

Evaluating the Impact of Sustainable Finance on Financial Stability: The Mediating Role of ESG in Pakistan's Oil and Gas Sector

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Abstract

This study aims to evaluate the impact of sustainable finance on the financial stability of firms in Pakistan's oil and gas sector, with a particular focus on the mediating role of Environmental, Social, and Governance (ESG) factors. Sustainable finance, which integrates environmental and social considerations into financial decision-making, has emerged as a critical tool for fostering long-term corporate stability. In the context of the oil and gas sector, which is traditionally viewed as environmentally intensive, the adoption of sustainable finance practices is increasingly relevant. This research employs a quantitative approach, utilizing firm-level data from companies listed on the Pakistan Stock Exchange. The study examines the relationship between sustainable finance practices, as measured by the allocation of capital to environmentally and socially responsible projects, and financial stability indicators such as Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS). The mediating effect of ESG performance is analyzed to understand how these factors influence the relationship between sustainable finance and financial stability. Preliminary findings suggest that firms with higher ESG scores exhibit better financial stability, indicating that ESG factors play a crucial role in enhancing the positive impact of sustainable finance on firm performance. This research contributes to the growing body of literature on sustainable finance and offers practical insights for policymakers and corporate managers in the oil and gas sector in Pakistan. By demonstrating the importance of ESG integration in financial strategies, the study underscores the potential of sustainable finance to drive not only environmental and social outcomes but also long-term financial stability.

Keywords: Sustainable Finance, Financial Stability, ESG, Oil and Gas Sector, PSX

Introduction

Over the last few years, the international monetary and banking sectors have started utilizing sustainable finance as a way of ensuring that the decisions of investment and corporations are

informed by ESG factors. Such change is a sign of awakening that extends beyond moral appropriateness; sustainable business models are financially profitable in the long run as well. It has shifted to concern the aspect of risk and opportunity that is essential in the modern business environment, especially for industries with influential environmental influence such as oil and gas firms (Friede, Busch, & Bassen, 2015). In this vein, the sustainability of organizations is correlated with their capability to implement sustainable ESG factors in their businesses. To address these research questions, this study tests the relationship between sustainable finance and firms' financial stability of firms within the oil and gas sector listed on the PSX, with ESG factors.

Therefore, the major research question of this study focuses on the role of sustainable finance in the firms in the oil and gas sector of the Pakistan Stock Exchange with the moderation of ESG factors. Particularly, there is an intention to estimate concern financial stability by quantitative criteria like Profitability that include coverage of such figures as Return on Assets (ROA), Return on Equity (ROE), Earning Per Share (EPS). This paper aims to determine whether ESG factors act as the moderator in the relationship between sustainable finance and the performance of these firms.

This study is guided by the following research question:

To what extent does the mediation of ESG factors influence the relationship between sustainable finance practices and the financial stability of firms, as measured by ROA, ROE, and EPS, in the oil and gas sector of the Pakistan Stock Exchange?

The oil and gas industry is one of the most vibrant industries in Pakistan that play unusually large roles in the country's GDP, employment and energy. Nevertheless, this sector is one of the most influential in terms of environmental and social performance and it has burning issues concerning sustainability, regulation, and fluctuating demand. More and more today the world is shifting towards going green and as such firms in this sector are under pressure to embrace sustainable finance whereby ESG factors are integrated. That said, there is a gap in the existing literature regarding how the connection between sustainable finance and financial stability is moderated by ESG factors; more so in emerging countries such as Pakistan. There is a lack of research in this area prompting a need to conduct extensive research in order to establish the relationship between ESG and improving financial performance and stability of oil and gas companies.

These are the reasons why this study is important in its execution. , it adds to a paucity of research regarding the sustainable finance and ESG in emerging economies, and in relation to the oil and gas industry in Pakistan in particular thereby enhancing the knowledge of the community. Compared with most studies that have centered on the developed economy, this study offers an understanding of the ESG integration of financial stability in a developing country (Mirza, Javed, & Hameed, 2021). Second, with regard to the role of ESG factors as the intermediate variable, this research provides additional insights into the practical aspect of how the sustainable finance is useful for achieving the financial stability thus can give some recommendations to the investors, policymakers, and corporate managers.

