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Risk Aversion or Institutional Myopism; the mediating role of Financial Performance in the relationship of Corporate Social Responsibility and Institutional Ownership

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Abstract

This paper attempts to analyses the indirect impact of financial performance as a mediating variable on a firm's corporate social responsibility and institutional ownership in a firm. Secondary data has been collected from the top 50 manufacturing firms using purposive sampling for the period of six years (2014-2019). The results show a positive significant direct relationship between corporate social responsibility and institutional ownership; an insignificant negative relationship between the corporate social responsibility and return on assets whereas a positive significant direct relationship between the return on assets and institutional ownership. Furthermore, the indirect effect of financial performance on the relationship between corporate social responsibility and institutional ownership is neutral. Consequently, supporting the basic premise of Risk Aversion Theory which states in the long run with an increase in corporate social responsibility stock volatility decreases, and consequently institutional ownership increases in the developing country context.

Keywords: *Corporate Social Responsibility, Institutional Ownership, Financial Performance, Institutional Myopia, Risk Aversion.*

1. Introduction

Corporate Social Responsibility (CSR) is more of an abstract term, among the vast variety of definitions, it is generally defined as "the firm's consideration of and response to issues beyond the narrow economic, technical and legal requirements of the firm to accomplish social benefits along with the traditional economic gains which the firm seeks" (Davis, 1973) Other than the ethical and conforming legal behavior of companies in the market, their social commitments have a substantial cost related to them.

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With the growth of financial institutions such as insurance companies, pension funds, and mutual funds, the corporations have witnessed an increase in the share-holdings of institutional investors in their ownership structure. These financial investors based their investment decisions not only on profit-maximizing principle but also pay due deed to sustainability, employee benefits, and social responsiveness. Investing in CSR helps institutional investors in developing a competitive edge over their opponents. The probable competitive advantage by CSR investment has consequently changed the perceptions and attitudes of institutional investors towards society (Graves & Waddock, 1994; Wahba & Elsayed, 2014).

CSR, an emerging concept, is considered to affect the financial performance of the corporations that is the prior concern of institutional investors. In this regards many scholars have conducted various studies to understand the relationship between CSR and institutional investments. Two contested perspectives are being discussed in the literature. First, as proposed by the Theory of Institutional Myopia, states that the shortsightedness of institutional investors tends to turn off their vehicles from the path of CSR as it is generally perceived that the benefits of CSR activities are realized in the long run. In other words, there is a considerable expense related to investments in CSR activities in short term (Hart & Ahuja 1996), which will be benefitted by the market in long run (Al Mamun, Sohog & Akhter, 2013; Chung et al., 2019). Hence, institutional investors' short-term operating cycle fails to support CSR because of its long-term impacts. On the contrary, according to Portfolio Theory and Risk Aversion Theory, institutional investors consider both risks and return while choosing security. CSR makes the stock, less volatile and returns, more conventional. The reduction of risk by CSR engagements enables a company to attract more investors. Hence, CSR engagement is of strategic significance for institutional investors, and studying the impact of CSR on institutional ownership can unfold many facets, both theoretically and empirically.

Previous researches have mostly analyzed the direct effect of CSR on institutional ownership (Coffey & Fryxell, 1991, Samet & Jarboui, 2017) while the results turned out to be contradictory. The insufficient and inconclusive literature, contradicting (Positive and negative) results of empirical studies conducted on the relation of CSR and institutional investment creates a research gap for the presence of another variable that may catalyze the relationship of CSR with institutional investments. According to existing literature, economic responsibility has a higher priority over social responsibility (Coffey & Fryxell, 1991). Similarly, the main objective of investment institutions is to earn profits for their clients (investors) (Graves & Waddock, 1994). A firm can only dole out profits to its shareholders if its financial performance is good.

In contrast to developed economies, developing countries like Pakistan might

be inconsistent concerning the application of socially responsible engagements. In the last few decades, political and economic instability, poor rule of law-and-order conditions, energy crisis, corruption, and plenty of other socio-economic issues have adversely affected the manufacturing industry as compared to other economic sectors of Pakistan. On top of it, substandard working conditions, violations of employee rights, and an immensely increasing pollution due to negligence of waste material have made education and awareness on CSR need of the time (Ehsan et al., 2018; Malik, Chughtai & Khawaja, 2020). Javeed and Lefen (2019), while comparing to small enterprises, large corporations do observe CSR considerably. To intensify the necessity, importance, and awareness of CSR for government and community mutually, we need to explore the local perspective of CSR.

The theories and previous research findings indicate a strong correlation between CSR, financial performance, and institutional ownership. The examination of the indirect relationship of CSR on institutional ownership in the presence of firm performance can fill the gap of the inconclusive literature between CSR and institutional ownership. Therefore, the purpose of the study is to find the mediating effect of financial performance on CSR and institutional ownership.

