

# The Impact Of Environmental, Social And Governance Factors (Esg) On Firms' Financial Performance: Evidence From Pakistan

Noor Ul Hira<sup>1</sup>, Wisal Ahmad<sup>2</sup>, Aamir Amanat<sup>3</sup>, Shabir Hussain Khattak<sup>4</sup>, Muhammad Taimur Khan<sup>5</sup>, Shahwali Khan<sup>6</sup>, Fahad Abdullah<sup>7</sup>, Shandana Shoaib<sup>8</sup>, Adnan Ahmad<sup>9</sup>

<sup>1</sup>MS Scholar at Institute of Business Studies and Leadership Abdul Wali Khan University Mardan  
[Hirakhanx44@gmail.com](mailto:Hirakhanx44@gmail.com)

<sup>2</sup>Assistant Professor at the Institute of Business Studies and Leadership Abdul Wali Khan University Mardan  
[wisalahmad@awkum.edu.pk](mailto:wisalahmad@awkum.edu.pk)

<sup>3</sup>Lecturer at the Department of Economics University of Modern Languages Islamabad [Aamiramanat57@gmail.com](mailto:Aamiramanat57@gmail.com)

<sup>4</sup>Riphah International University Islamabad [zayankhan840@gmail.com](mailto:zayankhan840@gmail.com)

<sup>5</sup>Lecturer at the Department of Management Sciences Bacha Khan University Charsadda [taimur@bkuc.edu.pk](mailto:taimur@bkuc.edu.pk)

<sup>6</sup>Associate Professor at Institute of Management Sciences Peshawar [Shah.wali@imsciences.edu.pk](mailto:Shah.wali@imsciences.edu.pk)

<sup>7</sup>Associate Professor at Institute of Management Sciences Peshawar [Fahad.abdullah@imsciences.edu.pk](mailto:Fahad.abdullah@imsciences.edu.pk)

<sup>8</sup>Assistant Professor at Institute of Management Sciences Peshawar [Shandana.shoaib@imsciences.edu.pk](mailto:Shandana.shoaib@imsciences.edu.pk)

<sup>9</sup>PhD Scholar at Institute of Business Studies and Leadership Abdul Wali Khan University Mardan  
[ahmadadnan3215@gmail.com](mailto:ahmadadnan3215@gmail.com)

## Abstract

The aim of this research is to examine the impact of ESG (environmental, social, and governance factors) on the financial performance. In this study, the measurement of financial performance is undertaken by using accounting-based analysis including return on assets (ROA) and return on equity (ROE). The sample included 54 non-financial firms that are listed on the PSX and the data is collected from different sources including financial annual reports of the firms, World Bank and other sources for the period of 2010-2020. The estimation results following the Random Effects estimation methodology show that social factor, environmental factor and governance factor are having significant impact on ROA. Similarly, the estimation results show that social factor, environmental factor and governance factor were also having significant impact on ROE. The outcomes of the current study are also helpful to the management and policy makers. The study recommended that policy maker must manage their resources and invest in ESG activities for uplifting their financial performance in the long run.

**Keywords:** ESG, ROA, ROE, Random Effects

## Introduction

Basic objective of Business Corporation is to increase their profit. But the majority of businesses have not consciously included social and environmental objectives into their company strategy and operations during the last two decades. They represent the fundamental ethos of the company, a culture of sustainability that places equal value on financial, environmental, and social outcomes. Increasing the accuracy of values and beliefs generated by these tactics also contributes to a more sustainable culture. According to Huang (2022), these values and beliefs, in short, define the mission of the organizations. Stakeholders are increasingly concerned about non-financial metrics

including environmental, social, and governance performance (hereafter refers as ESG), as a result of the global financial crisis and its negative effects on growth and development (Albitar, Hussainey, Kolade, & Gerged, 2020).

The OECD (2011) and PRI (2016) have placed specific attention on the role of firms in sustainable development. Environmental, Social, and Governance (ESG) is defined as the management and direction of all business concerns via a coordinated set of activities and processes that take into account the company's impact on the environment, its interactions with local communities, and the needs of its employees and

customers (Carnini Pulino, Ciaburri, Magnanelli, & Nasta, 2022).

Enhanced Analytics Initiatives (EAI) and the Principles for Responsible Investment (PRI) are two examples of recent concerted attempts to promote the integration of ESG into business valuation and investment decision-making processes. ESG is a well-known idea in developed countries, but it has only lately been introduced in developing countries like Pakistan. SECP ordered in 2009 that all companies include ESG considerations in their annual reports.

On the other hand, publicly listed companies exist only for profit. Managers, on the other hand, aim to maximize the wealth of the company or the wealth of the shareholders. Profitability, market capitalization, and enterprise value are well-being. Among other methods, profit, market capitalization, and enterprise value are well-being. Using the stock price multiplied by the number of shares in issue is one way of determining the worth of a company's stockholders. The price of assets represents all publicly accessible information, according to the efficient market hypothesis, which analyses the share of stock. Companies need help with doing regular stock valuations since the process is dependent on imperfect data. Brand equity, brand image, reputation, and intellectual property are examples of intangible assets. Risk management, knowledge management, and talent management are all examples of non-financial information that faces the same challenges (Alareeni, & Hamdan, 2020).

An increasing number of studies have been initiated to investigate the connection between environmental, social, and governance (ESG) factors and financial results to keep up with the expanding interest in these areas. An ESG impact on long-term shareholder value was found in a paper released in 2004; nevertheless, in other scenarios, these impacts may be overriding. There is now widespread agreement that investment managers need to provide enough attention to ESG factors to fulfill their fiduciary responsibilities to their clients.

One research indicates that there is no agreement on whether or not ESG involvement leads to better performance. No significant connection between

ESG variables and a company's financial success has been found in other research. For Bassen & Kovacs (2008), the necessary information is provided by ESG activities because they allow investors to make more differentiated investment decisions and enable them to better assess risks and possibilities. Better organizations must be involved to varying degrees in ESG activities because of the activities' cross-boundary nature. Considering the significance of ESG, the current study investigates the impact of environmental, social and governance factors (ESG) on firms' financial performance in Pakistan.

