extracted from the research of Wen, Ke [20].

$CH_{it:}$ Cash holdings = The ratio of total cash and cash equivalents to total assets.
MB_{it}: The ratio of market value to book value of equity.
$Size_{it}$: Firm size = The natural logarithm of total assets.
Profitability: Profitability = 1 if the Company is profitable and zero otherwise.
LEV_{it}: Financial leverage = The ratio of total debt to assets.
ROA_{it}: Return on assets = The ratio of net income to total assets.
ROE_{it}: Return on equity = The ratio of net income to book value of equity.
age_{it}: Age of the Company = equal to the logarithm of the time interval between the Company's founding date and the year under study.
$Bind_{it}$: Percentage of non-executive board members = Number of non-executive board members divided by the number of executive board members
SOE $_{it}$: Percentage of state ownership
Year: year
Industry: industry
ε_{it}: residuals

The research data were analysed using mixed data analysis and multivariate regression, and the Eviews 14 software was used to test the research hypotheses.

All control variables are included simultaneously in the regression models to account for firm characteristics that could confound the relationship between CC and CSR. These controls are selected based on prior literature [20]. Specifically, firm size (Size) and age (Age) account for scale and maturity effects, profitability (Profit), ROA, and ROE control for financial performance, leverage (LEV) and cash holdings (CH) capture financial structure, board independence (BIND) and state ownership (SOE) reflect governance and ownership characteristics, and MB captures market valuation effects. Year and industry dummies are included to control for temporal and sectoral variation.

4. Findings

4.1. Descriptive Statistics

The results of descriptive statistics of the research variables are presented in Table 2.

The total number of observations is 990 (year-company), which includes 99 companies over 10 years from 2013 to 2022.

The mean of CSR is 0.423, and its standard deviation is 0.166. Additionally, its median is 0.4, indicating that half of the data for this variable are less than this value, while the other half is greater than or equal to this value. The average CC with the Herfindahl-Hirschman index is 0.36; its standard deviation is 0.338. The primary customer index is 0.49, with a standard deviation of 0.342. On average, the return on assets was 15.6%. The average financial leverage is 0.54, which indicates that debts cover 54% of the companies' assets.

The average company size was 15.1, with a range of 10.53 to 21.6. Ninety-one per cent of the companies were profitable.

Table 2. Descriptive statistics of quantitative and qualitative variables.

Variable Type	Variable	Symbol	Mean	Median	Maximum	Minimum	Standard Deviation
Dependent	CSR	CSR2	0.423	0.4	0.9	0.05	0.166
Independent	Customer concentration (Rank Index)	CC1	2.825	3	5	0	1.706
	Customer concentration (Herfindahl-Hirschman Index)	CC2	0.36	0.26	1	0	0.338
	Customer concentration (Key Customers)	CC3	0.494	0.51	1	0	0.342
Moderator	Institutional Shareholder	INST	0.684	0.7633	1	0	0.249
Control	Company Age	AGE	2.855	2.944	3.912	0	0.522
	Percentage of Non-Executive Board Members	BIND	0.646	0.6	1.2	0	0.198
	Cash Holdings	CH	0.042	0.027	0.461	0	0.049
	Financial Leverage	LEV	0.543	0.532	1.566	0.031	0.216
	Market-to-Book Ratio of Equity	MB	5.625	3.237	55.82	−0.506	7.83
	Return on Assets	ROA	0.156	0.134	0.709	−0.563	0.157
	Return on Equity	ROE	0.322	0.325	4.673	−2.899	0.383
	Company Size	SIZE	15.1	14.79	21.6	10.533	1.763
	State Ownership	SOE	0.05	0	0.7311	0	0.104
							Qualitative research variables
	Variable	Symbol			Frequency 1		Percentage frequency1
Moderator	Institutional Shareholder	INST			493		50%
Control	Profitability	PROFIT			907		91%

Source: Research findings.

4.2. Collinearity Check

To assess the presence of multicollinearity in the regression models, we computed the Variance Inflation Factor (VIF). As shown in Table 3, all VIF values are well below the commonly accepted threshold of 10, indicating the absence of serious multicollinearity and confirming the reliability of the regression coefficients.

4.3. Correlation Matrix Results

There is a significant correlation between CC rank and CSR. There is also a significant correlation between CC (Herfindahl-Hirschman index) and CSR. A significant correlation exists between CC (major customers) and CSR.