The main purpose of the paper is to examine the mediation effect of financial performance in the relationship of CSR and institutional ownership in the developing country context. Previous research focuses either on the two-dimensional categorical relation of CSR and firm performance or CSR and institutional ownership, whereas the impact of firm performance is examined as a mediator, in addition to CSR and institutional ownership in this research. Secondly, the manufacturing sector is very close to human and employee rights, society, and the environment. Therefore, we opted to investigate the impact of CSR and institutional ownership in the manufacturing sector context.

2. Theoretical Background and Hypothesis

2.1. Institutional ownership and corporate social responsibility

A substantial investment of institutional investors goes to the debt and equity of financial and nonfinancial corporations (Oh, Chang & Martynov, 2011). Institutional ownership is defined as the proportion of the total stock of a corporation held by institutional investors (Chung & Zhang, 2011). Institutional investors are usually financial institutions (e.g., insurance firms, pension funds, and mutual funds) which in the recent past have acquired a large number of financial assets of corporate entities (Celik & Isaksson, 2014). The determinants of institutional ownership are widely studied in the literature. Institutional investors prefer investments with a higher return, low

volatility, and good market liquidity (Huang, 2009), investment with better disclosure (Bushee & Noe, 2000), investment with better managerial performance (Chung et al., 2011), and investment in socially responsible companies (Maqbool, 2019). Ethics and transparency of investment projects are two important objectives institutional investors value the most when investing in long-term projects. Corporations need to understand the concerns of institutional investors if they want to be attractive for institutional investors. To promote ethicality and transparency in the operations of corporations, CSR can be an imperative corporate strategy (Wahba & Elsayed, 2015).

The strategic significance of the relationship between CSR and institutional ownership has attracted many researchers for example, (Flammer & Kacperczyk, 2019; Chung et al., 2011; Cox, Brammer & Millington, 2004; Wooldridge, 2002). The positive relationship between CSR and institutional ownership takes roots from the "risk aversion theory" which assumes stock riskiness is reduced with corporate social responsibility (Guiso & Paiella, 2004) while attracting long-term institutional investment (Graves & Waddock, 1994). The positive relationship is also backed by the "Portfolio theory" which highlights that every institutional owner tries to maximize its investment's expected return and minimizes risks related to expected returns (Mangram, 2013). Graves and Waddock (1994) argued that institutions adopt those policies to reduce risk and optimize profits. Farah, Tazrina, Li, Li, and Shamsuddin (2021), confirm that in an attempt at risk-mitigation strategy CSR has acted positively in protection for the relationship-based intangible assets.

On the contrary, the theory of institutional myopia suggests that institutional investors' short-termism often makes them short-sighted and their risk aversion makes them compete for short-term gains (Woolridge, 1988). Moreover, Aduda and Gitonga (2011), claims that the fund managers are under enormous pressure from institutional owners to adopt policies to outperform for short-term gains because their assessment and compensation are based on their periodic performances (Quarterly or annually). Such a short-termism result in a lack of attention to long-run objectives (e.g. social projects) and require institutional investors to be counter-cyclical (Della, Stewart & Yermo, 2011). In contrast to institutional investors' short-termism, Watson, (2015) explains that some managers have dual objectives of shareholder value maximization and being socio-efficient to provide consistent value. Furthermore, the long term nature of CSR projects costs huge to the companies in the short-run and benefits them in the long run (Feng, Chen & Tang, 2018) and a few considers for the long-term approach of Environment-Social-Governance (ESG) concerns (Erhemjamts & Huang, 2019). But the negative effect is also supported by the portfolio theory, to the fact that by investing in CSR projects (e.g. socially responsible investments) the investor is restrained by limited investment options which in turn reduce portfolio

diversification as against the options available for a conventional investor (McLachlan & Gardner, 2004). Because there is a higher chance of better returns with reduce risk and proper diversification as "the exposure to risk for ethical investment is higher than for non-ethical or traditional investment" (Michelson, Grant, Wailes, Laan & Frost, 2004); Dam and Scholtens (2013), show a negative association between CSR and financial institutional ownership. Their analysis was based on a cross-sectional sample of 16 countries and 35 companies for the year 2005.

Some of these studies witness CSR and institutional ownership to be positively related while others find the two to be negatively associated. Graves and Waddock (1994), while analyzing 430 firms from the S&P 500 and giving numerical corporate social performance values to companies through the KDL Index, find a positive association between CSR and institutional ownership they conclude the CSR disclosure to have no impact on institutional investors. Mahoney and Robert (2007) using four-year panel data of companies in Canada, analyze the impact of CSR both on institutional investors as well as the company's financial performance. Their results show a significant impact on companies' social involvement and institutional ownership. Johnson and Greening (1999) find the attitude of investment institutions to be directed to companies' CSR reputation as well as their financial performance. Wahba (2008) studies the relationship between environmental policy as an indicator of CSR and institutional ownership with the inclusion of an interaction term (Financial performance). The study concludes a positive relationship between CSR and institutional ownership. Hoq, Saleh, Zubayer, and Mahmud (2010) analyze public limited companies in Malaysia to understand the effect of CSR disclosure over institutional ownership. They found that CSR helps local businesses to attract and maintain institutional ownership. Javeed and Lefen (2019), studied eight manufacturing sectors of Pakistan for the period covering 2008 to 2017. Their study finds a positive association between CSR and firm performance with CEO power and ownership structure as moderators. Chung et al. (2019), evaluated the impact of firm engagement in CSR activities by institutional block holder's monitoring in the Korean market. They found a direct association between the variables of the study with the objective to be prosperous and profitable in the future. This is because their investment is in big dollar value and withdrawing them without incurring a substantial cost.