## Literature Review

### Corporate Social Responsibility (CSR)

More than forty years have passed since CSR first became the focus of management literature and company practice (Russo & Perrini, 2010). Stakeholders all across the world have been pressuring corporations to increase their spending on CSR initiatives (Eccles, 2011). Numerous stakeholders, including customers, workers, suppliers, and governments, put the same requirement on businesses, and public campaigns led by ethics-oriented non-profits, labor unions, and the media, among others, push businesses to behave themselves in a sustainable way (El Ghou, 2011). However, it is difficult to pin down an exact definition of CSR (Malik, 2015). Economic, legal, ethical, and charitable expectations are all part of what Carroll (1979) calls "society's expectation that has to be satisfied by enterprises." They add that the business rationale for CSR benefits all parties involved (including shareholders) by helping companies gain a competitive edge (Carroll & Shabana, 2010). Therefore, any action taken by businesses to improve the world, society, and the lives of their workers may be considered corporate social responsibility (CSR) work (Kim et al., 2018). According to McWilliams & Siegel (2001), CSR includes both operations that benefit shareholders and those that promote social good beyond the requirements of law. Queen (2015) argues that focusing on the interests of one stakeholder might have a favorable ripple effect on other stakeholders. Engaging in sustainable business practices, for instance, may pique the

interest of qualified workers, investors, and consumers (Chan, Watson, & Woodliff, 2014). Due to the voluntary rather than mandatory character of CSR, a sense of ethical obligation rests on its shoulders (Kim et al., 2018). Carroll (1979) argues that an organization's ethical and economic duties are not to be aggregated or at odds with one another since they are both part of the wider idea of social duty. Abdelhalim & Eldin (2019) distinguish between "classic" CSR and "next-gen" CSR. Common examples of traditional CSR include donations and volunteer work. In addition, there are three distinct forms of charitable giving: (Jamali & Jain, 2015).

### **Corporate Sustainability – Triple bottom line, ESG**

Since the year 2000, "Corporate Sustainability" has been a common word in the field of business research (Vermeulen & Witjes, 2016). The concept of sustainable development has led to the emergence of this word (Roble et al., 2019). Companies are beginning to take responsibility for the impacts their actions have on the community and the natural world (Demetriades & Auret, 2014). Whether favorable or bad, all businesses have some kind of impact on the community and the natural world (Simionescu et al., 2020). In general, CS denotes the company's commitment to achieving "Sustainable development objectives," which include a focus on economic growth, social welfare, and "environmental governance" (Roblek et al., 2020). Elkington (1999) provides a scientific definition of CS based on the triple bottom line idea, which states that organizational objectives must take into account the larger social and environmental context in which they are carried out. When it comes to sustainability, businesses may find a way to do good for society while both helping the environment and the bottom line (Simionescu et al., 2020). Most businesses only plan environmentally responsible activity to either satisfy regulatory requirements or quell public backlash (Selcuk & Kiymaz, 2017), while others use it to cover up their harmful business practices (Cordeiro & Sarkis, 1997). However, CS takes into account environmental, social, and governance factors in both the near and far futures of a company's success (Hahn, Figge, Aragon-Correa, & Sharma, 2017).

Efforts by organizations like the Sustainability Accounting Standard Board (SASB), the Global Reporting Initiative (GRI), and the International Integrated Reporting Council (IIRC) have helped make ESG reporting a standard. GRI guidelines are used by more than 80% of the world's largest corporations today. With the advancement of technology and the improved capacity to handle complex datasets, ESG data is now more important to shareholders and other stakeholders than ever before (Kell, 2018). ISCA (2017, p.9) provides examples of the kind of difficulties or external factors that should be taken into account for each of the E, S, and G categories. We provide them in the sections below:

#### **a. Environmental issues**

Biodiversity conservation is an example of an environmental concern that requires acquirers to think about the kinds of materials they use and whether or not there are more sustainable alternatives. Making the most of the resources at hand also plays a role. Waste and recycling efficiency are also important considerations. Both water and effluent management are included in the environmental score. Some nations have a hard time obtaining enough of everything, but water in particular is a precious resource. Additionally, decreasing GHG emissions and energy use is a significant environmental concern (ISCA, 2017). To some extent, environmental problems also include creativity. This is true of eco-friendly items as well as cutting-edge environmental practices. To become more environmentally friendly, businesses need novel ideas ("Thomson Reuters ESG Scores," 2017).

#### **b. Social Issues**

Stakeholders in the immediate area and the community from which the raw material was sourced are at the center of social concerns. This may occur in many locations throughout the globe. Human rights, indigenous peoples' rights, and concerns of child and forced labor all factor into the debate. Health, safety, and environmental (HSE) measures are also part of societal problems. And it's not only about having a nondiscrimination policy and a diverse workforce; it also concerns employees and the quality of the workplace

environment they're provided. It is crucial that food and other items sold in the Consumer Staples sector be safe from contamination. They need to make sure that no harmful chemicals are used in the manufacturing process. The way in which businesses treat the personal data (such customer names, addresses, and credit card numbers) they collect also contributes to the social dimension (ISCA, 2017).

### c. Governance issues

Compliance with environmental and social standards can fall under the umbrella of "governance concerns." Which is why firms should only do business with governments and organizations that have zero tolerance for corruption (ISCA, 2017). Management is a critical component of governance since it entails the management's strategy for operating the organization with shareholders' and stakeholders' interests in mind. CSR strategy is a component of this, and it entails a strategy for sharing both financial and non-financial information and factoring it into their decision-making processes ("Thomson Reuters ESG Scores," 2017).