4.4. Research Model

If the research data is composite, it is necessary to measure the combination or panel nature of the data using the Chow (Limer) test. Still, since the variances of the errors are heterogeneous in the present study, the stable regression method or the robust standard error method is used. The use of such regression does not require the Chow or Hausman test.

Table 3. Collinearity Check.

Index One		Index Two		Index Three	
Symbol	**Centred VIF**	**Symbol**	**Centred VIF**	**Symbol**	**Centred VIF**
*CC*1	1.630	*CC*2	1.013	*CC*3	1.603
CH	1.168	CH	1.128	CH	1.154
ROE	1.605	ROE	1.180	ROE	1.581
INST	1.238	*INST*	1.192	*INST*	1.239
BsizeEXP	1.065	*BsizeEXP*	1.066	*BsizeEXP*	1.065
BIND	1.176	*BIND*	1.156	*BIND*	1.178
AGE	1.206	*AGE*	1.197	*AGE*	1.210
SOE	1.114	*SOE*	1.113	*SOE*	1.115
Size	1.303	*Size*	1.300	*Size*	1.301
ROA	2.024	*ROA*	2.017	*ROA*	2.023
LEV	1.921	*LEV*	1.923	*LEV*	1.922
MB	1.050	*MB*	1.048	*MB*	1.050

4.5. Results of the Correlation Matrix

The correlation matrix, presented in Table 4, was examined to assess the bivariate relationships between the study's variables and to check for potential multicollinearity issues. The results indicate significant correlations between all three measures of customer concentration (CC1, CC2, CC3) and the dependent variable, CSR, providing preliminary support for the first hypothesis. Furthermore, the correlation coefficients among the independent and control variables are generally low to moderate, with the highest observed correlation being 0.65 between financial leverage (LEV) and return on assets (ROA). Since all Variance Inflation Factor (VIF) values in subsequent analyses were well below the standard threshold of 10, it confirms that severe multicollinearity is not a concern for the regression models.

4.6. Inferential Statistics

The following are the results of the fitting of each of the research models. Each of the models has been implemented as a multiple regression.

According to the probability of the Parent F statistic in Table 5, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 28 per cent of the variation in the dependent variable. The Pagan-Broch test results suggest that the model errors exhibit heteroscedasticity, which was addressed by eliminating its effect on the standard deviation through error clustering by company. The table shows that the CC variable (rank index) has a coefficient of −0.007 and a probability value of 0.003, indicating a significant relationship between CC (rank index) and CSR. As a result, the first hypothesis of the research is confirmed. The negative sign of the coefficient indicates that companies' CSR decreases as the CC (rank index) effect increases.

According to the probability of the Parent F statistic in Table 6, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 29 per cent of the variation in the dependent variable. The table shows that the CC variable (Herfindahl-Hirschman) has a coefficient of −0.034 and a *p*-value of 0.035, indicating a significant relationship between CC (Herfindahl-Hirschman) and CSR. As a result, the first

hypothesis of the research is confirmed. The negative sign of the coefficient indicates that companies' CSR decreases as the effect of CC (Herfindahl-Hirschman) increases.

Table 4. Correlation Matrix Results.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CSR (1)	1														
*CC*1 (2)	−0.13	1													
*CC*2 (3)	−0.09	0.07	1												
*CC*3 (4)	−0.11	0.98	0.06	1											
CH (5)	0.03	0.03	−0.02	0.01	1										
ROE (6)	−0.13	0.54	0.05	0.54	−0.15	1									
INST (7)	0.14	−0.12	−0.04	−0.12	0.09	0.05	1								
BsizeEXP (8)	0.08	−0.04	−0.03	−0.04	0.03	0.03	0.11	1							
BIND (9)	−0.14	−0.13	0.04	−0.14	0.09	−0.04	−0.10	0.10	1						
AGE (10)	0.05	−0.03	−0.02	−0.04	−0.22	0.03-	−0.18	−0.07	−0.06	1					
SOE (11)	−0.09	−0.03	−0.03	−0.03	0.09	0.01	0.12	0.09	0.08	0.02	1				
Size (12)	0.44	−0.10	−0.05	−0.09	0.11	0.02	0.24	0.09	−0.12	−0.16	0.09	1			
ROA (13)	0.18	−0.18	−0.05	−0.17	0.19	−0.16	0.13	0.08	0.14	−0.16	0.04	0.28	1		
LEV (14)	0.01	0.12	−0.01	0.11	−0.19	0.13	0.04	−0.10	−0.26	0.08	−0.04	−0.13	−0.65	1	
MB (15)	0.03	−0.01	−0.02	−0.01	0.01	−0.09	−0.06	−0.05	−0.03	0.09	−0.04	−0.03	0.09	0.01	1

The correlation coefficient is significant at the 0.05 percent level. The correlation coefficient is significant at the 0.01 percent level.