In the developing countries context, Oh et al. (2011), analyze the impact of different types of ownership on a firm's CSR engagement for a sample of 118 Korean firms. The result shows institutional and foreign ownership is positive while managerial ownership is negatively related to CSR because each type of owner has a different set of motivations for CSR engagement. Likewise, an Egyptian study finds consistent results for a similar research question for a sample of 42 companies covering data from

2007 to 2009 (Soliman, Din & Sakr, 2013). Li and Zhang (2010) evaluate Chinese firms to understand the relation of CSR and ownership structure for a sample of state-owned and institutional owned corporations. CSR shows an inverse relationship with state-owned firms because the state is a controlling shareholder and keeps on interfering. On the contrary, Saleh, Zulkifli and Muhamad (2010), depict a positive effect of CSR disclosure on institutional ownership in publicly listed companies of Malaysia because CSR engagement helps them improve goodwill.

From the literature and theoretical background, the paper proposes that there is a relationship (positive or negative) between CSR and institutional ownership.

The underlying premises for the positive relation is the application of the risk aversion theory of investment institutions and the portfolio theory which suggests that institutional investors be attracted to securities of companies that are socially committed. Whereas the underlying premise for the negative relation is the theory of institutional myopia, which suggests institutional investors' shortsightedness repels them to invest in securities of the companies that are socially committed. Subsequently, summarizing the above literature helps to develop the first hypothesis i.e.

H1: There is a relationship between institutional ownership and CSR

2.2. The Mediating role of financial performance

Many researchers have tried to investigate the relationship between CSR and institutional ownership but there are different aspects that still need more explanation. Like, a large number of researches focus on the direct association of CSR and institutional ownership while the results of these researches do not agree with this relationship. Samet and Jarboui (2017) investigate the direct and indirect effect of information asymmetry and agency cost over the CSR and investment efficiency for a sample of 398 European companies covering data from 2009 to 2014. The results indicate investment efficiency improves with CSR when information asymmetry and agency problems were addressed by the firm. Wahba and Elsayed (2015) examine the mediation effect of financial performance over the relationship of CSR and institutional ownership. They find an insignificant indirect mediation effect while a significant direct effect of CSR on institutional ownership. According to the Raising Rival's Costs Theory, companies usually adopt various policies to increase their competitors' costs. CSR can be used to create a unique strength (i.e., Social Reputation) that is hard to imitate (McWilliams, Fleet & Cory 2002; Minor & Morgan, 2011). Investments in CSR enable an organization to gain a competitive advantage in the market such as good reputation of social involvement, emotional attachment etc. (Graves & Waddock, 1994; Russo & Fouts, 1997; Preston & O'Bannon, 1997). Thus, investment

in CSR builds reputational capital which in turn increments its accounting profits.

Nevertheless, a negative financial performance is indicated by companies that incur high explicit costs because of CSR commitments (Coffey & Frywell, 1991). Investors use the financial performance of companies as a primary matric while deciding the companies for investments. A Company's explicit costs and implicit costs have a trade-off relationship between them (Wood & Jones, 1995). Companies may experience higher explicit costs with the sacrifice of gaining competitive advantage if they decided to reduce their implicit cost by neglecting CSR (Waddock & Graves, 1997). There is a chance that the expected payoff from Social investments might not match the cost incurred by the company (Friedman, 1970). Another proposition can be the scenario in which the benefits expected from CSR may outweigh the cost incurred initially. Companies are supposed to indulge in those social commitments that can contribute to their goodwill without compromising their profits (Księżak, 2016).

In Pakistan, many research studies are done to contribute to the literature of CSR, institutions ownership, and financial performance (Ehsan & Kaleem, 2012; Fatima, 2017; Qazi, Ahmed, Kashif & Qureshi, 2015; Javeed & Lefen, 2019; Khan, Kayakachoian & Hassan, 2020; Hoq et al., 2010; Noor et al., 2020). All of these studies show a direct relationship of CSR of financial performance or on institutional ownership or institutional ownership with financial performance and or CSR. But none of the papers has studied the mediation effect. Hence, this paper is imperative in its contribution to Pakistan as a developing country.

Mixed shreds of evidence from prior studies motivate to evaluate other contextual aspects of this relationship like firm performance to reach better empirical results. Hence, this research tries to examine the mediating effect of firm performance over the relationship of CSR and institutional ownership. Furthermore, there is no evidence of such studies in developing countries including Pakistan.