Understanding this can also assist firms to align their ESG to improve their profitability in terms of ROA, ROE and EPS (Eccles et al., 2014). Moreover, the findings of this study have practical implications for the oil and gas sector, which is under increasing pressure to mitigate its environmental impact while maintaining financial viability. By demonstrating the financial benefits of ESG integration, this study can encourage more firms within the sector to adopt sustainable practices, thereby contributing to the overall sustainability of industry and the broader economy. Furthermore, the study's focus on financial stability indicators such as ROA, ROE, and EPS provide a clear and quantifiable measure of the impact of ESG on firm performance, making the results particularly relevant for stakeholders focused on financial returns. In summary, as the global financial landscape continues to evolve towards sustainability, the integration of ESG factors into corporate strategy is not merely a trend but a critical component of financial stability. This study seeks to provide empirical evidence on how sustainable finance, mediated by ESG factors, can enhance the financial performance of firms in the oil and gas sector of the Pakistan Stock Exchange, contributing to both academic literature and practical applications in corporate finance and governance.

Literature Review

Sustainable finance has emerged as a critical area of focus in contemporary financial research, particularly due to the increasing recognition of environmental, social, and governance (ESG) factors in investment decision-making. This shift reflects a broader understanding that traditional financial metrics alone may not fully capture the risks and opportunities that firms face, particularly in sectors with significant environmental and social impacts, such as the oil and gas industry. This literature review provides a comprehensive examination of the role of sustainable finance, with a focus on how ESG factors mediate its impact on the financial stability of firms. The financial stability of firms in this study is measured through key performance indicators: Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS).

Sustainable Finance and Financial Stability

Sustainable finance refers to the incorporation of ESG considerations into financial practices and investment decisions, aiming to promote long-term economic stability and ethical business practices (Friede, Busch, & Bassen, 2015). The integration of ESG factors into financial decision-making is increasingly viewed as a strategy to mitigate risks and enhance financial performance. Studies have shown that firms adopting sustainable finance practices tend to exhibit greater financial stability, as they are better equipped to manage environmental and social risks that could potentially disrupt their operations (Eccles, Ioannou, & Serafeim, 2014). In the context of financial stability, several studies have demonstrated that firms with strong ESG practices often achieve better financial performance. For instance, higher ESG scores have been associated with improved ROA, ROE, and EPS, as these firms are perceived to be more resilient to market shocks and better positioned to capitalize on emerging opportunities (Clark, Feiner, & Viehs, 2015). The oil and gas sector, given its environmental footprint and regulatory scrutiny, presents

a unique case for examining the role of sustainable finance in ensuring long-term financial stability.

ESG as a Mediating Factor

ESG factors serve as a critical mediating variable in the relationship between sustainable finance practices and financial stability. ESG integration not only reflects a firm's commitment to sustainability but also influences its financial performance by enhancing its reputation, reducing costs, and improving risk management (Khan, Serafeim, & Yoon, 2016). The mediation role of ESG can be understood in several ways: In Environmental Factors effective management of environmental risks, such as carbon emissions and resource use, can reduce operational costs and prevent regulatory penalties, thereby improving ROA and ROE (El Ghouli et al., 2011). In social factors strong social governance, including employee welfare, community engagement, and ethical labor practices, can lead to higher productivity, better stakeholder relationships, and increased customer loyalty, which can enhance EPS and overall financial stability (Dhaliwal et al., 2011). Governance Factors covers good corporate governance practices, such as transparent reporting, ethical leadership, and robust internal controls, which are associated with lower financial risk and more stable returns, contributing positively to ROA, ROE, and EPS (Kim, Park, & Wier, 2012).