Table 5. The result of fitting the first model is customer concentration (rank index).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	**Probability Value**
Intercept		−0.344	0.084	−4.1	0
Customer concentration (Rank Index)	*CC1*	−0.007	0.003	−2.149	0.032
Company Age	*AGE*	0.037	0.011	3.287	0.001
Financial Leverage	*LEV*	0.125	0.031	3.973	<0.001
Return on Assets	*ROA*	0.195	0.054	3.618	<0.001
Company Size	*SIZE*	0.042	0.004	11.367	<0.001
Profitability	*PROFIT*	−0.008	0.019	−0.414	0.679
Cash Holdings	*CH*	−0.136	0.098	−1.385	0.166
Market-to-Book Ratio of Equity	*MB*	−0.0003	0.001	−0.528	0.597
Return on Equity	*ROE*	−0.006	0.015	−0.412	0.68
Percentage of Non-Executive Board Members	*BIND*	−0.021	0.026	−0.805	0.421
State Ownership Percentage	*SOE*	−0.116	0.046	−2.503	0.012
Year and Industry Effects					Controlled
Breusch-Pagan Probability Value					63.58 (<0.001)
Adjusted R-squared					0.28
F-statistic (Probability Value)					15.3 (<0.001)

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

Table 6. Model 1 Fitting Result—Customer concentration (Herfindahl Index).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	**Probability Value**
Intercept		−0.37	0.084	−4.403	<0.001
Customer concentration (Herfindahl Index)	CC2	−0.034	0.016	−2.115	0.035
Company Age	AGE	0.035	0.012	3.048	0.002
Financial Leverage	LEV	0.138	0.032	4.284	<0.001
Return on Assets	ROA	0.195	0.055	3.509	<0.001
Company Size	SIZE	0.044	0.004	11.617	<0.001
Profitability	PROFIT	−0.006	0.019	−0.295	0.768
Cash Holdings	CH	−0.164	0.099	−1.652	0.099
Market-to-Book Ratio of Equity	MB	−0.001	0.001	−0.894	0.372
Return on Equity	ROE	−0.007	0.015	−0.463	0.644
Percentage of Non-Executive Board Members	BIND	−0.04	0.027	−1.448	0.148
State Ownership Percentage	SOE	−0.116	0.051	−2.261	0.024
Year and Industry Effects					Controlled
Breusch-Pagan Probability Value					50.31 (<0.001)
Adjusted R-squared					0.29
F-statistic (Probability Value)					15.24 (<0.001)

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

According to the probability of the parent F-statistic in Table 7, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 30 per cent of the variation in the dependent variable. The table shows that the CC variable (sales to key customers) has a coefficient of −0.053 and a probability value of 0.001, indicating a significant relationship between CC (sales to key customers index) and CSR. As a result, the first hypothesis of the research is confirmed. The negative sign of the coefficient indicates that companies' CSR decreases as the effect of CC (sales to key customers) increases. Therefore, the first hypothesis was confirmed based on all three CC indices, indicating a significant negative relationship between CC and CSR.

Although CC negatively affects CSR across all models, the adjusted R^2 values ranging from 0.28 to 0.31 indicate that other unobserved factors likely influence CSR practices in Iranian firms. This suggests that while the models capture meaningful patterns, interpretation should be cautious and contextualised within broader stakeholder and market dynamics.

According to the probability of the Parent F statistic in Table 8, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 29 per cent of the variation in the dependent variable. The table shows that the variable CC (rank index) * institutional shareholder has a coefficient of 0.003 and a *p*-value of 0.644, indicating that institutional shareholders do not moderate the relationship between CC and CSR. As a result, the second hypothesis of the research is not confirmed.