Based on the whole discussion in the literature, the theoretical framework can be presented as in Fig. 1: the indirect relation (relation (a × b)) with mediating role of financial performance can better explain the direct relation (relation (c)) between CSR and institutional ownership.

CSR can both positively or negatively affect a company's financial performance. The cost incurred due to CSR activities can reduce the net income of the company, consequently affecting distribution of wealth to the stockholders. This can go against the primary objective of investment institutions to be lucrative for their institutional owners. On the other hand, it can also result in competitive advantages and goodwill which enhances the profits of the company. So, this study propose that CSR may

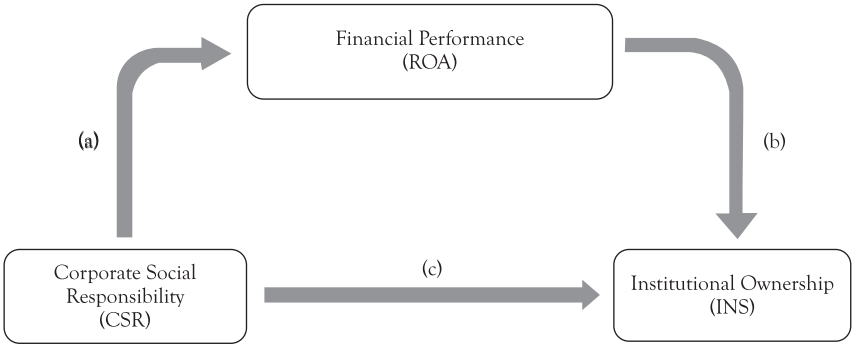

Figure 1: The relationship between Corporate Social Responsibility, Financial Performance and Institutional Ownership

enhance or lessen the financial performance of a company, which positively or negatively influences the institutional investments in a company.

H1: The relationship between social responsibility and institutional investors will be mediated by financial performance.

2.3. Control Variables:

Some variables other than CSR may also cause changes in institutional ownership including liquidity, financial leverage, company's size, capital intensity, and company's age. Extant empirical studies have highlighted their impact on the relationship of institutional ownership and CSR (Johnson & Greening, 1999; Cox et al., 2004; Wahba & Elsayed, 2015). Liquidity has an important influence over the variables of the study. Elsayed and Paton (2009) use liquidity ratio as a control measure for discretionary investment management in CSR activities. Waddock and Grave (1997) report financial leverage as an indicator of a firm's risk level. The impact of CSR on institutional investors is subject to the management's attitude toward the financial risk of the company (Maqbool, 2019). According to Russo and Fouts (1997), a competitive edge can be reached if the size of the firm is large and has enough resources to dedicate to the social cause. Rust and Rothwell (1995) believe if the capital intensity is taken as a control variable, then it will most likely help to find the influence of management decisions on CSR. Similarly, firm age should be controlled for path dependency related problems that can lead to change in a company's strategic decisions that are rooted in time (Greiner, 1972).

3. Methodology

In contrast to the previous discussion, we have selected Pakistan's nonfinancial firms and studied their annual reports to study the relationships among the CSR,

institutional investments, and financial performance. Purposive sampling is used to study the performance of top-performing manufacturing companies because they have a strong potential to adversely affect society (Mathews, 2000). KSE 100 index is composed of the top 100 companies from 35 economic sectors of Pakistan with respect to their market capitalization. This research uses a sample of top 50 manufacturing companies presenting different industrial sectors and excludes the financial or conventional service sector. Some of the firms are also excluded from the sample because of the unavailability of data or our restriction of sample to the companies which invest in CSR. The financial data of these companies in the sample has been collected from their annual reports for the period covering 6 years from 2014 to 2019 for the proposed variables. The study also proposes some control variables that can affect the proposed relationship.

3.1. Variable measurement

The study selects those variables that can proxy the concept that is discussed in the theory. The variables included in the econometric model are; Institutional Ownership (INS), Corporate Social Responsibility (CSR), Return on Asset (ROA), Liquidity (LIQ), Financial Leverage (LEV), Company's Size (SIZ), Capital Intensity (CAP) and Company's Age (AGE).

Table 1: Operational Definitions

Operational Definition of Variables			
Variable	**Proxy**	**Definition**	**Authors**
Dependent variable			
Institutional Ownership	INS	The fraction of common stock held by institutional investors	Wahba & Elsayed, 2015; Baysinger, et al., 1991.
Independent variable			
Corporate Social Responsibility	CSR	The corporate donation and contribution to employee welfare fund by the company	Wahba & Elsayed, 2015; Ehsan & Kaleem, 2012; Mouakhar et al., 2020.
Intervening Variable			
Return-on-asset	ROA	Net income divided by total assets	; Wahba & Elsayed, 2015; Cox et al., 2004; Javeed & Lefen, 2019
Control variable			
Company's size	SIZ	log of total Assets	Oh, et al, 2011; Jarboui et al., 2020; Sunarato et al., 2021

Firm age	AGE	Year of analysis - incorporated year	Stergiou. et al., 2013; Wahba & Elsayed, 2015,
Financial leverage	LEV	Total debt divided by total assets	Barnea & Rubin, 2010; Javeed & Lefen, 2019; Maqbool, Zamir, & Ahmed, 2020
Liquidity	LIQ	Current assets divided by current liabilities	Maqbool & Zameer, 2018; Wahba & Elsayed, 2015.
Capital intensity	CAP	Total fixed assets divided by total assets.	Maqbool, Zamir, & Ahmed, 2020; Wahba & Elsayed, 2015.