#### The Increasing Importance of ESG

New ESG-focused policies were established in the wake of the 2008 financial crisis, cementing ESG's growth. These policies include government commitments to the United Nations' Sustainable Development Goals (KPMG, 2020; Lunn, 2019). Additionally, the European Commission has adopted many rules pertaining to ESG (KPMG, 2020). The European Commission's Action Plan for Financing Sustainable Growth is a series of recommendations for the financial industry that aim to provide clarity and openness for asset managers and investors on the topic of sustainable investing in order to address sustainability-related challenges (KPMG, 2020). Previously distinct ESG and sustainability issues have come to be published alongside financial reports due to integrated reporting, which was developed in response to the consequences from the 2008 financial crisis and the demand for corporations to be held responsible for their broader effect (Moon & Herzig, 2012; Rowbottom & Locke, 2016). There have been signs of integrated reporting since 2002, but it wasn't until the years after the 2008

financial crisis that the idea really took hold (Rowbottom & Locke, 2016). This resulted in the 2013 publication of a standardization framework by the International Integrated Reporting Council (IIRC) (ibid). Since the turn of the century, ESG as a concept has been more prominent and widely used (Leins, 2020). While this expansion was already noticeable before the financial crisis of 2008, it has subsequently grown at a faster pace (ibid). Growth in the significance of CSR activities on a macro scale is synchronous with growth in the significance of measures of ESG performance because of the close relationship between CSR, which focuses on firm actions, and ESG, which seeks to measure firm performance with regard to these issues (Ahmad, Mobarek, & Roni, 2021). The European Union has adopted a firm position on regulating and promoting ESG related concerns, and as a result, ESG investment has grown rapidly in the European Union (European Commission, 2021a). This trend demonstrates the growing significance of ESG in the European Union (EFAMA, 2021).

#### Firm Financial Performance

Company financial performance is the dependent variable in this study. An organization's financial performance is measured across a wide range of metrics, including its assets, liabilities, equity, costs, revenue, and profitability. Those at the Corporate Finance Institute n.d. Those who want to learn about a company's financial standing may do so by reading the annual report, which must be made public for publicly traded companies. Variations in how much data was made available on fiscal performance were observed. Beginning in the late 1800s, reporting regulations have developed throughout time to meet the growing need for transparency among various stakeholder groups (Patton & Hutchison, 2013). Consequently, investors may now see the balance sheet, income statement, and cash flow statements of any publicly traded firm. Because of this, the financial results of the firm may be included into the study. There are a wide variety of metrics that may be used to evaluate a company's financial success. The margin between gross sales and total operating expenses is one indicator of business health. Gross profit as a percentage of sales. Options beyond only ROE and ROI include working capital, current

ratio, inventory turnover, leverage ratio, and return on assets (ROA) (corporate finance institute, n.d.). Barker's study shows that there is no silver bullet (1995). Balance sheet metrics (like current ratio and leverage ratio) and operational metrics (like number of errors per day) are two areas where the two approaches diverge (such as Gross profit, ROA and ROE). A company's sales margin is represented by its gross profit. Both return on assets and return on equity evaluate how profitable an enterprise is relative to the amount of capital employed.

### **Theoretical Review of Literature**

Below theories provides theoretical underpinning to the current study.

#### **The principal-Agent Theory Perspective of ESG**

Principal-agent theory states that people make actions that enhance their own interests rather than the interests of others in a wide range of situations (Ross, 1973). Two major players, the principle and the agent, are singled out in principle-agent theory (ibid). The principal entrusts the agent with the duty of making choices that are in the principal's best interest (ibid). In a business setting, the management acts as the principal and the shareholder acts as the agent (Ferrell, Hao, & Renneboog, 2016). Thus, the management must always make decisions that benefit the shareholder. According to the principal-agent theory, ESG is counterproductive since it takes focus away from maximizing profits for shareholders (Ferrell, Hao, & Renneboog, 2016). One interpretation of a manager's choice to pursue ESG-enhancement efforts is that he or she is acting in a way that is counter to the job allocated to them by the principle (the shareholders) in order to increase his or her personal socioemotional wealth (Friedman, 1970; Ferrell, Hao, & Renneboog, 2016). Additionally, as Friedman (1970) establishes, managers may promote ESG-enhancing projects for their own agendas, such as for personal career growth (McWilliams & Siegel, 2001) or social and political status. As a result, the management is allocating resources inefficiently with the goal other than maximizing business performance (Friedman, 1970). Principal-agent theory takes a dim view of ESG in this context because of this. The principal-agent theory of ESG is similar to the

moral legitimacy branch of legitimacy theory in that it shifts the emphasis away from shareholder profit and performance maximization (Suchman, 1995). While the principal-agent theory viewpoint considers the effects of ESG activities on the organisation as a whole, it zeroes in on the managerial decision-making process with regards to moral legitimacy and the subjective rewards that managers experience from such activities (Ferrell, Hao, & Renneboog, 2016). One study's findings showed managers were more likely to participate in ESG-enhancing activities during periods when they had a larger need for legitimacy provide credence to the idea of legitimacy-seeking on the part of managers as an agency issue leading to ESG-enhancing actions (Li & Lu, 2020). The idea of information asymmetry, in which the agent has an informational advantage over the principal, is also fundamental to the principal-agent framework (Ross, 1973). As a result of this disparity in knowledge, the agent might pursue their own goals at the expense of the principal. When it comes to environmental, social, and governance (ESG), information asymmetry in the context of corporate governance may lead to managerial actions that are not always in the best interests of shareholders (Ferrell, Hao, & Renneboog, 2016).

