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Impact of Islamic Label on Environmental, Social, and Governance Performance of Emerging Markets through Sharia-Compliant Firms

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Abstract

This study aims to examine the relationship between Islamic label and their environmental, social and governance (ESG) performance in emerging markets. In this study multiple regression analysis is used to see how the independent (Islamic label) and dependent variables (ESG) are related. Whereas, data is collected from publicly available sources such as financial databases, government records, or scientific research. For this purpose, the study used the data of 6056 companies across 57 countries for the period of 2004 to 2023. The study used Thomson Reuters ASSET4 ESG data as a proxy for evaluating environmental, social, and governance (ESG) policies. The findings of the study indicate that the effect of Islamic label in the operations of Sharia-compliant enterprises in developing markets has a beneficial effect on their ESG performance especially in environmental and social indicators. The results showed that Sharia-Compliant firms do better in terms of ESG than conventional enterprises.

Keywords: ESG, Islamic label, Sustainable Finance, Emerging markets, Sharia-Complaint firms, Agency theory, Stakeholder theory

Introduction

Due to worldwide increase in sustainable finance, economies are encouraging investments that not only provide economic returns but also contribute positively to society and environment (Bhuta et al., 2020). This trend reflects a growing concern from a business perspective on problems like climate change, social inequality, and ethical business practices (Iqbal &



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Mirakhor, 2011). The answer to this is that investors are looking for prospects that fit these parameters.

The ethical foundation of Islamic finance (IF) based on Shariah law has become a prominent figure in sustainable finance (Hassan & Lewis, 2007). Investing in Shariah compliance means prioritizing equity, openness and social responsibility. By prohibiting usury-based transactions (riba) and encouraging investment in efforts consistent with Islamic moral principles, this approach provides a unique perspective on financial intermediation (Khan & Bhatti, 2008). Currently, IF is supported by strong financial institutions around the world. The market for the IF business has seen huge expansion over the course of the last ten years. Even though there is a significant amount of interest in IF research, there are very few studies that investigate the environmental, social, and governance (ESG) policies of Sharia enterprises.

ESG are regarded as essential to achieving CSR. In addition, it also holds true for Islamic businesses, which need to focus more on ESG problems (Bennett and Iqbal, 2013; Masih et al., 2018; Moghul & Safar-Aly, 2014). In 2014, a total of \$21.4 trillion was allocated and invested with the intention of promoting social responsibility (SRI). The use of conventional strategies resulted in a notable growth of over 60% in assets under management (AUM). Europe has the most cumulative total investment by virtue of its substantial sum of \$13.61 trillion dollars. Meanwhile, the US has had fast growth, averaging 74 percent annually, despite the benchmark being only 50 percent. Rather of being done by individual investors, institutional investors do the majority of SRI. Nonetheless, SRI is gaining popularity among regular investors.

Investment strategies, regardless of their conventional or Islamic methodologies, are dependent on two essential categories of information: technical and fundamental. Technical information is obtained by analyzing a company's past performance or momentum, which is visually represented via relevant charts, while fundamental information consists of financial statements, company growth rates, and important financial events. Investors are looking for more methods to distinguish the performance of firms that do not rely on the risk-return perspective or SRI, although these two forms of information are still the most useful for investing (Erragragui & Revelli, 2016).

Indeed, there is a dearth of empirical research evaluating the performance of Islamic enterprises with regards to ESG concerns. When talking about financial performance analysis, several prior studies have been conducted, including those by Al-Awadhi and Dempsey (2017), Ashraf and Khawaja (2016), BinMahfouz and Kabir Hassan (2013), El- Masry et al. (2016), Erragragui and Revelli (2016), Erragragui et al. (2018), Junkus and Berry (2015), and Paraque and Erragragui (2016).

