



## ROLE OF CORPORATE SOCIAL RESPONSIBILITY IN SUSTAINING EARNING VALUE: INSIGHTS FROM AN EMERGING COUNTRY



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### ABSTRACT

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The corporate sector in Pakistan, being more focused on profits, has displayed implicit reluctance in taking care of employees and stakeholders. As such, this study evaluated the relationship between corporate social responsibility (CSR) and earning value (EV). In this modern industrial era, the corporate sector has failed to keep up with the needs of stakeholders, thus adversely affecting business and sustainable socio-economic development within society. This study identified CSR offenses, as contemporary studies have found that the policies of the best award-winning organizations contribute positively to CSR activities. The study outcomes are mixed, which revealed that in Pakistan firms with better CSR processes displayed a positive association with earning value. However, the influence on the financial conditions of firms with the lowest CSR participation was insignificant. This study highlights that rigorous but well-designed CSR processes can trigger earning value in the long run, while inefficient processes may harm financial conditions in the short run. Firms with mid-level CSR showed a positive relationship with EV, which enhanced their business structure, performance, and corporate prospects.

**Contribution/Originality:** This study contributes to the existing information on the sustainable effect of non-financial disclosure in various perspectives, i.e. noteworthy findings in Pakistan by applying the ADRL method of cointegration and long run form, as well as assessment of the impact of CSR practices on the corporate social performance (CSP) reputation index, and different high, moderate and low dimension levels in earning value.

### 1. INTRODUCTION

At present, the vital question of how to generate more socially responsible corporate organizations amidst this global competitive market is being discussed worldwide. Some companies present themselves as socially responsible firms, and more studies are determined to assess if organizations should focus more on socially responsible behavior. Managers using outdated methods of communication are compelled to make decisions to maximize firm equity. In order to meet this goal, strategy planners have tried many approaches to maximize the value of an organization and to generate maximum profits. Financial transparency hinders managers from practicing socially

responsible activities as these actions are not aligned with the aforementioned economic goals. Hence, management may ignore essential stakeholders, such as employees, community, and consumers, thus decreasing net cash flow and affecting a firm's equity (Yunus, Wazid, Hairi, Choo, & Hairi, 2017).

The introduction of globalization and the industrial revolution has resulted in significantly enhanced CSR concepts among practitioners and policymakers (Pimpa & Moore, 2018). Corporate social responsibility not only benefits the maximization of stakeholder values, but it is also a novel concept to incorporate social duties into the core operation of an organization for managing increasing environmental and social issues (Baumann-Pauly, Wickert, Spence, & Scherer, 2013). This does not mean that only executives can initiate and incorporate CSR in business activities, project managers can also integrate social responsibility practices in their work and facilitate social practices within an organization (Zeng, Ma, Lin, Zeng, & Tam, 2015). Firms play an essential role in the economic growth of countries, but one cannot dismiss the fact that the economic boom of organizations can also cause many environmental and social issues (Jiang & Wong, 2016).

Corporate social responsibility is defined as "companies encouraging drive aimed at creating awareness about their business among people, environment, and economy, including their stakeholders" (Melissen, Mzembe, Idemudia, & Novakovic, 2018). Meanwhile, Jamali and Karam (2018) defined CSR as a procedure by which a corporation regularly contributes toward governance improvisation, ecological conditions, and ethical standards. The concept of CSR was coined by Cadbury Schweppes (owner of the organization) in the 18th century when he decided to invest money in Bernville Cadbury farms for the cultivation of plants. However, it was in the late 19<sup>th</sup> century when the concept gained popularity, especially in the USA and Europe. Currently, this concept is renowned worldwide, but has not yet been fully untapped in developing countries (Qazi, Ahmed, Kashif, & Qureshi, 2015).

The concept of CSR in the corporate sector within the context of Pakistan differs from western perceptions. In Pakistan, CSR is overlooked as most of the business communities are focused on profit, thus neglecting social responsibility, e.g. environmentally friendly policies, wellbeing of employees, and social welfare. Lack of exposure and placing little importance on improving procedures contradict claims that they are helpful tools to attract investment (Qazi et al., 2015; Yunus et al., 2017). However, the Securities Acts of 2005 and 2007 were enacted by the Securities and Exchange Commission of Pakistan (SECP) to control deficiencies and protect stakeholders (Yunus et al., 2017). In Pakistan, both awareness and implementation of CSR are in the early stages (Rana & Asad, 2018). However, some firms have published annual sustainability reports, e.g. telecoms and banking firms, which depict their genuine contributions to environmental protection, society, and welfare of employees.

Most organizations, with a few exceptions, place full emphasis on the profit earned, and this was extensively debated by the NFEH (2016). This issue cannot be swept under the carpet as a large number of foreign companies feel reluctant to invest in the Pakistani market. Developed countries, such as Canada, the UK, the USA, Germany, and even developing countries such as China, have proper CSR systems in place. Contribution to society is the responsibility of every organization, thus it does not impose much impact on the profit of an organization. However, in the context of developing countries like Pakistan, very few organizations contribute to society, which is viewed as a disadvantage when compared to other organizations (NFEH, 2016).

The role of CSR in corporate financial performance CFP (return on assets, and return on equity) has been explored by some studies, but a clear understanding has not been established due to the contradicting outcomes (Ahmed, Butt, & Majeed, 2018; Sacconi & Degli Antoni, 2011; Zulfiqar, Sadaf, Popp, Vveinhardt, & Máté, 2019). However, the relationship between CSR and Earning Value is relatively untapped or limited in developing countries, especially in Pakistan, compared with developed countries through the use of an advanced statistical technique on longitudinal data. According to Khattak, Ronchi, Castelli, and Sparks (2014), the phenomenon of CSR is relatively new in developing countries, thus attracting attention from researchers in the past decade.

Previous studies have examined the role of CSR on employees' behavior and investors' intentions (see Zulfiqar et al. (2019). In Pakistan, few studies, such as that by Javeed and Lefen (2019), have examined CSR and profitability

(ROA and ROE) by taking the moderating effects of corporate governance factors, CEO power, and ownership structure. A study by Rana and Asad (2018) was restricted to the pharmaceutical manufacturing sector in Pakistan where the financial performance of nine firms was observed over a four-year period. Kiran (2015) study, which was limited to the oil and gas sector, conducted a simple regression analysis in Excel by using ROA and ROE to examine the profitability of ten firms. Iqbal, Ahmad, Hamad, Bashir, and Sattar (2014) reviewed the possible impact of CSR on profitability in the banking sector (using UBL bank only) by considering donation as CSR and financial performance as net profit margin and EPS. There is a lack of understating around the need for allocating budget to CSR activities at a corporate level. The role of corporate social responsibility in earning value, within the context of Pakistan, is a novel phenomenon, and has not been explored in depth (Ahmed et al., 2018; Javeed & Lefen, 2019; Rana & Asad, 2018).