3.2. Econometric Model

The following models are employed to test the hypothesis proposed in previous sections.

$$ROA_{t-1} = \alpha + \beta_1 CSR_{t-2} + \beta_2 SIZ_{t-1} + \beta_3 AGE_{t-1} + \beta_4 LEV_{t-1} + \beta_5 LIQ_{t-1} + \beta_6 CAP_{t-1} + \varepsilon_t$$

$$INS_t = \alpha + \beta_1 CSR_{t-2} + \beta_2 ROA_{t-1} + \beta_3 SIZ_t + \beta_4 AGE_t + \beta_5 LEV_t + \beta_6 LIQ_t + \beta_7 CAP_t + \varepsilon_t$$

3.3. Panel Regression Model:

The econometric model, developed based on the hypothesis and theoretical framework was tested through the regression approach suggested by Zhao, Lynch, and Chen, (2010). The summary of all the variables that were employed in the model is used to define the characteristics of each variable. The data collected for the 50 non-financial companies for the period 2014-2019, were examined to check for the problems that can affect the regression analysis. The study approaches the data through different panel diagnostic tests to find a superior effect for the panel data and examined the data through regression analysis. For example, for the robustness of the results, the study checks the data sample by running the Durbin Watson test to check the presence of any autocorrelation in the data along with the White test to check the data for heteroscedasticity. Other than that, the correlation matrix and vector inflation factor test was employed to check the multicollinearity between the independent variables.

To examine the mediation effect, different techniques are used by previous studies. For example, Baron and Kenny (1986) provide a standard procedure of three causal regression equations to test the mediation effect. The method has several weaknesses that can lead to false conclusions. MacKinnon et al., (2002) provided path testing as an alternative approach to address the weaknesses of regression equations and test the mediation effect. Whereas recently the Sobel–Goodman Test and the bootstrap

test are employed to check the indirect effect for the proposed mediating relationship (see, for example, Wahba & Elsayed, 2015; Saad & Belkacem, 2021).

4. Data Analysis

The econometric model, based on the hypothesis and theoretical framework is tested through the regression approach suggested by Zhao et al. (2010). The summary of all the variables that are employed in the model is used to define the characteristics of each variable.

4.1.Summary statistics

Table 1 presents the summary statistics. The summary statistics of the data set are being computed to define the characteristics of each variable. The mean of the variables shows the average value around which the whole data revolves. The fractional average of institutional investments is 0.07 which declares an average 7% claim of institutional investors in the companies' equity. As CSR is computed as a ratio to net income, the data reports that on average companies commit 6.5% of their net income to CSR activities. As for other variables, the descriptive report an average return of companies against their asset to be 11%, companies on average devote 21% of their assets to Fixed Assets. As CAP is 0.516, on average the debt financing of companies is recorded to be 51%.

The negative skewness values for CSR indicate the data of the variable to be concentrated on the left side of the graph. The values for Age, Size, leverage and CAP are close to zero indicating the data to be concentrated in the center. While the majority of the variables have a positive kurtosis value indicates a leptokurtic distribution.

Table 2: Summary Statistics

Variable	Std. Dev.	Mean	Skewness	Ex. Kurtosis
INS	0.082027	0.070084	2.4071	7.0459
CSR	0.10332	0.065531	-1.2279	28.562
ROA	0.15159	0.11093	5.9795	62.526
Age	16.898	36.36	0.23821	-0.97107
Size	0.72746	10.094	-0.27377	0.29541
Liquidity	1.6235	1.7912	3.4384	17.054
Leverage	0.21364	0.47479	0.099229	-0.8669
CAP	0.21954	0.51645	0.09131	-0.8095

Note: INS=institutional investors; CSR=corporate social responsibility; ROAs= return on assets (*p < 0.05, **p < 0.01)

4.2. Panel Diagnostics

For the robustness of the results, the study examines the sample data by running the Durbin Watson test to check the presence of any autocorrelation in the data along with the White test to check the data for heteroscedasticity.

4.2.1. Multicollinearity

According to Alin (2010), "multicollinearity refers to the linear relationship among two or more variables, which also means lack of orthogonality among them." For a data set to be an accurate sample for a regression model there should be no correlation between its independent variables. There is not a single variable that shows the value of correlation coefficient above 0.6 as evident in Table 3. The results depict that CSR is positively but statistically insignificantly correlated with return-on-asset, hence there is no relationship between independent variables. Moreover, except leverage which is negatively statistically correlated with CSR. Age, liquidity, are positively and statistically significantly correlated with CSR. While age, liquidity, and CAP is statistically significantly positively correlated with return-on-asset. Thus, all the independent variables in the data set are good for the model. These results are also supported by similar findings of previous research by Maqbool (2019).