Investors place great emphasis on asset protection, and SRI seekers want to make a difference in the world by putting their money into businesses with strong ESG practices. Across countries, rich and emerging, non-financial factors like ESG and social issues are growing in importance when it comes to business choices (Berry & Junkus, 2013; Crifo et al., 2015; Nakamura,



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2013; Perez-Gladish et al., 2012). Many studies have addressed the inclusion of non-financial elements in firm performance measurement criteria and investment selection (Adam & Shauki, 2014; Nair & Ladha, 2014; Tahir & Brimble, 2011), however, there has been little inclusion of Islamic enterprises in the studied samples. Therefore, this research addresses a gap in the existing body of literature by specifically examining the environmental, social, and governance (ESG) performance of Islamic enterprises.

Numerous scholarly investigations have been undertaken to analyse the influence of non-financial attributes, such as ethical and environmental, social, and governance (ESG) issues (Dorfleitner et al., 2018; Nair & Ladha, 2014). However, there is a dearth of research specifically focused on Sharia-compliant enterprises operating inside developing member nations. The acronym ASEAN stands for the Association of Southeast Asian Nations. The present research places emphasis on Pakistan for the following reasons: (1) Sharia-compliant stocks are less risky in general because the screening process excludes firms that offer high interest and are highly leveraged, which is expected to encourage non-Muslims to invest in sharia-compliant firms; (2) the governments of both countries provide significant support in the promotion of Islamic finance and Islamic capital markets; and (3) sharia-compliant firms are regulated with an effective regulatory framework, which is expected to increase cohesion. Furthermore, Indonesia, boasting the highest Muslim population globally, has achieved notable success in the Islamic financial industry, securing the fourth position only after Iran, Malaysia, and Saudi Arabia.

Scope of the Study

At the moment, the only study that we are able to locate that investigates performance of Islamic portfolios in conjunction with ESG assessment (Erragragui and Revelli (2016). During the period of 2007–2011, applying ESG screens to Sharia-compliant stocks did not have any negative effects on returns, according to the findings of their four-factor model. In addition to this, they discover that portfolios that have a strong ESG record perform better. Our research differs from that they give attention to ESG and portfolio returns. On the other hand, it looks at how a company's Sharia Label affects its ESG success in emerging markets. So our study intends to make a major contribution to the existing body of literature on sustainable finance by conducting an investigation into the connection that exists between Islamic labeling and ESG performance (Omar & Fernandez, 2017). Investors, politicians, and practitioners who are interested in encouraging ethical and responsible investment practices in emerging economies might draw from these lessons to guide their decisions.

This research study is based on the impact of Islamic label and ESG performance in emerging markets through Sharia compliant firms and has been classified into different Chapters in the following orders. The rest of the article is as follows; section 2 contains theoretical and empirical evidence on SRI and Islamic finance. Section 3 contains the research methodology of the study and calculation of variables. Section 4 consists of Data Analysis, where actual findings of the study have been provided and also discussion



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of the analysis result. Section 5 consists of the conclusion, limitation of study, and future direction.

Literature Review

Extensive empirical research has delved into the connection between governance, ESG performance, and financial outcomes. Various studies (Eliwa et al., 2019; Khan, 2019; Velte, 2017; Wong, Batten, et al., 2020) have explored this topic. Khan (2019) specifically investigates whether ESG performance, including corporate governance, can be used to predict stock returns on a global scale. In his study, he develops new metrics for corporate governance and ESG to analyze the connection between company stock returns and ESG performance. The findings indicate that these metrics can indeed forecast company stock returns worldwide. Additionally, from an investor's perspective, governance emerges as the most crucial aspect of ESG. Velte (2017) supports this notion by highlighting the positive impact of ESG practices on ROA, with governance exerting a greater influence on return on assets compared to environmental and societal aspects.