Due to a lack of interest in the organizational and social aspects for sustainable development, CSR has been disregarded in Pakistan, giving social wellbeing and training less attention. In the stringent modern and competitive business arena, the environmental sustainability of businesses mostly depends on the efficiency and effectiveness of the financial function of its management. However, social and economic indicators have been ranked very low in the comity of nations. The role of CSR in terms of the financial aspect of corporate social performance requires further comprehension and exploration, particularly in a developing country such as Pakistan, across all sectors, and consequently, sustainable growth can be envisioned (Rana & Asad, 2018). Prado et al. (2019) explored future endeavors by identifying the existing gaps in literature using statistical analyses and employing variables or methods in existing studies on the current state of corporate social performance and corporate financial performance. They concluded that there is no overwhelming evidence that could lead to a relationship of truth, so the direction could be identified using the latest methods. *This study is an attempt to complement the existing literature by providing valuable insights into the role of CSR in earning value (EV). This study, based on CSR activities of firms across Pakistan, investigated the impact of CSR on EV in Pakistan.*

Corporate social responsibility is a complex concept mostly seen as a dynamic, and sometimes voluntary, contribution of enterprise resources to activities that are aimed at achieving sustainable development. This study contributes to extend the economic effect of non-financial disclosure in several ways. First, it demonstrates that CSR has a distinct impact on financial performance from various perspectives, such as the CSP reputation index, as well as firms with high, mid, and low CSR practices. Second, it is predicted that the impact of CSR on financial limitations is not constant, which was typically assumed in prior studies. As per our knowledge of the relevant literature, it is worth studying to report the findings by applying the ADRL method of cointegration and long run form, as well as the assessment of CSR impact at high, moderate and low levels in Pakistan.

The results have depicted that firms with better CSR have a positive relationship with earning value (EV) in the long run, while excessive CSR activities that have imperfect CSR processes may harm EV in the short run. Hence, the best CSR company policies have a positive contribution to CSR activities, and middle-level CSR also indicates a positive relationship with EV as well as enhancing financial structure, firm performance, and firm prospects. However, low-level CSR activities have an insignificant effect. For robustness and diagnostics, as well as to avoid multicollinearity and autocorrelation, multiple tests were performed in this study to validate the outcomes.

The findings revealed that CSR practices are not only concerned with stakeholders' demands, but also augmented the firms' financial positions by enhancing their corporate images in the eyes of society, government, and media. Additionally, CSR practices enhance corporate reputation, innovation, and business performance, along with better human resources. Finally, the study outcomes have significant inferences, not only for those who can improve investment decisions, but also for regulators and listed firms because maximum CSR actions demand financial support, and CSR activities cannot increase business performance within a short period with a weak strategic framework. In developing countries, especially in Pakistan, the literature on CSR and firm performance seems to have evolved more slowly than in practice.

Section two includes a short review of the literature pertaining to CSR and CFP, as well as their roles; section three establishes the methodology adopted in this study; section four presents the results, the analysis, and the discussion, and section five concludes the research study with drawbacks and future research direction.

## 2. LITERATURE REVIEW

Social responsibility refers to actions that businesses take to maximize stakeholder values and to offer benefits to society (Carroll, 1999; Okoye, 2009). Social responsibility is essential to both consumers and investors, as they seek investments that are not only profitable for them, but also contribute to social welfare (Robin & Reidenbach, 1987). The main perspective of the social responsibility theory is to develop policies that enable businesses to maintain the balance between two mandates, ensuring high profitability, and providing benefits to society (Carroll & Shabana, 2010).

Earning value is an approach in which project plans, actual work, and work completed are monitored to check if a project is on track. Earned value shows how much of the budget and time should have been spent considering the amount of work done so far. The earned value method was developed as a tool to facilitate project progress control, and many organizations worldwide adopted this as a standard management tool (Czernigowska, 2008). The importance of EV is that it not only focuses on planned expenditure and actual cost, but also identifies future opportunities and analyzes actual performance (Suresh & Ganapathy Ramasamy, 2015).

Corporate social responsibility refers to business operations in favor of society's needs and to provide an environment that is safe and healthy for employees and their families by creating strong relationships among employees, management, and stakeholders so that the organization can achieve its objectives and financial competitiveness (Aga, Khan, Wasim, & Shah, 2012). The topic of CSR is an essential issue in the literature pertaining to management and accounting since the 1950s (Awan & Akhtar, 2014). However, organizations and societies have significantly enhanced their focus on CSR over the past few years. Companies with the aim of business expansion have developed approaches that tend to shift the focus of business operations from firms to society. Hence, market-oriented tactics have been regarded as CSR activities by eminent scholars, such as (Melissen et al., 2018).

CSR has four theories. The first is an instrumental theory that states that a corporation acts as an instrument for wealth creation, and their social activities objective is to only generate good economic outcomes. Second, the political theory concerns the power of corporations in both the political arena and society. The third theory, the integrative theory, concerns the leading objective of the corporation, which is to fulfill societal demands. Lastly, ethical theories refer to the ethical and social responsibilities of corporations to society (Maon, Lindgreen, & Swaen, 2009; Seele & Lock, 2015). All of the social responsibility theories represent four dimensions: profit, political performance, societal demands, and ethical demands (Okoye, 2009). According to Golrida, Subroto, Sutrisno, and Saraswati (2018), the link between financial performance (EV) and CSR is significantly positive, as suggested by the stakeholder and legitimacy theories, primarily due to a discretionary CSR environment that enhances financial performance (EV) and vice versa. Meanwhile, the resource-based view indicates that, due to cultural, social, and political issues in developing countries, firms lack awareness and communication of CSR to stakeholders because CSR practices rely on firm resources.

Many prominent scholars, including (Wright & Ferris, 1997), found that the execution of CSR was associated with agency problems or signified interest from shareholders and management. They professed that inappropriate CSR resulted in a conflict of interest between managers and stakeholders if a firm was more oriented towards profit maximization rather than environmental impact. Disputes between managers and stakeholders could be resolved if managers adopt a stakeholder-oriented approach. If managers have a profit-oriented plan, conflict is bound to occur with stakeholders. Kim, Kim, and Qian (2018) found a significant impact on the financial returns of 113 publicly listed firms in the US, which oriented their business activities toward the protection of stakeholders' interests. This

led to a competitive advance of the firms as a result of the stability of stakeholders, and theories suggest a positive role of CSR in firm performance and firm value.

The significance of CSR is commended worldwide, and business practices and theories have been improved in light of globalization (Yunus et al., 2017). The Institute of Economic Cooperation, established in the 19th century to encourage CSR, prescribed a separate budget. Several conferences have been organized under the United Nations Environment Program to protect the social environment with the aid of social and environmental protection agencies and to adopt CSR policies for progression. A sharp increase was noted in social initiatives undertaken by financial organizations due to globalization. These emerging trends offer flexibility to the corporate sector at both domestic and multinational levels, and help to shape the concept of CSR (Kell, 2016). The CSR concept originated in the US and the UK (Orudzheva & Gaffney, 2018). This concept was highly debated in the 1970s and 1980s, particularly in the US, and in 2009, the Canadian government designated CSR for socio-environmental development. According to Sacconi and Degli Antoni (2011), CSR is a good proxy for social capital of firm activities; the prevalent view between corporations and practitioners is that firms' CSR can generate social capital. Second, a significant challenge during the financial crisis of 2008 and 2009 was public trust, which declined unexpectedly in corporations, capital markets, and institutions.