#### **Shareholder & Stakeholder Theory**

Those who possess shares in a corporation are known as shareholders. One who invests in a firm but is not personally liable for its debts. Voting at the annual shareholder meeting gives shareholders a voice in who leads the company. If a company's stock price rises, the shareholders will be happy (Banton, 2020). There is no such thing as a stakeholder who is not also a shareholder, while the reverse is not true. Organizations, groups, individuals, bondholders, clients, vendors, and neighborhood inhabitants are all examples of stakeholders (Freeman, 2010). Shareholders, on the other hand, may not always have the best interests of the firm at heart. They may easily liquidate their holdings and reinvest the proceeds in more stock. When corporate social responsibility (CSR) was initially coined, it was meant to include a strategy through which businesses might look out for more than just their shareholders. The core beliefs of shareholder theory were being challenged by this. According to Friedman (2009,

p. 133), corporations' primary duty is to maximize profits for their shareholders, and social responsibility undermines that goal. To quote him: "There is just one social obligation of business, and that is to utilize its resources and participate in activities geared to raise its profits so long as it keeps within the rules of the game, which is to say, engages in open and free competition without deceit or fraud" (Friedman, 1970). As a result, there may be tension between shareholder and stakeholder interests. Maximizing profits is often the first priority for shareholders, although this might put other people's needs at risk. A rise in pollution, for instance, may benefit the bottom line and, by extension, the stockholders. However, the local community and other interested parties would suffer if pollution levels rise (Banton, 2020). According to shareholder theory, a corporation and its management should only spend money in ways that have been approved by shareholders. According to stakeholder theory, however, a corporation's duty of care extends beyond its shareholders to include all impacted employees and other stakeholders. According to the notion, there are two primary duties. First, a company must guarantee that its stakeholders' ethical rights are never infringed upon. Second, to ensure that all relevant parties' concerns are taken into account when determining decisions (H. J. Smith, 2003). H. Jeff Smith (2003) writes that the stakeholder idea is often misinterpreted. Some people think that firms are swayed into making unprofitable choices by the demands of their shareholders. This, however, is illogical since the company's stakeholders need the business to remain in existence. Managers have an incentive in maintaining a positive relationship with all stakeholders, including shareholders. Stakeholder theory and the scale of a corporation have also been linked to CSR reporting. This is because bigger enterprises have a broader consumer base and a higher proportion of socially conscious owners. In addition, larger businesses are better at reporting their ESG activities than smaller ones since the former have personnel whose only responsibility it is to do so. One way to determine whether a business cares about its environmental, social, and governance (ESG) performance is to use stakeholder theory. Management and board make-

up, as well as whether or not they side with shareholders or stakeholders in controversial matters, are two such examples (Tamimi & Sebastianelli, 2017).

### **Impact of ESG Factors on firms Financial Performance: An Empirical Review**

#### **Impact of environmental factor on firm financial performance**

Reducing the firm's externalities (pollution) and allowing the corporation to gain cost savings via innovation are two benefits that result from well-designed environmental rules, as stated by Porter and Van der Linde (1995). Therefore, there is a link between a company's success and its approach to social responsibility. However, the corporation incurs extra non-recoverable expenditures as a result of environmental legislation, cutting into its profitability (Walley & Whitehead, 1994). It's worth noting that there's a common body of (theoretical) writing on how environmental initiatives affect a company's bottom line. There has been a lot of research on the correlation between green practices and increased profits. With regards to a cross-section of Japanese corporations, Nakao et al. (2007) discovered a very substantial reciprocal link. Similar findings for American businesses are found by Russo & Fouts (1997). Growing industrialization is associated with a strengthening of the bond, as shown in their research. Particularly important in the manufacturing sector of any economy is the cultivation of an immersive setting, which is best achieved by taking the marketing view of experience (Ahmed et al., 2022). Konar and Cohen (2001) wanted to quantify how environmentally responsible S&P 500 businesses' stock prices were. The relationship identified is positive. The good correlation is also found by King & Lenox (2001). Filbeck and Gorman (2004) draw the opposite conclusion, finding a negative correlation for public utilities in the United States. Horváthová (2012) showed that the influence of environmental performance on financial performance becomes positive after two years, the effect after one year being negative. Keep in mind that Trumpp and Guenther (2015) also discover a non-linear link on

a panel of multinational corporations. Based on the above discussion, below is the study hypotheses.

H1: Environmental factor has significant impact on firm financial performance

H1a: Environmental factor has significant impact on return on assets.

H1b: Environmental factor has significant impact on return on equity.

### **Impact of social factor on firm financial performance**

Specifically, the company's social activities include its communications with all of its constituents (employees, customers, suppliers, government, local community, etc.). Let's take a look at the notion of the Balanced Scorecard as a theoretical foundation for the relationship between social activities and financial success (BSC). Kaplan and Norton (1992) proposed the use of a Balanced Scorecard to assess (using financial and non-financial indicators) many aspects of a company's performance from a variety of angles in order to encourage a long-term perspective on the business. The goal is to increase the long-term profitability of the business by creating non-financial measurements that promote the interests of all stakeholders. The concept of BSC as a management tool has gained widespread acceptance in recent years. According to the BSC theory, a company's social actions have a positive effect on its bottom line, particularly in the long run. Chi & Gursoy (2009) discovered that in the hospitality business, client happiness had a positive effect on the bottom lines of both 3- and 4-star hotels. The authors claim that there is a correlation between high levels of employee happiness and improved business results. Atkins et al. (1996) discovered a robust correlation between staff happiness and patients' assessments of treatment quality in the healthcare sector. When staff members are unhappy, it shows in patient satisfaction, which in turn impacts the hospital's bottom line. Hatane (2015) researched the effects of employee happiness and performance on a company's bottom line in Indonesia and discovered a positive correlation between the two. Eklof et al. (2018) conducted a study between 2004 and 2014 on nine banks in Scandinavia to determine if there

was a correlation between customer satisfaction and loyalty and various accounting and stock market indicators (return on assets, return on equity, profit margin, market capitalization, and Tobin's Q). They did discover a quite positive correlation. Other research, however, have reached different findings. For a panel of 289 American corporations over 14 years, Scholtens & Zhou (2008) discovered a negative but insignificant association between certain social activities (charity program, assistance for education, housing programs, etc.) and market financial success. Based on the above discussion, below are the study hypotheses.

H2: Social factor has significant impact on firm financial performance

H2a: Social factor has significant impact on return on assets.

H2b: Social factor has significant impact on return on equity.