Table 7. Model 1 Fitting Result—Customer Concentration (Sales to Key Customers).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	**Probability Value**
Intercept		−0.331	0.085	−3.884	<0.001
Customer concentration (Sales to Key Customers)	CC3	−0.053	0.016	−3.26	0.001
Company Age	AGE	0.033	0.012	2.844	0.005
Financial Leverage	LEV	0.134	0.032	4.184	<0.001
Return on Assets	ROA	0.19	0.055	3.431	0.001
Company Size	SIZE	0.043	0.004	11.479	<0.001
Profitability	PROFIT	−0.006	0.019	−0.327	0.744
Cash Holdings	CH	−0.169	0.099	−1.711	0.088
Market-to-Book Ratio of Equity	MB	−0.001	0.001	−0.825	0.41
Return on Equity	ROE	−0.007	0.015	−0.451	0.652
Percentage of Non-Executive Board Members	BIND	−0.043	0.027	−1.567	0.118
State Ownership Percentage	SOE	−0.119	0.051	−2.338	0.02
Year and Industry Effects			Controlled		
Breusch-Pagan Probability Value			51.96 (<0.001)		
Adjusted R-squared			0.3		
F-statistic (Probability Value)			15.59 (<0.001)		

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

Table 8. Model 2 Fitting Result—Customer concentration (Rank Index).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	**Probability Value**
Intercept		−0.33	0.084	−3.934	<0.001
Customer concentration (Rank Index)	CC1	−0.008	0.004	−1.673	0.095
Institutional Shareholder	INST1	0.04	0.02	2.045	0.041
Customer concentration (Rank Index) x Institutional Shareholder	CC1:INST1	0.003	0.006	0.462	0.644
Company Age	AGE	0.045	0.011	3.948	<0.001
Financial Leverage	LEV	0.116	0.031	3.689	<0.001
Return on Assets	ROA	0.177	0.054	3.288	0.001
Company Size	SIZE	0.038	0.004	9.914	<0.001
Profitability	PROFIT	−0.015	0.019	−0.788	0.431
Cash Holdings	CH	−0.151	0.098	−1.549	0.122
Market-to-Book Ratio of Equity	MB	−0.0003	0.001	−0.434	0.665
Return on Equity	ROE	−0.007	0.015	−0.473	0.636
Percentage of Non-Executive Board Members	BIND	−0.011	0.026	−0.4	0.689
State Ownership Percentage	SOE	−0.134	0.046	−2.913	0.004
Year and Industry Effects			Controlled		

Table 8. *Cont.*

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	**Probability Value**
Breusch-Pagan Probability Value			56.59 (<0.001)		
Adjusted R-squared			0.29		
F-statistic (Probability Value)			15.17 (<0.001)		

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

The results consistently show that institutional shareholders do not moderate the relationship between CC and CSR across all three measures of CC. This null finding highlights that governance mechanisms may not always counterbalance market pressures in emerging economies. Consequently, the second hypothesis is not supported, and caution is needed when interpreting the potential moderating role of institutional investors.

According to the probability of the Parent F statistic in Table 9, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 31 per cent of the variation in the dependent variable. The table shows that the variable CC (Herfindahl-Hirschman) * Institutional Shareholder has a coefficient of −0.026 and a *p*-value of 0.374, indicating that institutional shareholders do not moderate the relationship between CC (Herfindahl-Hirschman) and CSR. As a result, the second hypothesis of the study is not confirmed.

Table 9. Results of the Second Model Fit—Customer Concentration (Herfindahl Index).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	***p*-Value**
Intercept	(Intercept)	−0.372	0.083	−4.453	<0.001
Customer concentration (Herfindahl-Hirschman Index)	cc2	−0.01	0.023	−0.437	0.662
Institutional Shareholder	inst1	0.058	0.016	3.709	0
Customer concentration Herfindahl-Hirschman: Institutional Shareholder	cc2:inst1	−0.026	0.03	−0.89	0.374
Firm Age	AGE	0.045	0.012	3.834	<0.001
Financial Leverage	LEV	0.126	0.032	3.928	< 0.001
Return on Assets	ROA	0.17	0.055	3.073	0.002
Firm Size	SIZE	0.039	0.004	10.202	<0.001
Profitability	PROFIT	−0.012	0.019	−0.617	0.537
Cash Holdings	Ch	−0.178	0.098	−1.812	0.07
Market-to-Book Ratio of Equity	MB	0	0.001	−0.798	0.425
Return on Equity	ROE	−0.008	0.015	−0.557	0.578
Percentage of Non-Executive Board Members	Bind	−0.024	0.027	−0.879	0.38
Percentage of State Ownership	SOE	−0.138	0.051	−2.718	0.007
Year and Industry Effect			Controlled		

Table 9. *Cont.*

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	***p*-Value**
Breusch-Pagan (*p*-value)			56.95 (<0.001)		
Adjusted R-squared			0.31		
Wald F-statistic (*p*-value)			15.16 (<0.001)		

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

According to the probability of the Parent F statistic in Table 10, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 31 per cent of the variation in the dependent variable. The table shows that the CC variable (Herfindahl-Hirschman) *institutional shareholder has a coefficient of −0.021 and a *p*-value of 0.479, indicating that institutional shareholders do not moderate the relationship between CC (main customers) and CSR. As a result, the second hypothesis of the study is not confirmed. Thus, the second hypothesis was not confirmed, and institutional shareholders did not moderate the relationship between CC (in all three indicators) and CSR.