Muruviwa, Nekhwevha, and Akpan (2018) claimed that CSR improved the economic development of society's living standards in Zimbabwe in the long term. Pirsch, Gupta, and Grau (2007) identified the materialization of CSR activities for stakeholders, which reckoned firm achievements by realizing non-financial and financial targets in the interest of stakeholders. In a similar study conducted in the UK, Singh (2014) studied the impact of CSR disclosure on financial performance. For the designated effects of linear regression, the model unraveled the significant impact of CSR on the short- and long-run economic performance of firms. In another study that linked CSR with financial performance in Bangladeshi banks, Islam, Ahmed, and Hasan (2012) found that return on asset (ROA) was higher for banks that adopted CSR policies compared to those who did not.

Kanwal, Khanam, Nasreen, and Hameed (2013) empirically assessed data retrieved from 15 listed companies on the Karachi Stock Exchange (KSE) and found the corporations to be socially responsible. A strong financial base is essential for companies that carry out CSR activities, but CSR is still at the perception stage in Pakistan (Khattak et al., 2014). Preferably, it should be introduced at an academic level to adopt in business organizations across the country. A case study in Kasur (a city in Pakistan) showed that an insufficient amount was invested by business organizations in the social sector and consequently, underground water and soil pollution caused health issues in society.

Kiran (2015) found that CSR activities had a positive impact on promoting a firm's financial performance. Arshad, Anees, and Ullah (2015) studied CSR and CFP in Pakistan using panel regression and analyzed the financial performance between 2009 and 2013 of 125 KSE listed companies in Pakistan by considering financial performance through ROA and Tobin's Q variables. They reported that CSR was measured as a summation of donation and ecological cost, concluding that CSR could increase the aspect of goodwill in businesses. They revealed that in short-term scenarios, there was no significant effect of CSR on CFP at a 5% confidence level. At a 10% confidence level, a positive effect was noted in the short run, while CSR had no impact on Tobin's Q for the selected companies in the long-term. Meanwhile, the estimated CSR spend on an element was done by measuring the reputation index, which indicated that CSR brought a positive change to the financial condition of a firm. The correlation between CSR and CFP was studied by Rana and Asad (2018) from 2013 to 2016 using the panel fixed effect method by considering earning per share, ROA, and ROE proxies that portrayed the significantly positive impact of CSR on firm performance. They concluded that in a developing country like Pakistan, CSR had a positive effect on CFP.

Mamun, Sohag, and Akhter (2013) applied the ARDL estimation technique to determine the relationship between CSR and financial determinants in Bangladesh by examining 30 private commercial banks from 2002 to

2011. They confirmed the significant relationship of several financial determinants, such as total investments, the number of employees, and the number of branches with CSR expenditure. They concluded that conglomerates are more CSR-oriented than small firms, while increments in CSR signifies a firm commitment to social betterment. Al-Hussaini (2019) showed the relationship in a Kuznets curve between financial management and environment in Kuwait from 1981 to 2017 by using the ARDL bound test approach and discovered a positive link between financial management and environmental degradation in the long run. Economic growth and energy consumption were determined as active contributors.

Ahmed et al. (2018) studied the level of CSR impact (highest, mid, and low CSR firms) by determining the association between CSR and CFP. It was concluded that firms with poor CSR activities reported an insignificant impact. The best CSR practices by firms had a positive role in earning value, but this was barely perceptible. However, the effect was integral for CSP reputation or intellectual capital and social value. The mid-level CSR firms with excess value exhibited a positive link that improved the prospects and stature in terms of earning value.

Many firms lacked awareness about the concept and implementation of this field because the majority of firm heads or owners saw CSR as merely spending money on donations. CSR is the instrument for commercial accomplishments by means of ethical values, such as working for the wellbeing of communities, respecting employees at the workplace, and introducing environmentally friendly regulations (Qazi et al., 2015). Based on past literature on social responsibility theory and stakeholder theory, the following hypotheses were formulated and need to be explored in Pakistan:

*H<sub>1</sub>: CSR has a significant pivotal influence on a firm's earning value.* Roberts and Dowling (2002) confirmed and suggested the proposed hypothesis relationship.

*H<sub>1c</sub>: CSR reputation index has a decisive role in earning value in cointegrating form.*

*H<sub>2</sub>: Operating earning assets has a significant impact on firm earning value.*

*H<sub>2c</sub>: Operating assets has a significant influence on a firm's earning value in cointegrating form.*

*H<sub>2s</sub>: Operating assets has a negative impact on a firm's earning value in the long run.*

*H<sub>3</sub>: Operating sales has a significant impact on a firm's earning value.*

*H<sub>3c</sub>: Operating sales has positive impact on a firm's earning value in cointegrating form.*

*H<sub>3s</sub>: Operating sales has a positive impact on a firm's earning value in the long run.*

*H<sub>4</sub>: A high level of CSR practices has a statistically significant affiliation with earning value.*

*H<sub>4c</sub>: A high level of CSR practices has a significant impact on a firm's earning value in cointegrating form.*

*H<sub>4s</sub>: A high level of CSR practices has a significant impact on financial earning value in the long run.*

*H<sub>5</sub>: A middle level of CSR has a statistically positive relationship with earning value.*

*H<sub>5c</sub>: A middle level of CSR practices has a positive impact on a firm's earning value in cointegrating form.*

*H<sub>5s</sub>: A middle level of CSR practices has positive impact on a firm's earning value in the long run.*

*H<sub>6</sub>: A low level of CSR practices has insignificant and negative impacts on earning value.*

*H<sub>6c</sub>: A low level of CSR practices has an insignificant impact on a firm's earning value in cointegrating form.*

*H<sub>6s</sub>: A low level of CSR practices has an insignificant impact on a firm's earning value in the long run.*

### 3. RESEARCH METHODOLOGY

The aim of this study is to explore the role of CSR in a firm's earning value in Pakistan. This study used secondary data gathered from annual financial reports of the selected organizations from 2009 to 2016. The sample size was limited to 46 firms (see Appendix C) with 368 total observations, mainly because most firms had incomplete and inaccurate CSR data. Given the data requirements, only those firms that had reported at least two consecutive years of data were included (Roberts & Dowling, 2002). In Pakistan, financial reporting of CSR activities is still in its infancy. The sample included companies from the following areas: fertilizer, building materials, pharmaceuticals, automobile, consumer goods and foods, petroleum, energy and power, textile,

information and technological communication. All are listed on the Pakistan stock exchange and had at least Rs 100,000,000 in outstanding shares, as larger companies generally publish sustainability reports on a regular basis and regularly participate more in CSR practices compared to small firms. In Pakistan, the significant contribution and implications of these companies' CSR activities are health and education improvement, reduction in poverty, local societies' infrastructure development, technical and vocational training, assistance in natural disaster emergencies, and human resource development through social welfare programs.

The reputation index method was conducted first, whereby firms were rated on multiple dimensions of social performance. The index has the advantage of equal treatment of each firm and makes comparisons easy. Another benefit is that it makes no pretense of implementing an explicit purpose that quantifies a measurement that can be skewed. In the 1960s, the Council of Economic Priorities (CEP) used the first reputation index. The initial reputation index method was employed in many studies, including those by Fogler and Nutt (1975) and Spicer (1978). Moskowitz (1972) established another reputation index that was further modified by Beresford (1976). The CSR reputation index was developed based on a firm's ratings on multiple dimensions of social performance. Carroll (1999) categorized a 3D model by incorporating philosophies of social issues. This was followed by a reputation index methodology where each firm's overall reputation score was calculated (Roberts & Dowling, 2002). The reputation index measurement of CSR was based on environment (EVN), employee relations (ER), product quality, and its relationship with customers and providers (PRD), shareholder relations (SHA), and community (COM). The annual disbursement on CSR activities served as a proxy of CSR practices in firms based on their annual reports. These proxies determined the CFP (Cochran & Wood, 1984; Roberts & Dowling, 2002).