### **Impact of governance factor on firm financial performance**

The "governance" element of the ESG score is heavily reliant on the make-up of the board of directors, as well as the actions and effectiveness of the board. Equal treatment of shareholders is an additional key element of ESG practices that must be met (Refinitiv, 2019, p. 16). The agency theory provides the theoretical underpinning for understanding the connection between governance and financial success. The agency issue arises when there is a disconnect between shareholders and corporate management. Reasons for this include unequal access to information, management bias, and competing priorities between shareholders and the company's top brass (Jensen & Meckling, 1976). Poor oversight of executives by shareholders may have an effect on financial performance of organizations since executives and shareholders sometimes have conflicting (financial) interests. In terms of governance instruments, the board of directors is among the most crucial control mechanisms. He runs the corporation after being chosen by the shareholders. Therefore, it regulates the conduct of supervisors and upper-level executives. In order to lessen the impact of the agency issue, nations have

enacted corporate governance laws that outline a set of procedures and activities that businesses must or may do to enhance their corporate governance. Depending on the jurisdiction and the number of employees, national governance regulations may be required or optional. Additional rules, such as the Ordinance against Excessive Compensation in Listed (Swiss) Companies (OaEC) (Conseil fédéral, 2014), might augment these regulations. A growing concern for businesses in recent years is increasing diversity on their boards of directors. Gender, age, ethnicity, professional background, and other factors are all examples of diversity. According to research conducted by Harjoto et al. (2015) on American corporations, a diverse board of directors helps businesses cater to the interests of their many constituencies. The efficiency of ESG indicators is also improved. Similarly, Erhardt et al. (2003) in the United States discovered a favorable correlation between gender and racial diversity and the return on investment and return on asset performance of around a hundred significant corporations. Unlike the majority of academic studies, Hermalin & Weisbach (1991) found that

the number of non-executive board members had no impact on financial results. Goel (2018) examined the connection between corporate financial success and governance performance in India. To further safeguard minority shareholders in particular, the Indian government amended its corporate governance rules in two stages (2012–2013 and 2015–2016). The roles and obligations of directors are expanded under the new law. The author of the research concludes that the first phase of legislative strengthening is the only period in which a positive association exists between governance performance and financial performance. In the subsequent period, no correlation was seen. Based on the above discussion, below are the study hypotheses.

H3: Governance factor has significant impact on firm financial performance

H3a: Governance factor has significant impact on return on assets.

H3b: Governance factor has significant impact on return on equity.

### Conceptual Framework

Below is the conceptual framework of the study.

#### Independent Variables

ESG Factors

#### Dependent Variable

Firm Financial Performance

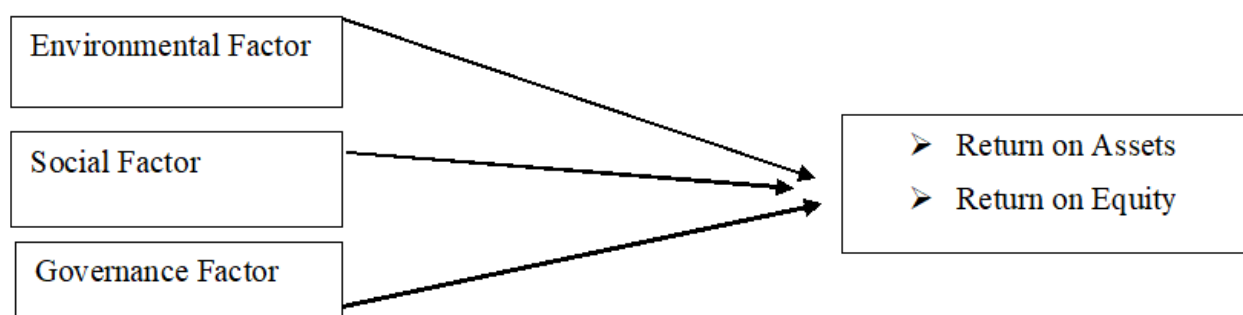


Figure 1. Conceptual Framework

### Research Design

As the aim of the study was to analyze the impact of independent variable i.e., environmental, social and governance factors on dependent variable i.e., firm financial performance, therefore quantitative research type and descriptive design was chosen in

the current study. Conclusions were drawn from a statistically significant sample size using a quantitative and descriptive method. Furthermore, the research problem was well-suited to a quantitative analysis of the variables evaluated. Additionally, Return on Assets (ROA) and Return



on Equity (ROE) are employed as dependent variables to evaluate financial performance.

**Population, Sample, and Sampling Technique**

The population refers to the whole individuals or lot that is used in the investigation of the data collection. The population that was chosen for the current study was the non-financial firms that are listed on the PSX. Non-financial firms were chosen as the study population. The non-financial firms which are listed on the PSX are taken as the population. This analysis took into account the PSX 100 Index, which tracks the 100 most liquid stocks on the PSX as determined by the Free Float technique. The companies that make up the PSX 100 Index are broadly representative of the PSX market. As in this case, selected non-financial

firms were belonging to the population, there through convenient sampling technique a sample of 54 non-financial firms was chosen in the current study

**Data Collection**

Secondary data was used in this study. In this study, data was collected from a sample of 54 non-financial firms. The data was collected from year 2010-2020. The data was collected from different sources including financial reports of the firms, annual reports, websites, world bank and other sources.

**Variables measurement**

Below sections presents the measurement techniques of dependent and independent variables of the current study.

**Table 1.** Dependent and Independent variables

Dependent and Independent Variables	Definitions	Source
ROA (Return on Assets)	Net income divided by total assets	Yu et al. (2018)
ROE (Return on Equity)	Net income divided by total equity.	Yu et al. (2018)
Environmental factor (34%)	resource use (11%), emissions (12%) and innovation (11%)	Xie et al. (2018),
Social factor (35.5%)	workforce (16%), human rights (4.5%), community (8%) and product responsibility (7%)	Xie et al. (2018),
Governance factor (30.5%)	management (19%), shareholders (7%) and CSR strategy (8%)	Xie et al. (2018),
Control Variables		
Firms Size	By taking the logarithm of the total assets.	Galbreath (2012), Xie et al. (2018)
Firms Age	Based on the number of years the company has been listed on the stock market.	Gandía (2008);
Firms Leverage	Entire liabilities minus total assets yield this value.	Xie et al. (2018),

**Regression models**

Below are the regression models of the current study

$$ROA = \alpha + \beta_1 EF + \beta_2 SF + \beta_3 GF + \beta_4 FS + \beta_5 FA + \beta_6 FL + e \dots \dots \dots i$$

$$ROE = \alpha + \beta_1 EF + \beta_2 SF + \beta_3 GF + \beta_4 FS + \beta_5 FA + \beta_6 FL + e \dots \dots \dots ii$$

Where as

ROA is return on assets

ROE return on equity

EF is Environmental factor

SF is Social factor

GF is Governance factor

FS is Firms Size

FA is Firms Age

FL is Firms Leverage

### Data Analysis

Different inferential statistical analysis techniques including descriptive analysis, correlation analysis and regression analysis were used in the current

study. All the analysis were conducted through Eviews.