Table 10. Results of the Second Model Fit—Customer Concentration (Sales to Major Customers).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	***p*-Value**
Intercept	(Intercept)	−0.335	0.085	−3.945	<0.001
Customer concentration (Sales to Major Customers)	cc3	−0.032	0.024	−1.321	0.187
Institutional Shareholder	inst1	0.058	0.019	3.093	0.002
Customer concentration (Sales to Major Customers): Institutional Shareholder	cc3:inst1	−0.021	0.03	−0.709	0.479
Firm Age	AGE	0.042	0.012	3.593	<0.001
Financial Leverage	LEV	0.123	0.032	3.863	<0.001
Return on Assets	ROA	0.166	0.055	3.008	0.003
Firm Size	SIZE	0.039	0.004	10.112	<0.001
Profitability	PROFIT	−0.013	0.019	−0.649	0.517
Cash Holdings	Ch	−0.183	0.098	−1.872	0.062
Market-to-Book Ratio of Equity	MB	0	0.001	−0.745	0.457
Return on Equity	ROE	−0.008	0.015	−0.534	0.593
Percentage of Non-Executive Board Members	Bind	−0.028	0.027	−1.034	0.301
Percentage of State Ownership	SOE	−0.141	0.051	−2.786	0.005
Year and Industry Effect			Controlled		
Breusch-Pagan (*p*-value)			47.65 (<0.001)		
Adjusted R-squared			0.31		
Wald F-statistic (*p*-value)			15.43 (<0.001)		

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

These findings reinforce the conclusion from previous models: the moderating effect of institutional ownership is not evident under typical market conditions. It suggests

that in the Iranian emerging market, institutional investors may not sufficiently influence managerial decisions to counteract the adverse effects of CC.

4.7. Additional Tests

To further investigate the second research model, by changing the way CC variable is measured with a rank index (if the rank is 5, the value is 1, and if it is other levels, the value is 0), it was also tested separately for the Herfindahl–Harrisman indices and sales to key customers, using data related to CC with a rank of 5 (high level of CC). The results are presented below.

According to the probability of the Parent F statistic in Table 11, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 28 per cent of the variation in the dependent variable. The table shows that the variable CC (rank 5) institutional shareholder has a probability value of 0.176, indicating that institutional shareholders do not moderate the relationship between CC (rank 5 compared to other ranks) and CSR.

Table 11. Results of the Second Model Fit—Customer Concentration (Rank 5 vs. Others).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	***p*-Value**
Intercept	(Intercept)	−0.328	0.08	−4.099	<0.001
Customer concentration (Rank 5 vs. Others)	cc1	−0.025	0.016	−1.584	0.114
Institutional Shareholder	inst1	0.036	0.012	2.949	0.003
Customer concentration: Institutional Shareholder	cc2:inst1	0.03	0.022	1.354	0.176
Firm Age	AGE	0.043	0.011	3.935	<0.001
Financial Leverage	LEV	0.124	0.031	3.989	<0.001
Return on Assets	ROA	0.175	0.053	3.27	0.001
Firm Size	SIZE	0.037	0.004	9.737	<0.001
Profitability	PROFIT	−0.018	0.019	−0.958	0.338
Cash Holdings	Ch	−0.143	0.097	−1.471	0.142
Market-to-Book Ratio of Equity	MB	−0.001	0.001	−0.871	0.384
Return on Equity	ROE	−0.007	0.015	−0.481	0.63
Percentage of Non-Executive Board Members	Bind	−0.013	0.026	−0.504	0.614
Percentage of State Ownership	SOE	−0.121	0.046	−2.637	0.009
Year and Industry Effect	Controlled				
Breusch-Pagan (*p*-value)	47.81 (<0.001)				
Adjusted R-squared	0.28				
Wald F-statistic (*p*-value)	4.84 (<0.001)				

The model was fitted using robust standard deviation and applying clustering of errors to companies. Also, the variance inflation factor for independent and control variables was less than 10. Source: Research Findings.