This study further considered the ranking issued by the Environmental, Social and Governance (ESG) of Pakistan by dividing the sample organizations into the lowest, middle and highest CSR firms based on the ratings by using dummies of zero and one. Data of three proxies were used to measure financial conditions as the accounting data discards data distortion. The variable MVE represents market value of equity, TA indicates total assets, and BVD represent book value of debt. Therefore, EV is calculated by  $(MVE + BVD) - TA$ , and then divided by total sales. The earning access value was used to evaluate the future aspect of firms. Increments in EV indicated increased financial performance and enhanced CSR. Operating income for assets was measured from the proxy of operating income divided by the total assets. Operating income to sales proxy of operating income divided by the total sales was measured. The ratio of operating income to sales was considered a proxy in empirical research based on leverage variances. Finally, operating income from assets was used to examine the revenue performance of firms.

There are multiple regression techniques, such as simple, fixed or random effect, but this study applied the autoregressive distributed lag (ARDL) approach, proposed by Pasaran and Shin (1999), with cointegration as this method was suggested and applied by recent studies. Ghouse, Khan, and Rehman (2018) have expressed that one of the most general dynamic unrestricted models in the econometric literature is the ARDL model, primarily because the ARDL cointegration approach offers specific tests to determine the presence of a single cointegrating vector instead of assuming uniqueness. Pre-conditions are necessary, such as running the ARDL test and ensuring that the dependent model is non-stationary (Hussain & Mazhar, 2018). In order to capture the data generating process, the ARDL model applies a sufficient number of lags to a specific modeling framework, which can capture the correlation of the cointegrated variables for both the short- and long-runs (Shrestha & Bhatta, 2018). The ARDL approach is the latest method and has been widely accepted due to its numerous significant advantages, such as its applicability in all cases, regardless of series  $I(0)$ ,  $I(1)$ , or mutually cointegrated variables (Osokooe, & Oyolola, 2007). The second advantage of this contemporary approach is that it can obtain a more comprehensive array of lags. Notably, in a more common-to-particular method of the ARDL technique, a wider variety of lag numbers are apprehended in the data to create the procedure. Based on the lag method, the ARDL estimation assesses the cointegration of data. For a long-run relationship tested via the ARDL model, two steps are embedded. In the first

step, the presence of the long run is determined. The second step estimates both short- and long-run coefficients of the same equation (McCann, Baylis, & Williams, 2010).

Sulaiman, Baharin, and Al-Hadi (2019) reported the concept of a single reduced equation utilized in the ARDL model. This generates outcome in a more comprehensive, detailed, reliable, and effective method than any other method of traditional integration to determine the relationship of both long and short runs. It can test any fixed relationship between the variables without taking into consideration its capability of underlying regression values, which are purely I(0) and I(1) correspondingly, or both. The ARDL approach makes it possible to discover different and similar logs from several variables in the dataset and is therefore an appropriate method for this study to look into CSR and firm earning value (financial performance). The ARDL approach was suggested and employed by Mamun et al. (2013) in Bangladesh to confirm the long-run relationship of CSR expenditure with firm financial determinants.

This study also applied the bound test cointegration for both long- and short-run relations. Hussain and Mazhar (2018) reported that the use of the cointegration technique for estimation avoids spurious regression and endogeneity problems. The first difference (I) is the number of lags and (t-1) is the level lag of variables. The Akaike's information criterion (AIC) and other diagnostic tests were employed to determine the lag length for each variable, as well as to identify the presence of a cointegrating relationship. Next, the bound test was performed after identifying an appropriate lag length. Davidescu (2015) applied the ARDL cointegration approach to investigate the long-run causal linkages and the short-run dynamics by stating that the ARDL error correction representation becomes relatively more efficient with a single long-run relationship and a small sample data size.

This study employed robustness tests, including the Breusch–Godfrey serial correlation, Lagrange multiplier (LM) test, heteroscedasticity test, Breusch–Pagan–Godfrey test, Ramsey Regression Equation Specification Error Test (RESET), and variance inflation factors for diagnostics. Shrestha and Bhatta (2018) expressed that for the residual diagnostic LM test, heteroscedasticity and correlogram tests are the primary testing approaches for ARDL.

In determining the long-run relationship between CSR and financial performance activities on variables, the ARDL approach was adopted. It is composed of two steps. The first presents the conceptual model verified by the ARDL method to identify the cointegrating form, and in the second, the long-run coefficient relationship was determined by adding lags of dependent and independent variables. On the basis of the above explanation and data, the econometric model is as follows:

Equation 1:

$$EV_{i,t} = \beta_0 + \sum_{n=1}^{\infty} \beta_1 (EV_{t-i}) + \sum_{n=1}^{\infty} \beta_2 (CSPRI_{t-i}) + \sum_{n=1}^{\infty} \beta_3 (OIA_{t-i}) + \sum_{n=1}^{\infty} \beta_4 (OES_{t-i}) + \mu_{i,t} \quad (1)$$

Decomposed CSR level equation 2 is given below:

$$\begin{aligned} EV_{i,t} = & \\ & \beta_0 + \\ & \sum_{n=1}^{\infty} \beta_1 (EV_{t-i}) + \sum_{n=1}^{\infty} \beta_2 (HCSR_{t-i}) + \\ & \sum_{n=1}^{\infty} \beta_3 (LCSR_{t-i}) + \sum_{n=1}^{\infty} \beta_4 (MCSR_{t-i}) + \sum_{n=1}^{\infty} \beta_5 (OIA_{t-i}) + \sum_{n=1}^{\infty} \beta_6 (OIS_{t-i}) + \mu_{i,t} \end{aligned} \quad (2)$$

Where EV represents earning value, CSPRI is corporate social performance reputation index, OIA denotes operating income assets, OIS signifies operating income sales, while HCSR, LCSR, and MCSR indicate the highest, lowest, and mid-CSR levels, respectively.  $\beta_0$  is the constant value, whereas  $\mu$  serves as an error term.

## 4. RESULTS AND DISCUSSION

### 4.1. Model 1 Result CSR and Earning Value (Equation 1)

Table 1 presents the effects of the ARDL model to determine the relationships of the EV variable with the CSP reputation index, operating income asset, and operating income sales. The adjusted sample included 368 variables, and after adjustments, 366 observations were applied. The automatic selection of four maximum dependent lags and



an appropriate model were chosen based on AIC. The results of the ARDL model showed that the R-squared and the adjusted R-squared results were 0.447 and 0.437, respectively. The value of the F-statistic showed that the model was significant at 48.39, while the Durbin–Watson results showed no autocorrelation in the data. The results showed that EV had significant lag effects, and its lag was substantial. At lag 2, it turned significantly positive at a 55.7% significance level. These results support Hypothesis 1 and the study by [Rana and Asad \(2018\)](#).