### Analysis and Results

#### Descriptive analysis

Descriptive analysis aims to depict the characteristics of the data that is collected for the variables. The purpose of descriptive analytics is to discover patterns and connections in data.

The sections that follow provide the study's mean, standard deviation, minimum value, and maximum value for the dependent and independent variables, respectively.

Table 2. Descriptive analysis

S.no	Variable	Variable Type	Minimum	Maximum	Mean	Standard Deviation
1	Return on Assets	Dependent	10.05630	19.67610	15.57482	3.872767
2	Return on Equity	Dependent	02.4523	54.546	22.41805	23.41832
3	Environmental Factor	Independent	12.1424	221.2121	1.22411	716.5265
4	Social Factor	Independent	0.533400	0.133000	0.342436	0.096134
5	Governance Factor	Independent	12.14240	221.2121	64.87468	716.5265
6	Firms Size	Control	14.42420	24421.22	4809.369	8267.925
7	Firms Age	Control	16.16050	30.4088	18.93844	1.431175
8	Firms Leverage	Control	13.24390	87.2972	18.52352	2.854199

The above table is showing mean, standard deviation value, minimum value and maximum values of control variable, dependent variable, and independent variables.

Table 2 shows that dependent variable ROA is having minimum value 10.05630 and a maximum value 19.67610, mean value of 15.57482 and 3.872767 value of standard deviation, dependent variable ROE is having minimum value 02.4523 and a maximum value 54.546, mean value of 22.41805 and 23.41832 value of standard deviation. While independent variable environmental Factor is having minimum value 12.1424 and a maximum value 221.2121, mean value of 1.22411 and 716.5265 value of standard deviation, independent variable social Factor is having minimum value 0.533400 and a maximum value 0.133000, mean value of 0.342436 and 0.096134 value of standard deviation,

independent variable governance Factor is having minimum value 12.14240 and a maximum value 221.2121, mean value of 64.87468 and 716.5265 value of standard deviation.

Likewise, control variable firm size is having minimum value 14.42420 and a maximum value 24421.22, mean value of 4809.369 and 8267.925 value of standard deviation, control variable firm age is having minimum value 16.16050 and a maximum value 30.4088, mean value of 18.93844 and 1.431175 value of standard deviation, lastly, control variable firm leverage is having minimum value 13.24390 and a maximum value 87.2972, mean value of 18.52352 and 2.854199 value of standard deviation.

While some research in underdeveloped nations has shown lower values for environmental factors, such as that studied by Ehkiyoa (2018), the results for environmental factors in Pakistan are reported

as greater than the values measured by the studies of Cucari et al. (2018). When compared to the results of other studies conducted in developing nations, such as Bravo's (2018), which found a mean social factor of 0.213, and Ibrahim and Hanefah's (2016), which found a mean social factor of 0.217, the average value of social factor was greater in the former. Majeed et al. (2015) and Javaid et al. (2015) report that Pakistani students have a greater mean value on the environmental factor than their predecessors (2016). When compared to industrialized nations, this growth is, nevertheless, slower. However, katmon (2017) and Muttakin et al. (2015) found that environmental

Table 3. Correlation 1

Variables	ROA	EF	GF	SF	FA	FL	FS
ROA	1						
Environmental factor	0.145	1					
Governance factor	-0.09	0.273	1				
Social factor	0.265	0.096	0.185	1			
Firm age	0.23	-0.563	-0.089	-0.234	1		
Firm Leverage	-0.136	-0.224	0.008	0.214	0.383	1	
Firm Size	0.270	-0.319	0.233	-0.269	0.167	0.254	1

Table 3 is showing relationship of environmental, governance and social factors with return on assets of the firm. The table is showing that value of correlation coefficient between environmental factor and ROA is 0.145, which shows a positive weak relationship between environmental factor and ROA, similarly value of correlation coefficient between Governance factor and ROA is -0.09, which shows a negative weak relationship between

factors were lower in developed than in developing counties. Similar to other developing nations, the ROA and ROE reported by Katmon et al. (2021) and Hafsi and Turgut (2005) is constant.

### Correlation analysis

Correlation analysis shows that relationship between independent variable and dependent variable. Below sections shows the relationship between ESG and ROA and ROE.

### Relationship between ESG and ROA

Below table presents the results of the correlation analysis between ESG and ROA.

Governance factor and ROA value of correlation while the coefficient between Social factor and ROA is 0.265, which also shows a positive weak relationship between Social factor and ROA.

### Relationship between ESG and ROE

Below table presents the results of the correlation analysis between ESG and ROE.

Table 4. Correlation 2

Variables	ROE	EF	GF	SF	FA	FL	FS
ROE	1						
Environmental factor	0.138	1					
Governance factor	-0.245	-0.451	1				
Social factor	0.412	-0.099	0.273	1			

Firm age	0.047	-0.465	0.096	0.185	1		
Firm Leverage	0.257	0.538	-0.563	-0.089	-0.234	1	
Firm Size	-0.088	-0.136	-0.224	0.008	0.214	0.383	1

Table 4 is showing relationship of environmental, governance and social factors with return on equity of the firm. The table is showing that value of correlation coefficient between environmental factor and ROE is 0.138, which shows a positive weak relationship between environmental factor and ROE, similarly value of correlation coefficient between Governance factor and ROE is -0.245, which shows a negative weak relationship between Governance factor and ROE value of correlation while the coefficient between Social factor and ROE is 0.412, which also shows a positive strong relationship between Social factor and ROE.