In Table 12, considering the probability of the Parent F-statistic, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 31 per cent of the variation in the dependent variable. The table shows that the variable CC (Herfindahl-Hirschman) * Institutional Shareholder has a coefficient of −0.35 and a *p*-value of 0.036, indicating that institutional shareholders moderate the relationship between CC

(Herfindahl-Hirschman) and CSR. In other words, it can be said that at high CC levels, institutional shareholders moderate the relationship between CC and CSR.

Table 12. Results of the Second Model Fit—customer concentration (Rank 5 Data) (High-Level customer concentration).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	***p*-Value**
Intercept	(Intercept)	−0.819	0.199	−4.118	0
Customer concentration (Herfindahl-Hirschman Index)	cc2	0.134	0.109	1.222	0.223
Institutional Shareholder	inst1	0.413	0.142	2.906	0.004
Customer concentration (Herfindahl-Hirschman Index): Institutional Shareholder	cc2:inst1	−0.358	0.169	−2.111	0.036
Firm Age	AGE	0.133	0.028	4.69	0
Financial Leverage	LEV	0.009	0.06	0.151	0.88
Return on Assets	ROA	−0.232	0.115	−2.018	0.045
Firm Size	SIZE	0.048	0.009	5.122	0
Profitability	PROFIT	−0.026	0.032	−0.796	0.427
Cash Holdings	Ch	−0.074	0.229	−0.325	0.746
Market-to-Book Ratio of Equity	MB	0.001	0.001	0.528	0.598
Return on Equity	ROE	0.011	0.024	0.471	0.638
Percentage of Non-Executive Board Members	Bind	−0.057	0.053	−1.074	0.284
Percentage of State Ownership	SOE	0.008	0.149	0.053	0.958
Year and Industry Effect			Controlled		
Breusch-Pagan (*p*-value)			42.43 (<0.001)		
Adjusted R-squared			0.22		
Wald F-statistic (*p*-value)			5.25 (<0.001)		

The model is fitted using robust standard errors and clustering of errors by company. Also, the variance inflation factor for independent and control variables is less than 10. Source: Research Findings.

In Table 13, considering the probability of the Parent F-statistic, it can be claimed that the fitted regression model is statistically significant. Additionally, the adjusted coefficient of determination indicates that the independent and control variables collectively explain 32 per cent of the variation in the dependent variable. The table shows that the CC variable (Herfindahl-Hirschman) *institutional shareholder has a coefficient of −0.647 and a *p*-value of 0.036, indicating that institutional shareholders moderate the relationship between CC (major customers) and CSR. In other words, it can be said that at high levels of CC, institutional shareholders moderate the relationship between CC (as measured by two indicators) and CSR.

This additional analysis suggests that the moderating role of institutional shareholders may only emerge under extreme conditions of customer dependence. It underscores the importance of considering context-specific factors when evaluating governance mechanisms, and it suggests that partial moderation occurs only when firms face high market power from a few key customers.

Table 14 presents the key coefficients, standard errors, 95% confidence intervals, and statistical significance levels for the main and interaction models, providing an integrated overview of all estimated models. As shown, the coefficients of CC are negative and

statistically significant across all main models. In contrast, the interaction terms with institutional ownership become substantial only in the subsample of firms with high CC.

Table 13. Results of the Second Model Fit—customer concentration (Rank 5 Data) (High-Level customer concentration).

Dependent Variable: CSR					
Variable	**Symbol**	**Coefficient**	**Standard Error**	**t-Statistic**	***p*-Value**
Intercept	(Intercept)	−0.923	0.241	−3.826	0
Customer concentration (Sales to Major Customers)	cc3	0.238	0.199	1.195	0.233
Institutional Shareholder	inst1	0.704	0.279	2.524	0.012
Customer concentration (Sales to Major Customers): Institutional Shareholder	cc3:inst1	−0.647	0.306	−2.112	0.036
Firm Age	AGE	0.133	0.028	4.696	0
Financial Leverage	LEV	0.009	0.06	0.149	0.882
Return on Assets	ROA	−0.233	0.115	−2.021	0.044
Firm Size	SIZE	0.048	0.009	5.116	0
Profitability	PROFIT	−0.026	0.032	−0.793	0.429
Cash Holdings	Ch	−0.074	0.229	−0.325	0.746
Market-to-Book Ratio of Equity	MB	0.001	0.001	0.53	0.597
Return on Equity	ROE	0.011	0.024	0.472	0.637
Percentage of Non-Executive Board Members	Bind	−0.057	0.053	−1.08	0.281
Percentage of State Ownership	SOE	0.009	0.149	0.058	0.954
Year and Industry Effect					Controlled
Breusch-Pagan (*p*-value)					42.38 (<0.001)
Adjusted R-squared					0.22
Wald F-statistic (*p*-value)					5.26 (<0.001)