Vector inflation factor checked for multicollinearity between the independent variables as none of the estimates is higher than 10, therefore, the test shows there is no evidence of multicollinearity. The results are also supported by previous studies (See, for example Sartawi, 2018; Tsouknidis, 2019).

Table 3: Correlation Matrix & Vector Inflation Factors

	CSR	ROA	Age	Size	LIQ	LEV	CAP	VIF
CSR	1	0.0411	0.008*	0.0879	0.0018**	-0.0117 **	0.0563	1.044
ROA		1	0.2296**	0.1464	0.0095**	-0.487	0.0332*	1.133
Age			1	0.0069**	0.04	-0.4195**	-0.0663	1.211
SIZ				1	-0.0366	0.1307*	0.1367	1.094
LIQ					1	-0.2927	-0.2187**	1.525
LEV						1	-0.1336	1.682
CAP							1	1.147

Note:

- (***p < 0.01, **p < 0.05, *p < 0.10)
- INS=institutional investors; CSR=corporate social responsibility; ROAs= return on assets; Age=Age; Size=Size; LIQ=liquidity; LEV=leverage; CAP=capital intensity;

4.2.2. Autocorrelation

The Durbin Watson test is used to check the autocorrelation in the data set. A null hypothesis for no autocorrelation in the data is assumed. The results indicate the presence of a positive autocorrelation among the error terms in the data (Table 4). Erhemjamts and Huang, (2019), say "Since CSR scores are highly persistent, it is worth noting that our estimations employ two-way clustered errors that simultaneously control for cross-sectional and time-series dependencies." Moreover, we address this issue by employing an alternative method to Fixed effect Model i.e. weighted least square (weighted least square method is used to rectify the issues of autocorrelation and heteroscedasticity in the dataset by providing efficiency to the estimators after properly weighting the data on the basis of true conditional variance (Romano, & Wolf, 2017). Because the year fixed effect is incorporated in all models and time series dependent problems need to be alleviated (Erhemjamts & Huang, 2019).

4.2.3. Heteroscedasticity

White Test is employed for the analysis of Heteroscedasticity. The study uses the null hypothesis to examine the Homoscedasticity for the equality of variability among the variables across the data set. The p-value of 0.0003 rejects the null hypothesis with a confidence interval of 99%. The variance among the residuals is reported being constant hence confirming the presence of heteroscedasticity.

Autocorrelation and heteroscedasticity are very important concerns for model estimation. If they were not taken care of otherwise the generalization cannot be made as it will make results biased (Gujrati & Porter, 2003). Hence, the weighted least square method is suggested that create a leveled scatter pattern by grouping the dependent variable with analogous variance (Bacha Ajina & Saad, 2020).

Table 4: Heteroscedasticity & Autocorrelation

White's test for Heteroscedasticity -
Null hypothesis: heteroscedasticity not present
Test statistic: LM = 70.6418
with p-value = P(Chi-square(35) > 70.6418) = 0.000336273
Durbin Watson test for Autocorrelation
Null hypothesis: there is no autocorrelation
Test statistic: Durbin-Watson statistic of 0.374573

4.3. Empirical analysis

There are two econometric models developed in the methodology section. The first econometric models test the statistically significant direct relationship between return-on-asset (ROA) and CSR through panel regression approaches. While the statistically significant indirect effect of firm performance (mediating variable) over the relationship of Institutional investment and CSR in the second econometric model. The analyses of the models are:

4.3.1. Fixed effect model for corporate social responsibility & return-on-asset

The results of the tests on the relationship between return-on-asset and corporate social responsibility are tested and given in table below.

Table 5: Regression Analysis

Dependent Variable: Return on Assets
Independent Variable: Corporate Social responsibility
Sample: 2014-2019
Model: Fixed Vs Weighted least square
Number of observations: 300

Variables	Fixed Effect		Weighted Least Square	
	β	p-value	B	p-value
Constant	–0.6945	0.2088	–0.3621	3.18e-015 ***
CSR_2	–0.0059	0.5458	–0.0061	0.3503
Size_1	0.07925	0.0979 *	0.0604	4.92e-039 ***
Age_1	–0.0206	0.8433	0.03	0.6072
Leverage_1	–0.3354	2.19e-014 ***	–0.2363	3.03e-032 ***
Liquidity_1	–0.0022	0.6365	–0.0979	0.9025
Cap_1	0.4371	5.58e-06 ***	0.0025	8.71e-08 ***
R-Squared	0.836525	0.784014		
F-statistic (p-value)	13.39760 (1.63e-35)***		116.7626 (1.76e-61) ***	
CHOW Test				
Test statistics (p-value)	8.77417 (9.59965e-025) ***			
Breusch-Pagan test				
Test statistics (p-value)	73.0301 (1.27685e-017) ***			
Hausman test				