According to Wong, Wong, & Boon-itt (2020), incorporating ESG enhances the value of Malaysian listed companies when examining emerging markets. They come to the conclusion that the cost of capital for a company decreases by 1.2 percent and market performance rises by over 30 percent, demonstrating the evident influence of the ESG rating on the value of the company. They further say that the presence of an ESG or SRI plan is advantageous to stakeholders in the same way that it increases business profitability. According to Eliwa et al. (2019), this conclusion is equally valid for the European market, where they also found that companies with robust ESG processes tended to have lower capital costs. They reaffirm that stakeholders looking to influence business decisions fairly evaluate ESG policies. These studies show that a company's total management quality can be guided by strong ESG standards, which can lead to improved financial results.

The Principles for Responsible Investment (PRI, 13 July 2017) state that the integration of ESG scores into investment processes, Islamic finance and the social dimension of responsible investment should be consistent with promoting growth in Muslim-majority countries. The UN Sustainable Development Goals (SDGs) are also achieved through these variables. The triple bottom line, including humans, the environment, and economic well-being, is consistent with the principles used in the global sustainable development agenda.

There is conflicting information regarding Islamic and ESG strategies from earlier empirical study. Certain academics contend that the advantages of incorporating ESG considerations into Islamic investments outweigh any potential drawbacks (Erragraguy & Revelli, 2015; Paltrinieri et al., 2020; Sairally, 2015). The question of whether adding ESG standards to Islamic portfolios produces profitable results is investigated by Erragraguy and Revelli (2015). They discover that Islamic portfolios that incorporate ESG principles do not lose out on returns for Muslim investors. Islamic financial institutions should pursue both sharia compliance and ESG goals simultaneously, according to Sairally (2015), who bases this claim on



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maqasid al-sharia (the higher purposes of the Shariah). In 2020, Paltrinieri et al., analyze the correlation between IFDI and sustainability among 224 firms distributed across 16 countries. In particular, in the social pillar, they discover a significant and positive association between IFDI and ESG scores. However, there are critics who argue that the inclusion of ESG aspects in Islamic investment might result in unique investment characteristics and reduced returns (Ashraf & Khawaja, 2016; Miglietta & Forte, 2011). According to Miglietta and Forte (2011), there are noticeable characteristics among SRI and Islamic investing from an industry point of view, an economic picture, and how assets are distributed. Socially Responsible Investment (SRI) funds have a greater inclination towards investing in large-cap equities, However, Islamic funds have a greater inclination towards investing in small-cap companies. In addition, Ashraf and Khawaja (2016) discovered that portfolios adhering to sharia principles exhibit lower performance compared to conventional portfolios in various markets. From a risk standpoint, investments that adhere to sharia principles have the same level of risk as conventional portfolios.

In summary, although there are several studies that examine the relationship between ESG and Islamic financial investment, there is no consensus among scholars in the literature. In this study, a comparative analysis of ESG performance firms is presented, so contributing to the existing body that follow Shariah principles and those that do not in Indonesia and Malaysia. Our concentration is to investigate the relationship between organizations' ESG performance scores and their individual characteristics.

Theoretical Framework

Islamic finance principles internally prioritize the welfare of stakeholders other than shareholders (Khan & Bhatti, 2008). According to stakeholder theory, organizations must take into account the interests of multiple stakeholders in decision-making processes, including employees, customers, communities, and the environment (Freeman, 1984). Shariah-compliant businesses guided by Islamic beliefs place the welfare of their stakeholders at the forefront of their operations (Khan & Bhatti, 2008). This program encourages environment (E), society (S), and government (G) behaviors. Investment in environmentally beneficial projects, responsible consumption of resources, and compliance with ethical environmental policies (Safiullah et al., 2017). Stakeholder theory suggests that organizations should be accountable not only to their shareholders but also to a wide range of stakeholders (Freeman, 1984), including employees, customers, communities and regulators around. In terms of "Unveiling ESG Excellence", stakeholder theory is important to understand the multidimensional relationships between Shariah-compliant firms and their various stakeholders in emerging markets (Khan & Bhatti, 2008). Customized products, companies striving for sustainable practices, and regulatory bodies developing policies all play important roles (Safiullah et al., 2017). The theory helps examine how these stakeholders influence and are affected by the ESG performance of these firms (Freeman, 1984). Examining employee engagement and benefits created for various stakeholders provides insights into the social impact and long-term sustainability of proposed



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companies (Safiullah et al., 2017).