The CSP reputation index was insignificant with a negative sign, but at lag 1 it was positive with a 1.3% significance level, which endorses our alternate hypothesis ( $H_1$ ) and is in line with the study by [Arshad et al. \(2015\)](#). Operating income asset had an insignificant negative impact, which accepted the null hypothesis and rejected the alternate hypothesis ( $H_2$ ), while operating income sales demonstrated a 14.7% significance level and accepted the third hypothesis ( $H_3$ ) based on operating sales having a significant impact on firm performance. [Table 1](#) details the results.

**Table 1. Results of ARDL Model (Equation 1).**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Constant	0.0045	0.0702	0.0643	0.9487
Earning Value EV (-1)	0.5571	0.0822	6.7768	0.0000
Earning Value EV (-2)	0.1009	0.0657	1.5356	0.1255
CSP Reputation Index	-0.0158	0.0081	-1.9480	0.0522
CSP Reputation Index (-1)	0.0131	0.0078	1.6789	0.0941
Operating Earnings Assets	-0.1032	0.0823	-1.2550	0.2103
Operating Earnings Sales	0.1472	0.0718	2.0504	0.0410
R-squared	0.4472			
Adjusted R-squared	0.4379			
F-statistic	48.3972			
Prob (F-statistic)	0.0000			
Durbin–Watson stat	1.9894			
Dependent Variable: EV, Method: ARDL, Selected Model: ARDL (2, 1, 0, 0), *Note: p-values and any subsequent tests were not accounted for in this model.				

[Table 2](#) presents the results of the ARDL bound test, which indicated that the null hypothesis had no long-term relationship. Based on the variables with a  $I(0)$  or  $I(1)$  assumption, the ARDL bound test was conducted. [Harris and Sollis \(2003\)](#) claimed that by applying the ARDL of bound test technique, one could attain long-run unbiased estimates. The bound test is mainly based on the joint F-statistic under the null hypothesis of no cointegration. Since its asymptotic distribution was non-standard and based on the assumption that all the variables in the ARDL model were integrated of order zero, the first level was calculated. While the variables were integrated of order, one was based on assumption, while the second was calculated, thus no cointegration of null hypothesis was rejected. Our test statistics exceeded the upper critical bound value, and it has been accepted with the view that F-statistic is less than the lower bound value.

**Table 2. ARDL Bounds Test.**

Test Statistic	Value	k
F-statistic	10.49117	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.37	3.2
5%	2.79	3.67
2.50%	3.15	4.08
1%	3.65	4.66

[Table 3](#) shows the results of cointegrating and long-run effects of dependent and independent variables. The cointegration ARDL model was used in this study to determine that the correlations of variable EV with the CSP

reputation index, operating income assets, and operating income to sales ratio variables. The results of cointegration showed a negative value of earning at lag 2, therefore rejecting hypothesis  $H_{1a}$  and accepting the null hypothesis ( $H_{0a}$ ) of cointegrating form. The value of the corporate social performance index was 1.5%, with a significantly negative impact. The results are similar to those reported by Arshad et al. (2015) using panel regression, which revealed that in short-term scenarios there was no significant impact of CSR on financial performance at a 5% confidence level. The ratio of operating earnings displayed a 9% negative significance level. Operating earnings to sales ratio exerted a significantly positive impact with a 14.2% significance level and had a significantly positive impact on EV and corporate social activities in the long term. Therefore, endorse the acceptance of alternate hypothesis ( $H_{3a}$ ) in both co-integrating and long run that operating sales has positive impact on firm performance. Corporate social performance index exhibited a considerable role with EV, and in the long run, the CSP index showed a 1.5% slightly insignificant level therefore in both co-integrating and long run accept null hypothesis. Both EV and operating income to assets ratio had a decisive role, and the study results showed negative value therefore we reject the alternate hypothesis and accept null hypothesis. The constant value reflected a significantly positive impact on model variables.

**Table 3. Results of ARDL Cointegrating and Long Run Form.**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>Co-integrating Form</b>				
D(EV(-1))	-0.1005	0.0517	-1.9442	0.0526
D(CSP Reputation Index)	-0.0157	0.0075	-2.0795	0.0383
D(Operating Earnings Assets)	-0.0964	0.0754	-1.2792	0.2017
D(Operating Earnings Sales)	0.1402	0.0731	1.9167	0.0561
Co-intEq(-1)	-0.3428	0.0454	-7.5554	0.0000
<b>Long Run Coefficients</b>				
CSP Reputation Index	-0.0076	0.0123	-0.6190	0.5363
Operating Earnings Assets	-0.3019	0.2333	-1.2937	0.1966
Operating Earnings Sales	0.4305	0.1840	2.3394	0.0199
C	0.0132	0.2051	0.0643	0.9487
Dependent Variable: D(EV(-1)), Method: ARDL, Selected Model: ARDL(2, 1, 0, 0).				

Note: For model do not account p-values and any subsequent tests.

For diagnostics and to avoid both multicollinearity and autocorrelation, multiple tests, such as Breusch-Godfrey Serial Correlation and LM Test, were performed to analyze the correlations between the variables. The results of the Breusch-Godfrey LM test displayed no evidence of autocorrelation in residuals. Besides, the model had no heteroscedasticity as indicated by the results of the Breusch-Pagan-Godfrey test with an F-statistic value of 2.1342 and probability at 0.048. The result of the Ramsey RESET t-value was 1.310 and the F-statistic was 1.718, which are fitted values. The complete robustness test results of equation 1 are demonstrated in Appendix A.

#### 4.2. Model 2 Results of CSR Levels

Table 4 shows the complete results of the second equation using the ARDL model for CSR levels and other variables. The best model was selected based on the AIC by using the automatic selection of maximum dependent lag 4. The results showed that the R-squared and adjusted R-squared indicated the goodness of fit at 0.512 and 0.495, respectively. The results of the F-statistics demonstrated that the model was significant at 30.580, while the Durbin-Watson results showed no autocorrelation in the data. The results showed that EV had significant lag effects. At lag 2, it was significantly positive at a 13.5% significance level. Therefore, the CSR had a significant effect on EV when we measured at decomposed levels and accepted that the alternate hypothesis ( $H_1$ ) of CSR activities has a significant impact on firm performance. The outcomes are consistent with the findings reported by Kim et al. (2018), which led to a competitive advance of the firms as a result of the stability of stakeholders. Therefore, the theoretical literature suggests that an increase in CSR leads to betterment in the long run.

The highest CSR was significantly positive at 32.09% initially, which endorsed the alternate hypotheses, but it became insignificant with a negative sign at lags 1 and 2 with 12.9% and 9% insignificance levels, indicating that too much investment in CSR activities show a loss on the financial statement. The lowest CSR level was significant with a positive sign at a 27.9% significance level initially, but at lag 1 it turned insignificant with a negative sign. The lowest CSR firms indicated that CSR affected EV with decreased CSR activities. The results of the ARDL method confirmed that lowest CSR activities had a negative effect on firms with little or no CSR, and endorsed the proposed alternate hypothesis ( $H_6$ ) that a low level of CSR practices has a negative impact on earning value in terms of financial performance.