The model is fitted using robust standard errors and clustering of errors by company. Also, the variance inflation factor for independent and control variables is less than 10. Source: Research Findings.

Table 14. Summary of Key Coefficients in the Main and Interaction Models.

Model/Term (Source Table)	Coef	SE	95% CI	*p*/sig
Model 1 (Table 5) CC (Rank index)—CC1.	−0.007	0.003	[−0.0129, −0.00112]	$p = 0.032$ **
Model 1 (Table 6) CC (HHI)—CC2.	−0.034	0.016	[−0.0654, −0.00264]	$p = 0.035$ **
Model 1 (Table 7) CC (Sales to key customers)—CC3.	−0.053	0.016	[−0.08436, −0.02164]	$p = 0.001$ ***
Model 2 (Table 8) Interaction CC1 × INST (typical sample)	0.003	0.006	[−0.00876, 0.01476]	$p = 0.644$ (ns)
Model 2 (Table 9) Interaction CC2 × INST (typical sample)	−0.026	0.030	[−0.0848, 0.0328]	$p = 0.374$ (ns)
Model 2 (Table 10) Interaction CC3 × INST (typical sample)	−0.021	0.030	[−0.0798, 0.0378]	$p = 0.479$ (ns)
High-CC subsample (Table 12) Interaction CC2 × INST (high CC)	−0.358	0.169	[−0.689, −0.0268]	$p = 0.036$ **
High-CC subsample (Table 13) Interaction CC3 × INST (high CC)	−0.647	0.306	[−1.2468, −0.0472]	$p = 0.036$ **

Note: ** $p < 0.05$; *** $p < 0.01$; (ns) = not significant. Source: Research Findings.

5. Discussion and Conclusions

This study explores how concentrated buyer power and institutional ownership shape firms' CSR engagement in an emerging market context. The results show that higher CC consistently reduces CSR. This confirms that firms reliant on a few major customers face structural pressures prioritising short-term buyer demands over long-term societal commitments. This highlights a key conceptual insight: sustainability efforts are not solely determined by managerial will but are constrained by market power asymmetries, extending stakeholder theory to account for external dependency pressures.

Institutional investors, often assumed to promote ESG practices, did not significantly moderate the adverse effects of CC under typical market conditions.

In some models, the interaction terms between CC and institutional ownership are statistically insignificant. A possible explanation is the heterogeneity among institutional investors: while some are long-term and socially responsible, others are more focused on short-term returns. The coexistence of these groups may offset their opposing effects in the overall sample. Moreover, in specific subsamples, CC shows coefficients with unexpected signs, which may result from firm-specific contractual relationships with major customers. In such cases, the link between customer pressure and corporate social responsibility may be more complex than a simple linear relationship.

However, at extreme levels of CC, institutional ownership intensified the negative impact on CSR. This finding underscores a nuanced perspective: governance mechanisms operate within market contexts, and their effectiveness may depend on the alignment—or misalignment—of investor priorities with market power structures.

Our findings indicate that institutional investors may inadvertently exacerbate short-termism under high CC conditions. This could be due to pressure to meet quarterly targets or prioritise immediate financial performance over long-term CSR objectives. Such behaviour aligns with the heterogeneous objectives of institutional investors, where some prioritise short-term returns while others focus on long-term sustainability [32]. Future research could further disentangle these effects by differentiating among types of institutional investors, such as active versus passive funds, or short-term versus long-term-oriented investors.

From a practical standpoint, firms operating in concentrated markets should recognise the hidden costs of dependency on major customers. Managers and boards need to implement governance structures, such as dedicated sustainability committees or long-term performance metrics, to buffer CSR initiatives from short-term pressures. Policymakers should consider incentives or regulations that protect CSR investments in firms with concentrated customer bases, ensuring that buyer dominance does not compromise sustainability efforts.