On the other hand, agency theory focuses on the potential for conflict between key principal (such as shareholders) and managers (such as management), and emphasizes the importance of effective governance structures (Jensen & Meckling, 1976). Within the theme, agency theory is valuable for examining the ongoing relationship between shareholders and employees in shariah-compliant corporations (Jensen & Meckling, 1976). It investigates into how employees represent shareholders' interests in ESG business, it is an incentive system that promotes ethics, and the discrepancies between principals and agents (Baimuratov et al., 2021). By examining the governance mechanisms of Shariah-compliant firms, agency theory helps to understand how these organizations navigate the process of integrating Islamic principles and ESG considerations, ensuring that decisions are aligned with ethical and financial objectives (Baimuratov et al.), 2021). The combination of stakeholder perspectives provides a robust theoretical framework for critically analyzing the interplay between interests, governance and sustainability in emerging markets and Shariah-compliant organizations.

Research Methodology

Silverman (1998) defines research technique as it is a general approach to studying a research topic that specifies how to design the research and how to go about studying any phenomenon.

Econometric Model Analysis

The study employed a panel data to investigate the correlation between ESG practices and Islamic label in developing economies, based on the aforementioned justifications. The study comprises the primary models listed below.

The Baseline models

$$ESG_{it} = \beta_0 + \beta_1 ISLAMIC LABEL_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 DY_{it} + \beta_5 LEV_{it} + \sum \beta_j YEAR_{it} + \sum \beta_k INDUSTRY_{it} + \epsilon_{it}$$

Where; ESG shows Environmental, Social, and Governance Performance, env shows Environmental Factors, soc shows Social Factors, gov shows Governance Factors, MTB shows measure of Market to Book value, Lev shows Leverage Ratio, Year and Industry used as Dummy variables, i denotes firm and t denotes time; and ϵ shows the error term.

Variables Measures

The study employ a methodological technique that involves measuring variables and subsequently presenting models to assess the study hypotheses.

Dependent Variable: ESG

The study will use Thomson Reuters Asset4 ESG data as a proxy for evaluating environmental, social, and governance (ESG) policies. This database offers a complete platform for evaluating corporate performance by providing transparent, objective, auditable, comparable, and systematic information on economic, environmental, social, and governance aspects. It serves as a standard for assessing corporate performance (Cheng; Ioannou &



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Serafeim, 2014).

Independent Variables: ISLAMIC LABEL

Islamic label a binary variable that equals 1 in the case of an Islamic firm and 0 otherwise.

Control variables

This study examine the impact of business financial factors on the manifestation of Islamic label, risk, and ESG. It will do this by drawing on prior research on CSR (e.g., Benlemlih & Girerd-Potin, 2014; El Ghouli, Guedhami, Kwok, & Mishra, 2011; Ioannou & Serafeim, 2012; Oikonomou, Brooks, & Pavelin, 2012; Salama, Anderson, & Toms, 2011). Consequently, the following various control variables will also be included in this investigation.

(1) For the calculation of business size (SIZE), the natural logarithm of total assets is used. Previous studies have demonstrated that organizational size is a significant factor in determining the environmental behavior of a corporation (Aragon-Correa, 1998). Moreover, according to Christmann (2004) and Mafrolla et al. (2016), economies of scale are one of the structural factors that determine company results. According to the study, larger businesses are probably more productive and inventive than smaller ones.

(2) The market-to-book market of equity or MTB, is calculated by subtracting the pre-tax value of preferred stock from the sum of shareholders' equity, deferred taxes, and investment tax credits.