The mid-level CSR results showed a positive impact on the significance level of 7% at zero lag. Businesses with mid-level CSR reported a significant role in financial performance of EV. This is in line with existing literature which claims that CSR has a positive impact on EV, thus supporting the study hypothesis ( $H_5$ ) that mid-level CSR has a statistically significant and positive relationship with earning value. The results are consistent with Kim et al. (2018), who claimed that all theoretical results in favor of CSR suggested an increase in activities of CSR to bring positive change in productivity and earning value. The operating income assets had an insignificantly negative impact at lags 1 and 2, which rejects the alternate hypothesis ( $H_2$ ) of CSR levels and accepts the null hypothesis that operating income does not have a positive effect on earnings in the sample of firms in Pakistan. The operating income sales demonstrated a significantly positive impact at a 34% significance level, which endorsed the alternate hypothesis ( $H_3$ ), but it turned negative at lag 1. Table 4 shows the results in detail.

Table 4. Results of ARDL Model 2 CSR Levels (Equation 2).

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Earning Value EV (-1)	0.5270	0.0869	6.0615	0.0000
Earning Value EV (-2)	0.1358	0.0678	2.0044	0.0458
Highest CSR	3.2092	0.4656	6.8931	0.0000
Highest CSR (-1)	-1.2945	0.5892	-2.1972	0.0287
Highest CSR (-2)	-0.9064	0.4222	-2.1471	0.0325
Lowest CSR	0.2791	0.0974	2.8668	0.0044
Lowest CSR (-1)	-0.1453	0.0924	-1.5719	0.1169
Mid CSR	0.0714	0.0521	1.3717	0.1710
Operating Earning Assets	0.2506	0.1388	1.8054	0.0719
Operating Earning Assets (-1)	-0.2152	0.1156	-1.8620	0.0634
Operating Earning Sales	-0.3269	0.1373	-2.3807	0.0178
Operating Earning Sales (-1)	0.3427	0.1248	2.7457	0.0063
C	-0.4563	0.2006	-2.2740	0.0236
R-squared	0.5120			
Adjusted R-squared	0.4954			
F-statistic	30.8592			
Prob(F-statistic)	0.0000			
Durbin-Watson stat	2.0177			
<b>Dependent Variable:</b> EV, Method: ARDL				
<b>Selected Model:</b> ARDL (2, 2, 1, 0, 1, 1)				

Note: p-values and any subsequent tests were not accounted for in this model'.

The bound test results following equation 2 are demonstrated in Table 5. This test is relatively more efficient for small sample sizes like in Pakistan where the CSR concept has not been fully implemented in organizations. Therefore, the sample was collected on the basis of the available data of 46 firms, irrespective of the regressors in the model. Table 5 shows that the null hypothesis has no long-term relationship because the F-statistics are lower than the lower bounds values. Because, when the independent variables have a lower value, one can assume that the regressors are I (0), while higher value leads to the assumption of I (1). The null hypothesis of no long-run relationship can be rejected irrespective of the orders of integration if the F-statistics are higher than the upper critical value. The results are depicted in Table 5.

Table 5. ARDL Bounds Test (Equation Model 2).

Test Statistic	Value	k
F-statistic	7.946074	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.08	3
5%	2.39	3.38
2.50%	2.7	3.73
1%	3.06	4.15

Table 6 demonstrates the results of the cointegrating and long-run effects for the second model of the dependent and independent variables. In the second equation, the relationships between dependent variable EV and CSR levels, operating income asset, and operating income to sales ratio variables were considered. The result of cointegrating displayed a negative value for EV at lag 1. The highest level corporate social responsibility at zero and first lags were positive at 32% and 9% significance levels, respectively, which indicate that the alternate hypothesis ( $H_{4a}$ ) was accepted and that a high level of CSR practices has significant and positive impacts on earning value in cointegrating form. The lowest CSR level was substantially positive at a 28% significance level at lag 1 in cointegrating form. Mid-level CSR results in a cointegrating form were positive with a 9% zero lag. The ratio of operating income to assets showed a 25% positive significance level, therefore accepting the alternate hypothesis ( $H_2$ ) that operating income assets have a significant impact on firm performance, while the operating income to sales ratio had a negative impact on cointegrating form.

In the long run, CSR had a considerably significant role in EV and accepts the hypothesis  $H_1$  that CSR has a significant role in financial performance. The results demonstrated that in the long run, the highest CSR exhibited a 29% positive significance level, and the results support hypothesis  $H_{4b}$ . Meanwhile, low and mid-level CSR had 39% and 21% significance levels, respectively, therefore accepting the alternate hypothesis of mid-level CSR while rejecting the proposed alternate long run hypothesis in model 2. Operating income to sales positively and significantly contributed to EV and corporate social activities in the long run, and the hypothesis ( $H_{3b}$ ) of operating sales has a positive impact on earning value in long run.

Table 6. ARDL Cointegrating and long run form of CSR levels (equation model 2).

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>Cointegrating Form</b>				
D(Ev(-1))	-0.1365	0.0506	-2.6992	0.0073
D(Highest CSR)	3.2126	0.5174	6.2091	0.0000
D(Highest CSR (-1))	0.9137	0.3712	2.4614	0.0143
D(Lowest CSR)	0.2870	0.0921	3.1152	0.0020
D(Mid CSR)	0.0935	0.0897	1.0433	0.2975
D(Operating Earnings Assets)	0.2500	0.0877	2.8510	0.0046
D(Operating Earnings Sales)	-0.3275	0.0997	-3.2856	0.0011
Cointeq(-1)	-0.3360	0.0447	-7.5095	0.0000
<b>Long Run Coefficients</b>				
Highest CSR	2.9902	1.0786	2.7722	0.0059
Lowest CSR	0.3969	0.1496	2.6532	0.0083
Mid CSR	0.2118	0.1449	1.4622	0.1446
Operating Earnings Assets	0.1051	0.1825	0.5760	0.5650
Operating Earnings Sales	0.0469	0.2070	0.2265	0.8209
C	-1.3531	0.5018	-2.6965	0.0073
<b>Dependent Variable:</b> D(EV(-1)), Method: Cointegrating And Long Run Form.				
<b>Selected Model:</b> ARDL(2, 2, 1, 0, 1, 1).				

Both EV and operating income to assets ratio had decisive roles, and this study showed a positive value for the long run in equation 2 and endorses the hypothesis ( $H_{2b}$ ) that operating assets have a negative impact on firm

performance in long run. The results refer to the theory in which a corporation acts as an instrument for wealth creation, and the objective of their social activities is to generate good economic outcomes (Seele & Lock, 2015). The overall results of equation 2 showed a significantly positive association with CSR levels and earning value but with a negative coefficient value, which is in line with a recent study by Golrida et al. (2018) based on stakeholder and legitimacy theories because a discretionary CSR environment enhances earning value in term of financial performance and vice versa. However, there were mixed results with the proposed CSR level hypotheses; the hypotheses of high and mid-level CSR were accepted, but a low CSR level and firm earning value accepted the  $H_{6a}$ ,  $H_{6b}$  null hypotheses. The findings highlighted the resource-based view that, due to cultural, social, and political issues, CSR practices rely on firm resources. Hence, developing countries need to increase their awareness so that their stakeholders can promote and invest in CSR activities. Table 6 shows the complete results.