Finally, the results of correlation analysis shows that environmental factor has weak positive relationship with both ROE (0.138) and ROA (0.145), similarly, governance factor has weak

negative relationship with both ROE (-0.245) and ROA (-0.09), however, social factor has weak positive relationship with ROA (0.265) and strong positive relationship with ROE (0.412).

### Multicollinearity

In statistics, multicollinearity refers to the correlation of several model variables. In this study, Multicollinearity was examined through Variance inflation factor (VIF) computed as;

$$\text{VIF } q = 1 / (1 - q),$$

A correlation coefficient,  $q$ , is calculated by regressing  $q$  on the other explanatory variables in the model.

Below table presents the results of the VIF

Table 5. Multicollinearity

Variable	Coefficient Variance	Centered VIF
C	0.341143	NA
Social factor	0.114223	1.138181
Governance factor	0.259072	1.736270
Environmental factor	23.1311	2.105698
Firm age	6097522.	1.405696
Firm Leverage	2482159.	2.275887
Firm Size	0.198120	1.524315

The above table shows that as the values variance inflation factor for all the variables is less than 5, which is the evidence that there is no significant multicollinearity in these explanatory variables of the study.

### Regression analysis

Below sections presents the results of the regression analysis.

Below are the results of Hausman test1

Table 6. Hausman Test1

Model Specification for the impact of ESG on ROA

Hausman test was conducted to choose whether random effect model will be chosen or fixed effect model will be chosen. The condition is that if the value of  $p$  is significant i.e., less than 5% then fixed effect model is chosen while if the  $p$  value is insignificant i.e., higher than 5% than random effect model is chosen.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	19.654	7.000	0.0914

As above table 6 shows that p value is higher than 0.05 (5%) i.e., insignificant, thus random effect model is chosen for the impact of ESG on ROA.

Below are the results of the regression analysis following random effect model to investigate the impact of social, governance and environmental factors on return on assets.

Table 7. Regression1 for ESG and ROA (Random Effect Model)

Dependent Variable: ROA				
Method: Least Squares				
Sample: 2010 2020				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.402	30.217	0.642	0.555
Environmental factor	10.164	16.761	2.65	0.002
Social factor	10.249	17.214	2.59	0.002
Governance factor	-8.441	0.0002	-2.31	0.021
Firm age	0.00394	1.2850	-0.00	0.997
Firm leverage	-0.10024	0.8199	-2.12	0.009
Firm size	-9.815	0.0002	-0.42	0.693
R-squared	0.358248	Mean dependent var		15.5748
Adjusted R-squared	0.304381	S.D. dependent var		3.872767
S.E. of regression	4.905408	Akaike info criterion		6.279680
Sum squared resid	96.25211	Schwarz criterion		6.532886
Log likelihood	-27.53824	Hannan-Quinn criter.		6.120069
F-statistic	0.372156	Durbin-Watson stat		2.131808
Prob(F-statistic)	0.01652			

Above table 7 is showing results of the regression analysis for the impact of ESG on ROA. The table shows that Adj R Square value for the impact of ESG on ROA is 0.304381, meaning that unit change in environmental, social and governance factors predict 30 percent change in return on assets.

Similarly, the value of the regression coefficient is higher and significant for social factor i.e., 10.249 (t=2.59, p=0.002) meaning that social factor has higher significant impact on return on assets. Similarly, regression coefficient values for environmental factor and governance factor are

10.164(t=2.65, p=0.002) and -8.441 (t=-2.31, p=0.021) respectively, meaning that environmental factor and governance factor are also having significant impact on ROA. Thus H1a, H2a and H3a of the study are accepted.

Model Specification for the impact of ESG on ROE Hausman's test was conducted to choose whether random effect model will be chosen or fixed effect model will be chosen. The condition is that if the value of p is significant i.e., less than 5% then fixed effect model is chosen while if the p value is insignificant i.e., higher than 5% than random effect model is chosen.

Below are the results of Hausman test1

Table 8. Hausman Test2

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.34	7.110	0.0683

As above table 8 shows that p value is higher than 0.05 (5%) i.e., insignificant, thus random effect model is chosen for the impact of ESG on ROE.

Below are the results of the regression analysis following random effect model to investigate the impact of social, governance and environmental factors on return on assets.

Table 9. Regression1 for ESG and ROE (Random Effect Model)

Dependent Variable: ROE				
Method: Least Squares				
Sample: 2010 2020				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	44.53	53.93	0.276	0.0248
Environmental factor	12.47	32.25	3.872217	0.018
Social factor	172.34	33.92	5.242504	0.0063
Governance factor	-16.23	50.89	-3.190488	0.0332
Firm age	23.39	69.36	0.947418	0.3971
Firm leverage	4360.734	15.487	2.767864	0.0504
Firm size	1.35319	0.441	-3.04014	0.0384
R-squared	0.358248	Mean dependent var		15.5748
Adjusted R-squared	0.304381	S.D. dependent var		3.872767
S.E. of regression	4.905408	Akaike info criterion		6.279680
Sum squared resid	96.25211	Schwarz criterion		6.532886
Log likelihood	-27.53824	Hannan-Quinn criter.		6.120069
F-statistic	0.372156	Durbin-Watson stat		2.131808
Prob(F-statistic)	0.01652			

Above table 9 is showing results of the regression analysis for the impact of ESG on ROE. The table shows that Adj R Square value for the impact of ESG on ROE is 0.304381, meaning that unit change in environmental, social and governance factors predict 30 percent change in return on equity.

Similarly, the value of the regression coefficient is higher and significant for social factor i.e., 172.34 ( $t=5.24$ ,  $p=0.0063$ ) meaning that social factor has higher significant impact on return on assets. Similarly, regression coefficient values for environmental factor and governance factor are 12.47 ( $t=3.87$ ,  $p=0.018$ ) and -16.23 ( $t=-3.19$ ,  $p=0.0332$ ) respectively, meaning that environmental factor and governance factor are also having significant impact on ROE. Thus H1b, H2b and H3b of the study are accepted.