(3) Dividend yield (DY) indicates the proportion of a company's share price that is paid to investors each year in the form of dividends. The calculation involves dividing the market value per share by the annual dividend per share. (4) Another control variable is leverage (LEV), which is defined as total debt divided by total equity. Companies with a high debt-to-equity ratio are inefficient when it comes to building value. In order to satisfy the demands of stakeholders for sustainable growth, highly leveraged companies would be compelled to implement initiatives like green innovation (Gupta and Newberry, 1997).

Results, Analysis, and Discussions

KMO and Bartlett's Test

The KMO (Kaiser-Meyer-Olkin) and Bartlett's Test are two tools used to evaluate whether your data are suitable for factor analysis.

Table 4.1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy. .626

Bartlett's Test of Sphericity	Approx. Chi-Square	75854.633
	Df	3
	Sig.	.000

As the KMO values vary from 0 to 1. As the above table 4.1 shows that the



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result of 0.626 is deemed poor, implying that data is only partially acceptable for factor analysis. These findings are supported by past studies of Kaiser (1974). So according to their theory he said

That the variance between 0.5 and 0.7 is moderate, values between 0.7 and 0.8 is acceptable, values between 0.8 and 0.9 is fantastic, and values above 0.9 is superb. Whereas Hair et al. (2010) also support these results. According to his statement, KMO values below 0.6 are considered poor, while values ranging from 0.6 to 0.7 are considered moderate.

The Bartlett's Test determines whether the variables in your data are sufficiently connected to conduct factor analysis as suggested by Bartlett (1950), which tests for significant relationships between the variables. The 0.000 significance level shows that the correlations between variables are strong and statistically significant, implying that factor analysis is appropriate for this dataset. As supported by Bartlett (1950) and Tabachnick & Fidell (2013), who argue that Bartlett's test of significance shows adequate data for factor analysis.

In simple words, you can perform factor analysis, but the data quality is ordinary, and enhancing it may result in more trustworthy results.

Descriptive Statistics

Table 4.2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
esg1	99088	0	1	-2.449	2.07
Env	99094	48.953	28.891	0	99.145
Gov	99088	54.454	22.088	.101	99.463
Soc	99094	52.396	24.981	.053	98.47
Lsoc	99094	3.811	.669	.051	4.6
Lenv	99094	3.533	1.167	0	4.607
Lgov	99088	3.901	.543	.096	4.61
Tdpote	14619	.278	.304	0	1
Err	14619	.493	.325	0	1
Air	14619	.136	.161	0	.8
Eps	14619	1.68	2.967	0	29.992
Icr	14619	5.699	6.663	0	29.992
Shariah	99094	.074	.261	0	1
Macap	14556	22.266	1.348	16.124	26.757
Rnd	14021	4.553	7.851	0	22.648

Table 4.2 explain descriptive statistics of the data. The wide ranges and significant standard deviations of the majority of variables, including Env, Gov, and Soc, suggest that they are highly variable. For example, the mean of Env is 48.953, while the standard deviation is a substantial 28.891, indicating that environmental scores varied significantly among observations. Similar to Gov and Soc, the scores for governance and social issues are distributed broadly.

The above table also shows that the data is centered and scaled because



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variables like esg1 have a mean of 0 and a standard deviation of 1. When you change factors using logarithms, the scales get smaller, which means you should look at relative differences instead of absolute numbers. Other factors, like Tdpote and Err, probably measure odds or amounts; their numbers range from 0 to 1. On the other hand, Eps and Icr change a lot, which shows a lot of different financial success measures. Shariah doesn't have a high mean or range, which suggests that only a small part of the information is about Shariah-compliant organizations. Overall, the figures show how varied and broad the data is. Some factors have wide while others are more uniform or focused.