Financial Performance Indicators: ROA, ROE, and EPS

Financial stability in this study is assessed through three key indicators: ROA, ROE, and EPS. Return on Assets (ROA) measures a company's profitability relative to its total assets, indicating how efficiently management is using its assets to generate earnings (Penman, 2012). Firms with high ESG scores often demonstrate better asset utilization, as sustainable practices can lead to cost savings and operational efficiencies. Return on Equity (ROE) reflects a firm's ability to generate profits from shareholders' equity. It is a key measure of financial performance and investor appeal. Companies with robust ESG practices are often more attractive to investors, leading to higher ROE due to improved investor confidence and lower capital costs (Goss & Roberts, 2011). Earnings Per Share (EPS) is a critical measure of a company's profitability on a per-share basis, directly impacting shareholder value. Firms that integrate ESG factors into their business strategies tend to exhibit more stable and growing EPS, as sustainable practices can lead to enhanced brand value, customer loyalty, and competitive advantage (Orlitzky, Schmidt, & Rynes, 2003).

The Oil and Gas Sector in Pakistan

The oil and gas sector is a significant contributor to Pakistan's economy, providing energy, employment, and revenue. However, it is also one of the most environmentally challenging sectors, facing increasing pressure to adopt sustainable practices. The sector's financial stability is often influenced by external factors such as global oil prices, regulatory changes, and environmental risks (Mirza, Javed, & Hameed, 2021). As a result, integrating ESG factors into financial practices is not only essential for mitigating risks but also for ensuring long-term financial stability.

Hypotheses Development

Based on the literature review, the following hypotheses are proposed:

H1: Sustainable finance practices have a positive impact on the financial stability of firms in the oil and gas sector, as measured by ROA, ROE, and EPS.

This hypothesis is grounded in the understanding that firms adopting sustainable finance practices are better positioned to manage risks and seize opportunities, leading to improved financial performance indicators such as ROA, ROE, and EPS (Clark, Feiner, & Viehs, 2015).

H2: ESG factors mediate the relationship between sustainable finance practices and ROA in firms within the oil and gas sector.

This hypothesis posits that the integration of ESG factors enhances the effectiveness of sustainable finance practices, particularly in improving asset utilization and profitability, as reflected in ROA (El Ghoul et al., 2011).

H3: ESG factors mediate the relationship between sustainable finance practices and ROE and EPS in firms within the oil and gas sector.

This hypothesis suggests that ESG factors strengthen the positive impact of sustainable finance practices on ROE and EPS by enhancing investor confidence, improving governance, and fostering social responsibility (Khan, Serafeim, & Yoon, 2016).

Methodology

Research Design

This study adopts a quantitative research design to examine the relationship between sustainable finance, ESG factors, and financial stability in the oil and gas sector firms listed on the Pakistan Stock Exchange (PSX). The study utilizes secondary data collected from publicly available financial reports, ESG disclosures, and other relevant documents. The research focuses on five major oil and gas companies, selected based on their market capitalization and significance within the sector. The period of analysis spans from 2015 to 2023, allowing for a comprehensive examination of trends and relationships over time.

Sample Selection

The sample consists of five oil and gas sector firms listed on the Pakistan Stock Exchange. These firms were chosen based on their market capitalization, prominence in the industry, and availability of comprehensive ESG and financial data. The five selected firms are: Pakistan Petroleum Limited (PPL), Oil and Gas Development Company Limited (OGDCL), Attock Petroleum Limited (APL), Pakistan Oilfields Limited (POL), and Mari Petroleum Company Limited (MPCL). These companies are among the largest and most influential in Pakistan's oil and gas sector, making them suitable representatives for analyzing the impact of sustainable finance and ESG integration on financial stability.

Data Collection

The study uses secondary data obtained from the following sources: Financial Statements and Annual Reports: Data on ROA, ROE, and EPS were collected from the annual reports and financial statements of the selected firms. These documents provide detailed information on the firms' financial performance, asset utilization, and profitability. ESG Disclosures: ESG scores were derived from the firms' sustainability reports, corporate social responsibility (CSR) reports,

and other relevant disclosures. ESG performance was measured across three dimensions: environmental, social, and governance. Market Data: Additional financial and market data, such as stock prices and market capitalization, were collected from the PSX and Bloomberg databases. This data was used to calculate stock price volatility and other control variables. The period of analysis covers nine years, from 2015 to 2023, ensuring that the study captures both short-term and long-term trends in the relationship between sustainable finance, ESG factors, and financial stability.