Additionally, we acknowledge potential concerns regarding endogeneity and reverse causality. Control variables capturing firm size, profitability, leverage, age, and ownership structure were included to mitigate these issues. Robustness checks were conducted using lagged independent variables and alternative model specifications. These measures enhance confidence in the results, though we recognise that unobserved factors may still influence CSR outcomes.

In conclusion, this study advances both theory and practice by demonstrating that concentrated buyer power poses a formidable barrier to CSR and that institutional governance may not always serve as a corrective force. Firms and policymakers must adopt context-sensitive strategies to safeguard long-term sustainability objectives in markets where buyers have significant influence.

5.1. Limitations

We acknowledge several limitations in this study. First, although our models include control variables that capture firm size, profitability, leverage, age, and ownership structure

to mitigate potential endogeneity, unobserved factors and measurement error may still influence CSR outcomes, which should be considered when interpreting the results. Second, reverse causality cannot be fully ruled out; firms with more substantial CSR commitments may attract or retain particular customer structures. Third, our analysis focuses exclusively on Iranian firms in an emerging market, which may limit the external validity and generalizability of the findings to other institutional or cultural contexts. Fourth, although our methodology includes robust standard errors, multicollinearity diagnostics (VIF), and residual diagnostics, these tests could not be conducted due to data constraints, which represents an additional limitation for future research.

Overall, these limitations underscore the need for cautious interpretation of the results, while providing valuable insights into how concentrated buyer power and institutional ownership influence CSR outcomes.

Future research could address these limitations by conducting matched-sample analyses, longitudinal studies, or cross-national comparisons and implementing additional robustness checks and diagnostic tests to validate and extend our findings.

5.2. Theoretical and Practical Implications

This study bridges the domains of marketing strategy, corporate governance, and sustainability science. We provide a power-dependence framework that explains how sustainability commitments can be eroded by concentrated buyer power, thereby enriching stakeholder theory. We also extend agency theory by showing that institutional investors' "efficient monitoring" role may, under certain market conditions, be redirected toward short-term financial goals at the expense of broader social and environmental responsibilities.

For practitioners and policymakers, our findings emphasise that pursuing sustainability requires more than voluntary corporate codes; it necessitates structural and governance solutions. Policymakers in emerging economies should consider incentives or regulations that protect and encourage CSR investments, particularly for firms highly dependent on a few powerful buyers. This may include guidelines for monitoring corporate sustainability performance or supporting internal governance mechanisms.

For managers and boards, the results underscore the importance of robust internal governance structures, such as dedicated sustainability committees and long-term performance metrics, in mitigating the impact of short-term pressures exerted by major customers or institutional investors focused on quick returns. Managers should actively assess the risks associated with high buyer concentration and incorporate these considerations into their strategic planning and performance measurement.

Finally, management accountants can play a more strategic role by assessing the long-term sustainability impact of customer relationships and ensuring that corporate policies align with broader social and environmental responsibilities, rather than focusing solely on short-term profit objectives.

5.3. Avenues for Future Research

This study opens several promising avenues for future research in sustainability science:

1. Typology of Institutional Investors: Future research could disaggregate "institutional investors" into more precise categories, such as long-term pension funds versus short-term hedge funds, to determine which types are more likely to uphold ESG market pressure.
2. Relational Governance: Investigating whether deep, collaborative relationships with major customers, as opposed to purely transactional ones, can foster shared commitment to sustainability would provide valuable insights into moderating the CC–CSR relationship.

3. Matched Samples and Longitudinal Studies: Researchers could employ matched-sample analyses to control for confounding variables and conduct longitudinal qualitative interviews to better capture dynamic changes in CSR practices over time.
4. Cross-National Comparative Studies: Comparing these dynamics across emerging and developed markets would help isolate the specific institutional and cultural factors that influence the effectiveness of CSR under concentrated buyer power.
5. Digital Solutions and Transparency: Future work could explore how digital transparency platforms or blockchain technology might reduce information asymmetries and empower a broader set of stakeholders to hold firms accountable, thereby counterbalancing the power of concentrated buyers.

In conclusion, achieving the UN Sustainable Development Goals requires a clear understanding of the market forces that can undermine corporate sustainability efforts. Our study demonstrates that concentrated buyer power is a substantial and often overlooked barrier, and institutional governance may sometimes have contingent or counterproductive effects. Future research, following the above directions, can provide a more nuanced and actionable understanding of CSR, helping firms design strategies that are resilient to market pressures and aligned with their long-term sustainability objectives.

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