Test statistics (p-value)	43.3415 (9.98295e-008) ***

Notes:

- *** 99% confidence, ** 95% confidence, * 90% confidence
- ROA=return on assets; CSR_2= corporate social responsibility; leverage_1=leverage; Cap_1=capital intensity; Age_1=Age; Liquidity_1=liquidity; Size_1=size
- F-test provides a test of the pooled OLS model against the fixed effects model
- the Breusch and Pagan, Lagrange multiplier statistic to decide between pooled and random effect model
- Hausman is the test for fixed effects over random effects

For the analysis of data, panel regression is used to select an effect among pooled, fixed, and random. The first hypothesis tested for the significant direct effect of CSR on return-on-asset by following the traditional technique of running several tests to select the final model. The results of the first econometric model are presented in Table 5. After the application of all the three tests as suggested by Gujrati and Porter, (2003), it can be concluded that fixed effect is superior to both random and pooled effect. Therefore, the best fit for the regression is the fixed effect (considering the F-test, Breusch-Pagan, and Hausman Test).

Because of the presence of autocorrelation and heteroscedasticity in the data, the fixed effect will lead to bias results (Gujrati & Porter, 2003). Thus, the weighted least square method is employed for the analysis. The weighted least square method is used to rectify the issues of autocorrelation and heteroscedasticity in the dataset by providing efficiency to the estimators after properly weighting the data on the basis of true conditional variance (Romano & Wolf, 2017).

The results in Table 5, shows negative and insignificant relation between CSR (β=-0.0061, $p>0.10$) and return-on-asset of the selected sampled companies. This means that CSR has a neutral influence over return-on-asset. Similar conclusions are presented by other empirical research which conclude that the firm financial performance cannot be determined by CSR solely (Malik et al., 2020). It is because there is a complex set of mediating variables that repels the direct relationship (Waddock & Graves 1997). The insignificant results also proposed that competitive advantage cannot be reached with investment in CSR because the cost and benefits equalize each other (Malik et al., 2020). This way the first condition of mediation is violated. Reviewing the control variable results in the model indicates size, leverage, and capital intensity are positively associated with return-on-asset while liquidity is negatively associated with return-on-asset.

4.3.2. Fixed effect model for the relationship between institutional ownership, corporate social responsibility & return on assets as a mediator

The second econometric equation tested the mediation effect of the mediator variable (return-on-asset) on the dependent (institutional ownership) and independent variable (CSR). The test results of panel regression are presented in Table 6. Since the p-value is less than 0.5 therefore, CSR is positively and significantly related with institutional ownership in the presence of return-on-asset (β= -.0084, p< 0.01) which is negatively and significantly related to institutional ownership; with an addition of control variables in the model as shown in Table 6. The results hence confirm risk aversive theory of investment institutions, and the portfolio theory states in the long run with an increase in corporate social responsibility stock volatility decreases, and consequently institutional ownership increases.

Table 5: Regression Analysis

Dependent Variable: Return on Assets
Independent Variable: Corporate Social responsibility
Sample: 2014-2019
Model: Fixed Vs Weighted least square
Number of observations: 300

Variables	Fixed Effect		Weighted Least Square	
	B	p-value	β	p-value
Constant	0.4735	0.1404	0.0987	0.0022 ***
CSR_2	0.0055	0.3254	0.0071	0.0053 ***
ROA_1	−0.00974464	0.7384	−0.0084	0.0671 *
Size	−0.0145590	0.5732	0.0053	4.92e-039 ***
Age	−0.0655380	0.3183	−0.0196	3.14e-09 ***
Leverage	−0.0210275	0.3136	0.0113	0.2775
Liquidity	−0.0210275	0.6609	−0.0042	0.0030 ***
Cap	−0.0467684	0.2619	−0.02916	0.0001 ***
R-Squared	0.779732		0.340431	
F-statistic (p-value)	8.976238 (3.08e-26)***		14.08328 (1.10e-14) ***	
CHOW Test				
Test statistics (p-value)	9.47791 (3.57205e-026) ***			
Breusch-Pagan test				
Test statistics (p-value)	131.351 (2.07469e-030) ***			
Hausman test				

Test statistics (p-value)	49.4354 (0.0366853) **

Notes:

- *** 99% confidence, ** 95% confidence, * 90% confidence
- ROA=return on assets; CSR_2= corporate social responsibility; Cap=capital intensity; F-test provides a test of the pooled OLS model against the fixed effects model
- the Breusch and Pagan, Lagrange multiplier statistic to decide between pooled and random effect model
- Hausman is the test for fixed effects over random effects

The fixed effect is superior to pooled and random effect but to overcome the statistically biasness because of the presence of autocorrelation and heteroscedasticity, the weighted least square method is employed. Other than leverage all the control variables showed a significant relationship with institutional ownership.