Econometric Model

To analyze the impact of sustainable finance, with the mediation of ESG factors, on the financial stability of the selected firms, the study employs a panel data regression model. Panel data analysis allows for the examination of cross-sectional and time-series variations, providing more robust and reliable results compared to cross-sectional or time-series data alone (Baltagi, 2008).

The general form of the econometric model is specified as follows:

$$Y_{it} = \alpha + \beta_1 SF_{it} + \beta_2 ESG_{it} + \beta_3 SF_{it} \times ESG_{it} + \gamma X_{it} + \epsilon_{it}$$

Where:

Y_{it} represents the financial stability indicators for firm I at time t measured by Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS).

SF_{it} denotes sustainable finance practices for firm i at time t

ESG_{it} is the ESG score for firm I at time t , representing the level of ESG integration.

$SF_{it} \times ESG_{it}$ is the interaction term between sustainable finance and ESG, capturing the mediation effect.

X_{it} represents a vector of control variables, including firm size, leverage, market volatility, and other relevant factors that could influence financial stability.

ϵ_{it} is the error term.

Model Specification for Each Dependent Variable

Given that the study examines three distinct financial stability indicators (ROA, ROE, and EPS), the econometric model is specified separately for each dependent variable:

ROA Model:

$$ROA_{it} = \alpha + \beta_1 SF_{it} + \beta_2 ESG_{it} + \beta_3 SF_{it} \times ESG_{it} + \gamma X_{it} + \epsilon_{it}$$

ROE Model:

$$ROE_{it} = \alpha + \beta_1 SF_{it} + \beta_2 ESG_{it} + \beta_3 SF_{it} \times ESG_{it} + \gamma X_{it} + \epsilon_{it}$$

EPS Model:

$$EPS_{it} = \alpha + \beta_1 SF_{it} + \beta_2 ESG_{it} + \beta_3 SF_{it} \times ESG_{it} + \gamma X_{it} + \epsilon_{it}$$

Estimation Technique

The panel data regression models are estimated using the fixed effects or random effects approach, depending on the results of the Hausman test. The fixed effects model controls for time-invariant characteristics of the firms, such as management quality or corporate culture, which might influence the dependent variables (Wooldridge, 2010). The random effects model, on the other hand, assumes that individual firm effects are uncorrelated with the regressors. The

Hausman test is conducted to determine the appropriate model specification. If the test indicates that the fixed effects model is more appropriate, it will be used to control for unobserved heterogeneity. If the random effects model is deemed appropriate, it will be used to account for both within and between firm variations (Greene, 2012).

Control Variables

Several control variables are included in the model to account for other factors that may influence financial stability: Firm Size (Log of Total Assets): Larger firms might have more resources to invest in sustainable finance and ESG practices, which could affect their financial stability (Penman, 2012). Leverage (Debt-to-Equity Ratio): The level of leverage can impact a firm's financial risk and stability, with higher leverage potentially leading to higher financial instability (Ross, Westerfield, & Jaffe, 2013). Market Volatility: Fluctuations in the market can affect stock prices and, subsequently, financial performance indicators like EPS (Fama & French, 1993). Industry-Specific Factors: Variables specific to the oil and gas industry, such as oil price fluctuations, are also considered in the analysis.

Mediation Analysis

To test the mediation effect of ESG on the relationship between sustainable finance and financial stability, the study employs the Baron and Kenny (1986) approach, as well as the Sobel test. The mediation analysis involves. First, regressing the financial stability indicators (ROA, ROE, EPS) on sustainable finance to establish a direct relationship. Second, regressing the ESG score on sustainable finance to test if sustainable finance significantly predicts ESG. Third, regressing the financial stability indicators on both sustainable finance and ESG to examine the mediation effect. The Sobel test is used to assess the significance of the mediation effect. If ESG significantly mediates the relationship between sustainable finance and financial stability, it suggests that ESG integration is a crucial component of how sustainable finance practices impact firm performance.

This methodology outlines a robust framework for examining the role of sustainable finance in the financial stability of firms in the oil and gas sector, with a focus on the mediating effect of ESG factors. By utilizing a panel data regression model and conducting mediation analysis, the study seeks to provide empirical evidence on how ESG integration enhances financial performance, as measured by ROA, ROE, and EPS. The findings of this study are expected to contribute to the existing literature on sustainable finance and offer practical insights for policymakers and corporate managers in emerging markets.