In equation two, multiple tests were performed for diagnostics and autocorrelation, and to avoid multicollinearity. The LM test was conducted to analyze correlation, and for this the Breusch–Godfrey LM test was employed for serial correlation analysis between the variables, while for equation two, the results of Breusch–Godfrey LM test showed no evidence of auto-correlation (see Appendix B). The results of the robustness test of heteroscedasticity showed no heteroscedasticity in the model, as demonstrated in the results of the Breusch–Pagan–Godfrey test with an F-statistic value of 1.439 and probability at 0.145 (see Appendix B). The level of collinearity between the regressors in the equation can be measured efficiently using variance inflation factors (VIFs) because this test shows that due to collinearity with the other regressors, the variance of a coefficient estimate of a regressor has inflated. The Ramsey RESET test was conducted for robustness to determine the relationships between variables. The complete robustness test results are given in Appendix B.

#### 4.3. Graphical Presentation of CSR Levels

The graph shows that the earning value had a significant relationship with CSR, and CSR had a positive role in the financial performance of firms. Firms with the best CSR showed a positive trend in EV (see Figure 1), while lower level CSR demonstrated the worst trend (see Figure 3). Mid-level CSR demonstrated a moderate effect (see Figure 2), and therefore shows the balanced positive point in the center.

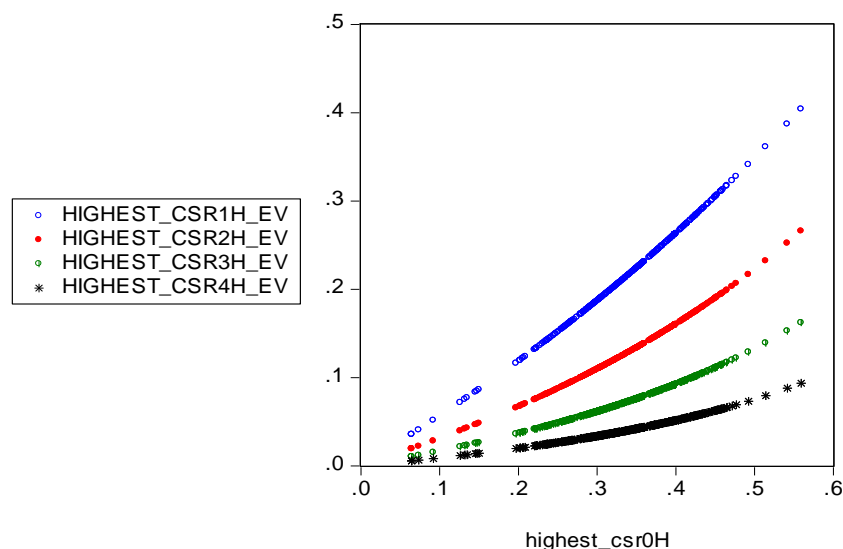


Figure 1. Graph of EV for high CSR relation with excess earnings.

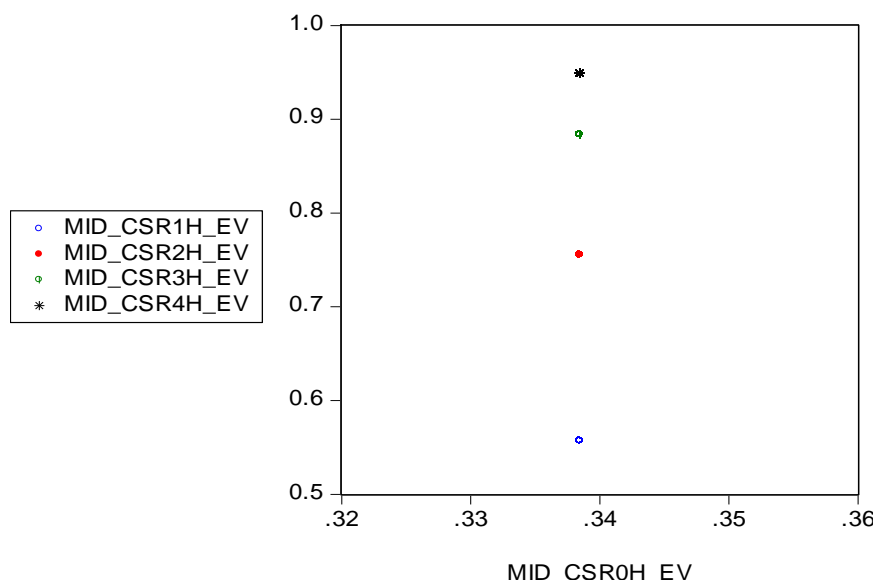


Figure 2. Graph of EV for mid-level CSR relation with excess earnings.

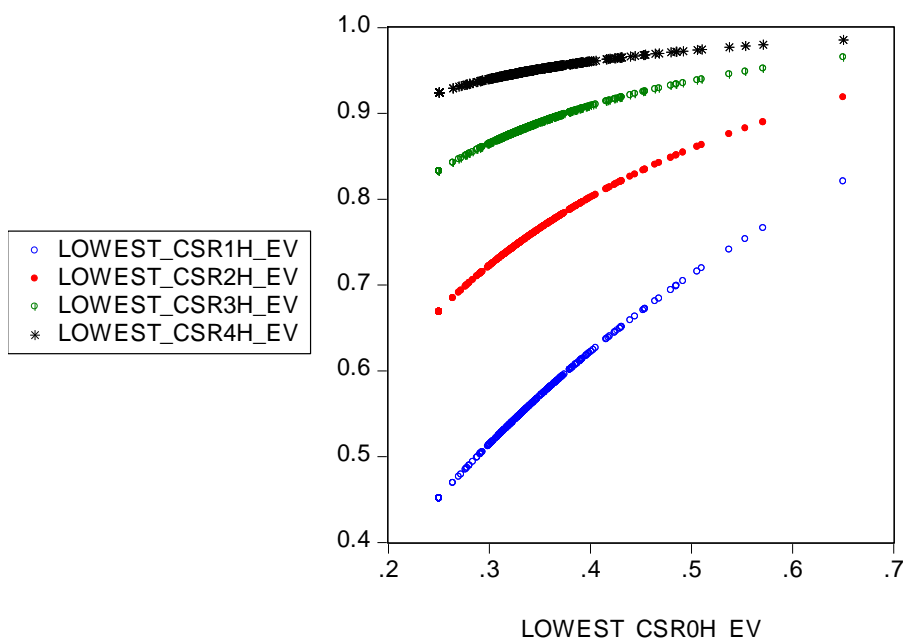


Figure 3. Graph of EV for lowest CSR relation with excess earnings.

### 5. CONCLUSION AND RECOMMENDATIONS

The role of CSR is important in every society, especially in developing countries. This study endeavors to unearth the impact of CSR on the earning value of firms in Pakistan, and in both models cointegration as well long-run results showed mixed statistics. The model one ARDL results reported that EV had significant lag effects, and its lag was substantial, while at lag 2, it turned positive at a 55.7% significance level, which supports the first hypothesis. The CSP reputation index was insignificant with a negative sign, but at lag 1 it was significantly positive with a 1.9% significance level, which endorses our alternate hypothesis. Operating sales had a positive impact on earning value in both cointegrating and the long run and accepted the proposed alternate hypothesis. In model one, cointegrating and long-run results of the corporate social performance index exhibited a considerable role with EV, and in the long run, the CSP index showed a 1.5% slightly insignificant level, therefore in both cointegrating and long run, the null hypothesis was accepted.