4.3.3. Mediating effect analysis

To explore the mediating effect of return-on-asset in the relationship between corporate social responsibility and institutional ownership, we compare equation 1 and equation 2 as suggested by Baron and Kenny, (1986). It is concluded earlier that the, CSR is insignificant in equation 1(β=-0.0061, p>0.10) while it turns significant in equation 2 (β= .0071, p< 0.001) with the introduction of mediator (ROA) (β= -.0084, p< 0.01) as shown in Table 7. Hence, findings are inconsistent with the hypothesized mediation effect of return-on-asset in the relationship of CSR and institutional ownership.

Followed by previous researches (Wang, Wang, Wang & Yang, (2020); Wahba & Elsayed, 2015), this paper has also analyzed two mediation effect tests to confirm the initial results.

Table 7: Tests for Mediation Effect

Tests For Indirect Effect		
a. Sobel–Goodman Test		
Z= 0.218463	P-Value=0.827068	
b. The bootstrap test (with 1000 bootstrap samples)		
	Lower Limit	Upper Limit
Indirect effect containing zero	-0.0120416	0.0124782
95% Confidence Interval		

To check the hypothesized intervening (mediating) effect this paper employs the conservative Sobel–Goodman test (Table 7). The result confirms that the relationship between CSR and institutional ownership studied under the first condition vanishes when the mediated effect transmitted through return-on-asset is taken into account.

Based on studies of Preacher and Hayes (2008); Zhao et al. (2010), the significance of mediating role of firm performance between CSR and institutional ownership is tested using 1000 bootstrap samples, as an alternative approach that remit distributional assumptions. The bootstrap resampling technique provides accurate confidence limits as well as a significance test of indirect effect (Manly, 1997). The result of bootstrap bias-corrected 95% confidence intervals contain zero (-0.0120416, 0.0124782), indicates that the indirect effect is not significantly different from zero.

5. Conclusion

The imperative nature of institutional ownership has made researchers analyze it from different facets, for example, types of institutional ownership, characteristics of institutional ownership, patterns of institutional ownership, so that professionals can best use them. One of the dimension factors affecting institutional ownership and out of those factors CSR is one important determinant. Therefore, the impact of CSR on institutional ownership is mainly studied in a developed and developing economies. The purpose of this paper is to examine the mediation impact of return-on-asset in the relationship of CSR and institutional ownership from a developing country. In doing so, this paper has used the data from the top 50 manufacturing firms of Pakistan for six years (2014-2019). The results showed conformity to the direct relationship as proposed by the classical literature. The main hypothesis is rejected by the analysis. The insignificant results from both the Sobel-Goodman test and the bootstrap test show that there is no indirect relation between CSR and institutional ownership through firm performance (ROA). Hence, the mediation effect of CSR on firm performance (ROA) is insignificant when introduced in the relationship of CSR and institutional ownership.

The results indicate the risk-aversive attitude of the institution. They invest more in the corporation which invests in social responsibility to reduce stock volatility. Coffey and Fryxell (1991) provided evidence for a positive significant relationship between institutional investors' attitudes. There is a positive significant impact of firm performance on institutional ownership because shareholder's interest in investing in socially responsible stock is influenced by positive stock returns (Wahba & Elsayed, 2015).

In the context of Pakistan, the analysis supports that institutional investors prefer trading in stocks that show conservative returns throughout with minimum risk. The

applications of Portfolio Theory are validated by this research for the institutional investors and concludes that they prefer to invest in the firms with lessen risks for the same amount of returns. Corporations need to increase CSR awareness and activities with employees and social involvement. Government should encourage the companies which operate in a socially responsible way and disclose CSR engagements in their financial statements categorically.

The diversification in investment institutions should be considered in future studies. Investment institutions such as pension funds and insurance companies, due to the long-term nature of their businesses, are more likely to base their investment decisions on long-term future policies of a company. On the other hand, investment institutions like mutual funds are more shortsighted and act like traders due to the short-term nature of their businesses and hence will go for companies having good performances in near future. Both types of investment institutions hold different orientations toward a company's commitment to CSR Harness, Ranaweera, Karjaluoto and Jayawardhena (2018). Hence, it may help companies attract appropriate institutional investors with their respective orientation of investment. In Pakistan's market, due to the emergence of Islamic Finance and with the support of the State Bank of Pakistan, Islamic Banks are expected to grow by 20% from 2020 onwards. Islamic financial institutions have witnessed considerable growth. Mudarabah funds and Takaful and Retakaful institutions are now one of the major investment institutions in Pakistan (Jan, & Asutay, 2019). These institutions are very reliable and conservative in their approaches. Their investment decisions are based on long-term planning and demand more conservative and less flexible returns (Zafar & Sulaiman, 2020). They are most likely to promote CSR in the country with their religiously and socially responsible products and services (Jan, Khan & Ullah, 2018). Consequently, we suggest considering other mediators that affect the association of CSR and institutional ownership, for example, organizational patterns and culture, corporate governance, economic condition, and other economic sectors.

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