Results

This section presents the findings from the statistical analyses conducted to investigate the role of sustainable finance, with the mediation of ESG factors, on the financial stability of firms in the oil and gas sector of the Pakistan Stock Exchange (PSX). The financial stability of these firms is measured through Return on Assets (ROA), Return on Equity (ROE), and Earnings Per

Share (EPS). The analysis includes descriptive statistics, correlation analysis, regression analysis, and mediation analysis.

Descriptive Statistics

Descriptive statistics provide an overview of the key variables used in the study. Table 1 summarizes the mean, standard deviation, minimum, and maximum values for ROA, ROE, EPS, ESG scores, sustainable finance (SF) scores, and control variables such as firm size, leverage, and market volatility.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
ROA (%)	12.45	3.87	6.78	18.23
ROE (%)	15.32	4.12	8.45	22.78
EPS (PKR)	10.54	3.21	5.12	16.87
ESG Score (0-100)	65.23	12.15	42.35	85.74
Sustainable Finance (SF) Score (0-100)	58.74	14.32	30.25	79.45
Firm Size (Log Assets)	10.24	0.58	9.12	11.15
Leverage (Debt/Equity)	1.45	0.39	0.98	2.30
Market Volatility	0.26	0.08	0.14	0.39

The descriptive statistics reveal that the average ROA for the sample firms is 12.45%, with ROE averaging 15.32%. The mean EPS is PKR 10.54, indicating moderate profitability across the sample. The average ESG score is 65.23, suggesting a moderate level of ESG integration among the firms. The sustainable finance score, which reflects the extent to which firms incorporate sustainable practices into their financial strategies, averages 58.74.

Correlation Analysis

The correlation matrix in Table 2 presents the relationships between the key variables. Correlation analysis helps to identify potential multicollinearity issues and provides initial insights into the relationships between sustainable finance, ESG scores, and financial stability indicators.

Table 2: Correlation Matrix

Variable	ROA	ROE	EPS	ESG Score	SF Score	Firm Size	Leverage	Market Volatility
ROA	1.00	0.65	0.54	0.42	0.38	0.25	-0.15	-0.28
ROE	0.65	1.00	0.68	0.46	0.41	0.32	-0.18	-0.33
EPS	0.54	0.68	1.00	0.39	0.35	0.28	-0.21	-0.25
ESG Score	0.42	0.46	0.39	1.00	0.65	0.37	-0.17	-0.30
Sustainable Finance (SF)	0.38	0.41	0.35	0.65	1.00	0.42	-0.19	-0.22

Variable	ROA	ROE	EPS	ESG Score	SF Score	Firm Size	Leverage	Market Volatility
Score								
Firm Size	0.25	0.32	0.28	0.37	0.42	1.00	-0.14	-0.18
Leverage	-0.15	-0.18	-0.21	-0.17	-0.19	-0.14	1.00	0.36
Market Volatility	-0.28	-0.33	0.25	-0.30	-0.22	-0.18	0.36	1.00

The correlation analysis shows that ROA, ROE, and EPS are positively correlated with both ESG and sustainable finance scores, suggesting that higher levels of ESG integration and sustainable finance practices are associated with better financial stability. The correlation between ESG scores and sustainable finance scores is 0.65, indicating a strong positive relationship, but not high enough to suggest multicollinearity. Firm size is also positively correlated with financial performance indicators, while leverage and market volatility are negatively correlated with ROA, ROE, and EPS.

Regression Analysis

The panel data regression models were estimated using STATA, with fixed effects models selected based on the results of the Hausman test. Table 3 presents the regression results for the impact of sustainable finance and ESG scores on ROA, ROE, and EPS.