Table 4.3 Descriptive statistics - mean by (year)

	Esg	Soc	Env	Gov	Shariah
2004	41.889	39.519	38.733	47.414	.029
2005	41.883	38.649	35.513	51.488	.033
2006	39.516	38.536	30.641	49.372	.039
2007	41.264	40.089	34.843	48.862	.041
2008	44.321	43.508	38.645	50.81	.044
2009	47.458	46.443	44.306	51.626	.05
2010	48.09	46.408	46.419	51.443	.055
2011	49.159	46.684	46.954	53.838	.067
2012	49.206	46.684	47.042	53.892	.077
2013	49.754	47.761	47.890	53.61	.082
2014	50.098	48.551	48.436	53.307	.083
2015	50.232	49.333	48.637	52.727	.085
2016	50.831	51.049	49.277	52.167	.084
2017	51.363	52.6	49.470	52.019	.082
2018	51.449	53.884	47.585	52.87	.082
2019	52.389	55.337	48.141	53.682	.081
2020	55.279	57.978	51.860	55.995	.081
2021	58.199	60.735	55.594	58.264	.081
2022	61.02	63.41	58.741	60.911	.081
2023	62.682	64.96	60.455	62.633	.081

Starting at 41.889 in 2004 and increasing to 62.682 by 2023, the esg score has exhibited a consistent growth throughout the years. This suggests a rising focus on total ESG performance throughout time. In the same way, the soc score went from 39.519 in 2004 to 64.96 in 2023, which is an upward trend. This shows that businesses are giving more attention to social problems, which is in line with society trends and standards as a whole. In 2004, the env score was lower at 38.733. It went up and down a bit in the middle of the 2000s, but it has mostly gone up since then and will hit 60.455 by 2023. This shows people have become more aware of and involved in environmental problems over time. On a steady rise, the gov score has gone from 47.414 in 2004 to 62.633 in 2023. This shows that company control methods become better over time.

The average Shariah score was very low at 0.029 in 2004. It slowly went up until it reached a high point of 0.085 in 2015, and then it stayed around 0.081 from 2019 to 2023. This shows that Shariah-compliant products have grown in popularity, but they still only make up a small part of the market as a whole. It is clear that ESG scores have been getting better over the years, with big jumps in environmental, social, and government measures.



Spearman's rank correlation coefficients

The Spearman's rank correlation coefficient is a parametric statistical measure that quantifies the magnitude and direction of the relationship between two variables being examined.

Table 4.4 Spearman's rank correlation coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Lesg	1.000												
Lsoc	0.849	1.000											
Lenv	0.859	0.688	1.000										
Lgov	0.664	0.408	0.322	1.000									
Shariah	0.068	0.069	0.104	0.027	1.000								
Tdtr	-0.007	-0.013	-0.028	0.025	-0.026	1.000							
Tdpote	-0.012	-0.014	-0.009	-0.007	-0.039	0.213	1.000						
Err	-0.086	-0.076	-0.074	-0.054	-0.024	0.023	-0.015	1.000					
Air	0.033	0.056	0.049	-0.042	-0.143	0.105	0.109	-0.020	1.000				
Eps	0.176	0.172	0.185	0.064	-0.270	0.032	0.065	0.063	0.130	1.000			
Icr	0.060	0.053	0.041	0.044	-0.066	0.187	0.094	0.035	0.179	0.103	1.000		
macap	0.312	0.280	0.297	0.191	-0.013	0.006	0.090	0.027	-0.037	0.301	0.019	1.000	
Rnd	0.181	0.188	0.173	0.074	-0.130	0.039	0.080	-0.000	0.425	0.177	0.120	0.135	1.000

Spearman rho = 0.135

In the above table 4.4 the results shows that "lesg" is strongly linked to both "lsoc" (0.849) and "lenv" (0.859), which means that these factors tend to rise together, supporting social value theory (Cialdini & Goldstein, 2004). This theory suggests that social norms influence individual behavior, in this case legal factors (lesg) may be shaping social outcomes (lsoc) and environmental factors (lenv). Somewhat stronger links are found between "lesg" and "lgov" (0.664), "macap" (0.312), and "rnd" (0.181), indicating a connection between these factors, consistent with organizational theory (North, 1990). This theory suggests that economic development is shaped by legal and political institutions, and in this case, legal factors (lesg) may be influencing governance (lgov), macroeconomic power (macap), and R&D (rnd).