### Discussion

The aim of the study was to investigate the impact of ESG (environmental, social and governance factors) on the financial performance. The results

indicated that environmental and social factors were having a significant positive impact on ROA and ROE of the firms while governance factor was having significant negative impact on ROA and ROE. The results were consistent with the previous studies. It is evident that when stakeholders like workers, consumers, society, and investors respond positively to a company's efforts to improve the environment around them, it boosts the company's bottom line. The results of our statistical research seem to confirm this hypothesis. Findings are in line with those of Friede et al. (2015), who also found a positive ESG influence on CFP across time and across geographies. Given the positive correlation, it stands to reason that an increase in sustainable practices inside businesses should lead to an increase in financial gain (Ofori et al., 2014). This finding is in line with previous research that examined the correlation between ESG and financial success in developed nation situations (Friede et al., 2015; Fatemi et al., 2018; Dorfleitner et al., 2018). However, Maqbool & Bakr (2018) discover a non-linear connection between

sustainability performance and financial performance in the Indian context. This suggests that initiatives related to sustainability do not immediately lead to increased financial performance, but rather do so only after a certain threshold is reached. Waddock and Graves (1997) advocate a "do well by doing well" philosophy in which firms that take action to improve water quality often have a beneficial impact on their bottom line. In addition, the findings are in line with research that advise businesses to create CSR policies based on material challenges in order to provide long-term benefits (Dorfleitner et al., 2018). Firms operating in industrialized nations show a positive correlation between Social score and financial success, but those in developing markets show no such correlation. According to Zhou, Zhang, Chen, Zeng, and Chen (2020), Chinese companies lag behind their Western counterparts in their awareness of water-related concerns and their willingness to provide information beyond what is required by law. There is also a paucity of infrastructure in the African mining industry regarding water logistics (Askham & Van der Poll, 2017).

In the same vein, the results for environmental considerations are in line with those of So's (2021) article, which found that going above and above what is required by policy or standard in terms of environmental contribution improved a company's financial success. Environmental measures are seen by investors as a prospective cost or penalty, and as a result, they have a negative impact on a company's performance (Simionescu et al., 2020). However, CSR initiatives that focus on the environment have a beneficial influence on the innovation of the company, which in turn improves the company's financial success (Lioui & Sharma, 2012). In developing nations, environmentally responsible methods seem to consist mostly on conforming to current rules and of obtaining international certifications (Amoah & Eweje, 2020). However, extractive corporations operating in developing nations risk missing out on a future potential to be sustainable and enhance their profit line if they do not engage in environmentally friendly operations beyond their regulatory compliance.

### Contribution of the Study

The research work contributes to the literature of the impact of environmental, social, and governance (ESG) factors on corporate sectors in emerging economies such as Pakistan. The researchers have the opportunity to utilize the findings of the current study in exploring avenues related to ESG in various other countries which are not fully developed yet. The empirical work research adds to our understanding of whether or not ESG aspects contribute to the enhanced operational financial performance of enterprises in developed country like Pakistan. Moreover the study explores the most important ESG factors that affect financial success. The findings show that environmental factors have a significant impact on financial success.

### Conclusion

The goal of this research was to examine the impact of ESG (environmental, social and governance factors) on the financial performance. In this study, the financial performance was assessed using accounting-based analysis (such as ROA and ROE). Return on assets (ROA) and return on equity (ROE) are often used to assess financial performance. A quantitative research type and descriptive design was chosen in the current study. The population that was chosen for the current study was the non-financial firms that are listed on the PSX. The results indicated that environmental and social factors were having a significant positive impact on ROA and ROE of the firms while governance factor was having significant negative impact on ROA and ROE. The results were consistent with the previous studies. The findings of this research will also be useful to business leaders and policy makers. They are responsible with their money and make investments in environmental, social, and governance projects. They will see improved financial results in the long term.

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## Appendix

### List of Companies

S. No	Company Name
1	Abbot Laboratories (Pakistan) Limited
2	Agritech Limited missing
3	Archroma Pakistan Limited
4	Atlas Honda Limited
5	Attock Petroleum Limited
6	Azgard Nine Limited
7	Bannu Woollen Mills Limited
8	Bestway Cement Limited
9	Byco Petroleum Pakistan Limited
10	Cherat Cement Company Limited
11	Colgate Palmolive (Pakistan) Limited
12	D.G. Khan Cement Company Limited
13	Dawood Hercules Corporation Limited
14	Engro Corporation Limited
15	Engro Fertilizers Limited
16	Engro Foods Limited
17	Engro Polymer and Chemicals Limited
18	Fatima Fertilizer Company Limited
19	Fauji Cement Company Limited
20	Fauji Fertilizer Bin Qasim Limited
21	Fauji Fertilizer Company Limited
22	Feroze 1888 Mills Limited
23	GlaxoSmithKline (Pakistan) Limited
24	GlaxoSmithKline Consumer Healthcare Pakistan Limited
25	Gul Ahmed Textile Mills Limited
26	Hascol Petroleum Limited
27	I.C.I. Pakistan Limited
28	Ibrahim Fibre Limited
29	Indus Motor Company Limited
30	International Industries Limited
31	International Steels Limited
32	J.D.W. Sugar Mills Limited
33	K-Electric Limited
34	Kohat Cement Limited
35	Kohat Textile Mills Limited
36	Kot Addu Power Company Limited
37	Lotte Chemical Pakistan Limited
38	Lucky Cement Limited

39	Maple Leaf Cement Factory Limited
40	Mari Petroleum Company Limited
41	Millat Tractors Limited
42	Murree Brewery Company Limited
43	National Foods Limited
44	Nestle Pakistan Limited
45	Nishat Chunian Limited NCL
46	Nishat Mills Limited
47	Oil and Gas Development Company Limited
48	Pak Elektron Limited (PEL)
49	Pak Suzuki Motor Company Limited
50	Pakistan Oilfields Limited
51	Pakistan Petroleum Limited
52	Pakistan Services Limited
53	Shahtaj Textile Mills Limited
54	Sui Northern Gas Pipelines Limited