Table 3: Regression Results

Dependent Variable	ROA	ROE	EPS
Sustainable Finance (SF) Score	0.216**	0.243***	0.198**
ESG Score	0.182**	0.195**	0.173**
SF Score * ESG Score	0.154**	0.168**	0.142*
Firm Size (Log Assets)	0.112**	0.138**	0.104*
Leverage	-0.157**	-0.176***	-0.132**
Market Volatility	-0.186**	-0.201**	-0.168**
Constant	3.215**	4.128***	2.987**
R-squared	0.39	0.42	0.34
Observations	45	45	45

*** p < 0.01, ** p < 0.05, * p < 0.10

The regression results indicate that both sustainable finance and ESG scores have positive and statistically significant effects on ROA, ROE, and EPS. Specifically, the sustainable finance score positively impacts ROA ($\beta = 0.216$, $p < 0.05$), ROE ($\beta = 0.243$, $p < 0.01$), and EPS ($\beta = 0.198$, $p < 0.05$). Similarly, the ESG score positively impacts ROA ($\beta = 0.182$, $p < 0.05$), ROE ($\beta = 0.195$, $p < 0.05$), and EPS ($\beta = 0.173$, $p < 0.05$). The interaction term between sustainable finance and ESG

scores is also significant across all models, suggesting that ESG factors mediate the relationship between sustainable finance and financial stability.

Control variables such as firm size positively affect ROA, ROE, and EPS, while leverage and market volatility negatively impact these financial indicators.

Mediation Analysis

To assess the mediation effect of ESG on the relationship between sustainable finance and financial stability, a mediation analysis was conducted using the Baron and Kenny (1986) approach. The Sobel test was also performed to confirm the significance of the mediation effect.

Step 1: Regress ROA, ROE, and EPS on Sustainable Finance (Direct Effect):

Sustainable finance significantly predicts ROA ($\beta = 0.216$, $p < 0.05$), ROE ($\beta = 0.243$, $p < 0.01$), and EPS ($\beta = 0.198$, $p < 0.05$).

Step 2: Regress ESG on Sustainable Finance:

Sustainable finance significantly predicts ESG ($\beta = 0.321$, $p < 0.01$), indicating that firms with higher sustainable finance practices tend to have higher ESG scores.

Step 3: Regress ROA, ROE, and EPS on both Sustainable Finance and ESG:

When ESG is included in the model, the effect of sustainable finance on ROA, ROE, and EPS remains significant but is reduced, indicating partial mediation.

Sobel Test Results: The Sobel test confirms that the mediation effect of ESG is significant, with p-values less than 0.05 for all three financial stability indicators.

Mediation Effect: The mediation analysis demonstrates that ESG factors partially mediate the relationship between sustainable finance and financial stability, as measured by ROA, ROE, and EPS. This suggests that while sustainable finance directly impacts financial stability,

Results Discussion

The results of this study offer significant insights into the role of sustainable finance, with the mediation of ESG factors, on the financial stability of firms in the oil and gas sector of the Pakistan Stock Exchange (PSX). The analysis reveals several key findings that align with existing literature while also contributing new evidence from the context of an emerging market. The regression analysis demonstrates that sustainable finance positively impacts financial stability, as measured by Return on Assets (ROA), Return on Equity (ROE), and Earnings Per Share (EPS). These findings are consistent with previous studies that highlight the positive relationship between sustainable finance practices and improved financial performance (Friede, Busch, & Bassen, 2015; Clark, Feiner, & Viehs, 2015). The positive coefficients for sustainable finance across all financial indicators suggest that firms integrating sustainability into their financial strategies are better equipped to manage risks, optimize resources, and enhance profitability.

This positive relationship is particularly relevant in the oil and gas sector, where environmental and social risks are prominent. Firms that adopt sustainable finance practices are likely to experience better financial outcomes due to their proactive management of ESG-related risks, which can otherwise lead to financial penalties, reputational damage, and operational disruptions (Eccles, Ioannou, & Serafeim, 2014). The mediation analysis provides compelling

evidence that ESG factors mediate the relationship between sustainable finance and financial stability. The significant interaction term between sustainable finance and ESG in the regression models indicates that ESG integration enhances the impact of sustainable finance on financial performance. This finding aligns with the theoretical framework that posits ESG as a critical mechanism through which sustainable finance translates into tangible financial benefits (Khan, Serafeim, & Yoon, 2016).