Model two of the second equation using the CSR levels summary showed that EV had significant lag effects.

The study concludes that firms with CSR at the initial stage would see an impact in their earning value, as increased CSR activities reduce revenue. The findings established that, in Pakistan, firms with the best CSR practices had a positive relationship with EV. There was an adverse effect on a firm's earning value with low CSR activities due to the imperfect CSR processes in the first model. Firms with mid-level CSR displayed a positive relationship with EV in both cointegrating form and long run, as well as enhancing their financial structure, project and firm performance, and firm prospects. The findings confirm stakeholder theory recommendations that CSR performance and moderate or balanced activities maximize stakeholder value. In existing literature, it was observed that in developing countries, such as Pakistan, firms hesitate to participate in CSR activities due to the fear that such practices may not improve the performance or profitability of the firm. This effect has more worth in service-oriented sectors, especially in banks where regulations are strict, by attracting large investors and employing more management skills.

By incorporating social responsibility into project management, managers can ensure the credibility, integrity, and the reputation of the organization. To achieve a higher standard of CSR, and for the successful implementation of CSR practices, managers need to align the project requirements or commitments with their business operations, along with personal objectives. If CSR is incorporated into project management, then the project manager is obliged to perform particular tasks, such as following processes to avoid harming the environment and society, selecting industrial venues that are far from residential areas, protect natural resources, participate in social work, as well as adhere to legal rules and regulations.

The government can promote and take advantage of CSR activities by introducing specialized programs to participate in poverty reduction and to aid society development. It is imperative for the government to legislate CSR procedures to offer support and protection to welfare-oriented organizations. Policymakers and the government should improve information transparency and the regulatory framework by considering weak social performance in firms from less developed regions. A comprehensive set of guidelines and plans concerning a corporation's duties and accountability to society exist in socially responsible companies, which they combine with their corporate practices and decision-making procedures. However, socially irresponsible corporations need to act as responsible affiliates of the community, and introduce CSR practices into their planning, controlling, and decision-making processes. Globalization can support a business in enhancing corporate social performance, although this is not expected to occur. It is hoped that future studies will investigate the possible repetitive nature of the connection between CSR and internationalization, and also examine international comparisons involving both developed and developing states using additional data from multiple countries with globalization effects.

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#### Appendix A. Results of Robustness Tests (Equation 1)

<b>Breusch–Godfrey Serial Correlation LM Test</b>			
F-statistic	0.146	Prob. F (2,357)	0.864
Obs*R-squared	0.299	Prob. Chi-Square (2)	0.86
<b>Heteroskedasticity Test: Breusch–Pagan–Godfrey</b>			
F-statistic	2.1342	Prob. F (6,359)	0.048
Obs*R-squared	12.605	Prob. Chi-Square (6)	0.049
Scaled explained SS	74.096	Prob. Chi-Square (6)	0
<b>Ramsey RESET Test</b>			
	Value	Df	Probability
t-statistic	1.310	358	0.1907
F-statistic	1.718	(1, 358)	0.1907
F-test summary:			
	Sum of Sq.	Df	Mean Squares
Test SSR	0.26910	1	0.26910
Restricted SSR	56.3310	359	0.15691
Unrestricted SSR	56.0619	358	0.15659

#### Appendix B. Results of Robustness Tests of CSR Levels (Equation 2)

<b>Breusch–Godfrey Serial Correlation LM Test</b>			
F-statistic	0.6258	Prob. F (2,351)	0.5354
Obs*R-squared	1.3004	Prob. Chi-Square (2)	0.5219
<b>Heteroskedasticity Test: Breusch–Pagan–Godfrey</b>			
F-statistic	1.4394	Prob. F (12,353)	0.1459
Obs*R-squared	17.0734	Prob. Chi-Square (12)	0.1469
Scaled explained SS	98.9127	Prob. Chi-Square (12)	0
<b>Variance Inflation Factors</b>			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF

EV (-1)	0.0075	5.6365	5.6362
EV (-2)	0.0046	4.4922	4.3847
Highest CSR	0.2167	148.1731	4.0986
Highest CSR (-1)	0.3471	234.2183	6.4001
Highest CSR (-2)	0.1782	114.1685	4.0902
Lowest CSR	0.0095	15.3797	8.7056
Lowest CSR (-1)	0.0085	13.7816	7.7364
Mid CSR	0.0027	3.7739	2.1694
Operating Earnings Asset	0.0193	67.4888	14.7175
Operating Earnings Asset (-1)	0.0134	61.1153	17.7922
Operating Earnings Sale	0.0188	54.3113	13.6337
Operating Earnings Sale (-1)	0.0156	61.3594	21.7468
C	0.0403	173.4091	NA
<b>Ramsey RESET Test</b>			
	Value	df	Probability
t-statistic	1.417701	352	0.1572
F-statistic	2.009877	(1, 352)	0.1572
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	0.282331	1	0.282331
Restricted SSR	49.72839	353	0.140874
Unrestricted SSR	49.44606	352	0.140472

## Appendix C. List of sample companies.

Sr. #	Company Name	Sr. #	Company Name
1	Abbott Laboratories (Pakistan) Ltd.	24	Indus Motor Company Ltd.
2	AL-Ghazi Tractors	25	Kohinoor Mills
3	Atlas Honda Ltd.	26	Kot Addu Power Co Ltd.
4	Attock Cement	27	Javedan Co ltd.
5	Attock Petroleum	28	Lotte pakistan PTA Ltd.
6	Bata Pakistan Ltd.	29	Lucky Cement Ltd.
7	Bestway Cement Ltd.	30	Mari Gas Company Ltd.
8	Byco Petroleum	31	Millat Ltd.
9	Clover Co.	32	Murree Brewery Company Ltd.
10	Colgate-Palmolive	33	Media Co Ltd.
11	D. G. Khan Cement Company Ltd.	34	National Refinery
12	Dawood Hercules Chemicals Ltd.	35	Nestle Pakistan
13	Engro Corporation Ltd.	36	Netsol Technologies Ltd.
14	Engro Polymer & Chemical Ltd.	37	Nishat Mills Ltd.
15	Fatima Fertilizer Co.Ltd.	38	Oil & Gas Dev. Corp. (OGDC) (Pub.)
16	Fauji Fertilizer Bin Qasim Ltd.	39	Pakistan National Shipping Corp. Ltd. (Pub.)
17	Fauji Fertilizer Company Ltd.	40	Pakistan Telecommunication Co. Ltd. (PTCL)
18	Ghani Glass Ltd.	41	Pakistan State Oil Company Ltd. (Pub.)
19	GlaxoSmithKline	42	Pace (Pakistan) Ltd.
20	The Hub Power Company Ltd.	43	Packages Ltd.
21	Ibrahim Fibres Ltd.	44	Pak Elektron Ltd
22	ICI Pakistan Ltd.	45	Pak Suzuki Motor Company Ltd.
23	Indus Dyeing & Manu. Company Ltd.	46	Pakistan Telephone Cables Ltd.

Source: Stock Exchange of Pakistan and Security Exchange Commission of Pakistan (SECP).

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