The partial mediation effect observed in this study suggests that while sustainable finance directly contributes to financial stability, its impact is further amplified when ESG practices are effectively integrated. This underscores the importance of a comprehensive approach to sustainability, where financial strategies are closely aligned with environmental, social, and governance objectives. The control variables included in the analysis also provide important insights. Firm size positively influences financial stability, which is consistent with the notion that larger firms have more resources and capabilities to invest in sustainable practices (Penman, 2012). On the other hand, leverage and market volatility negatively impact financial stability, highlighting the risks associated with high debt levels and unstable market conditions (Ross, Westerfield, & Jaffe, 2013).

This study provides robust empirical evidence on the role of sustainable finance, with ESG as a mediating factor, in enhancing the financial stability of firms in the oil and gas sector of the Pakistan Stock Exchange. The findings indicate that sustainable finance practices significantly improve financial performance, as measured by ROA, ROE, and EPS. Furthermore, the integration of ESG factors strengthens this relationship, underscoring the importance of a holistic approach to sustainability. These results have important implications for corporate managers, investors, and policymakers. For corporate managers, the study highlights the need to integrate ESG considerations into financial decision-making processes to achieve long-term financial stability. Investors can use ESG metrics as a valuable tool for assessing the sustainability and financial resilience of firms. Policymakers, on the other hand, should consider promoting regulations and incentives that encourage ESG disclosure and sustainable finance practices.

The findings of this study contribute to the growing body of literature on sustainable finance and ESG by providing empirical evidence from an emerging market context. The study confirms the theoretical proposition that sustainable finance positively influences financial stability, and that this relationship is mediated by ESG factors (Friede, Busch, & Bassen, 2015). The partial mediation effect observed in this study suggests that while sustainable finance has a direct impact on financial stability, its effectiveness is enhanced when firms adopt robust ESG practices. This study also expands the theoretical understanding of sustainable finance in the oil and gas sector, a high-impact industry where environmental and social risks are particularly pronounced. By demonstrating the financial benefits of ESG integration in this sector, the study supports the notion that sustainability is not only an ethical imperative but also a strategic business advantage.

The practical implications of this study are significant for corporate managers, investors, and policymakers: The study emphasizes the importance of integrating ESG factors into financial strategies. Managers in the oil and gas sector should prioritize sustainability to enhance their firms' financial performance and resilience. This includes adopting practices that reduce environmental impact, improve social governance, and ensure transparent and ethical management. The findings suggest that investors should consider ESG metrics when evaluating investment opportunities. Firms with strong ESG practices are likely to be more financially stable and offer better long-term returns. This is particularly relevant in sectors like oil and gas, where ESG risks are substantial. Policymakers: The study highlights the need for regulatory frameworks that encourage ESG disclosure and promote sustainable finance practices. Policymakers should consider implementing incentives for firms that adopt ESG practices and mandating ESG reporting to enhance transparency and accountability in the financial markets. This study opens several avenues for future research:

Future research could extend this study by exploring the role of sustainable finance and ESG in other high-impact sectors, such as manufacturing or agriculture, within emerging markets. Comparing the impact across different sectors could provide a deeper understanding of how industry-specific factors influence the relationship between sustainable finance, ESG, and financial stability. While this study provides a cross-sectional analysis, longitudinal studies could offer insights into how the relationship between sustainable finance, ESG, and financial stability evolves. Such studies could help identify long-term trends and the sustained impact of ESG practices on financial performance.

Comparing the findings from Pakistan with those from other emerging and developed markets could provide valuable insights into how regional factors, such as regulatory environments and market conditions, influence the effectiveness of sustainable finance and ESG integration. Qualitative studies, such as case studies or interviews with corporate managers and investors, could complement the quantitative findings by providing deeper insights into the motivations, challenges, and strategies associated with integrating ESG into financial practices. In conclusion, this study underscores the critical role of sustainable finance and ESG in enhancing financial stability in the oil and gas sector of the Pakistan Stock Exchange. By providing empirical evidence from an emerging market, the study contributes to the broader discourse on sustainable finance and offers practical insights for stakeholders seeking to navigate the complexities of sustainability in high-impact industries.

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