But "lesg" has weak or no correlations with "shariah" (0.068), "tdtr" (-0.007), "tdpote" (-0.012), "err" (-0.086), "air" (0.033), "eps" (0.176), and "icr" (0.060), which means that these variables don't have much to do with "lesg". Overall, the results show that "lesg" is linked to "lsoc" and "lenv" and has some connections with "lgov", "macap", and "rnd", but not very much with the other factors.

OLS Assumption

When looking for heteroskedasticity in a regression model, the Breusch-Pagan/Cook-Weisberg test is useful, especially when dealing with Ordinary Least Squares (OLS) regression.

Table 4.5 OLS Assumption

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity



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Ho: Constant variance

Variables: fitted values of lesg

chi2 (1) = 425.73

Prob > chi2 = 0.0000

The above results in table 4.5 shows that the P-Value is 0.0000 which is much less than a significant value of 0.05. So it means that we reject the null hypothesis of constant variance and accept H1. So here is a problem of heteroskedasticity in the model.

Multicollinearity

Multicollinearity refers to the condition where there is no linear relationship between independent variables (indicating the absence of perfect multicollinearity) (Studenmund, 2014). The presence of many independent variables that show simultaneous linear relationships leads to the problem of multicollinearity (Studenmund, 2014). A primary factor contributing to multicollinearity problems in regression analysis is the inclusion of extraneous variables (Studenmund, 2014). Therefore, the researcher must perform due diligence and precautions before incorporating the variables into the regression model (Hair et al., 2010). The effect of multicollinearity makes it difficult to prove that estimated coefficients are significant, as this increases and decreases the standard error r^2 .

Therefore for testing multicollinearity in a regression model, the Variance Inflation Factor (VIF) is essential. Along with other factors, it counts how much the predicted regression coefficient's range grows because of collinearity.

Table 4.6 Variance inflation factor

	VIF	1/VIF
Rnd	1.399	.715
Rade	1.285	.778
Air	1.174	.852
Macap	1.124	.89
Eps	1.096	.913
Tdter	1.089	.919
Tdpote	1.075	.931
Icr	1.061	.942
Shariah	1.043	.958
Err	1.008	.992
Mean VIF	1.135	.

The VIF is a statistical measure that quantifies the extent to which the variance of the slope of the independent variables exhibits inflation and lacks correlation with the predicted variance (Liao & Valliant, 2012). The Variance Inflation Factor (VIF) metrics for all models used in this investigation are shown in Table 4.6. The outcomes of all the VIF values are less than 2,



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with "Rnd" having the highest value at 1.399. Still below the VIF threshold value (i.e. less than five) (Akinwande et al., 2015). This means that there is no significant overlap between the independent factors.

Linear regression

Linear regression is a statistical methodology used to establish models that describe the associations between a dependent variable and one or more independent variables. The objective is to comprehend the manner in which the dependent variable undergoes adaptation in response to variations in each of the factors that are considered independent, with all other variables being kept constant.

Table 4.7 Linear regression

Lesg	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Shariah	.098	.013	7.45	0	.124	-.073	***
Tdter	.033	.015	2.27	.023	.005	.062	**
Tdpote	.03	.015	1.99	.046	0	.06	**
Err	-.142	.014	-10.52	0	-.169	-.116	***
Rade	0	0	4.65	0	0	0	***
Air	-.096	.029	-3.28	.001	-.153	-.039	***
Eps	.003	.002	2.27	.023	0	.006	**
Icr	-.003	.001	-4.78	0	-.005	-.002	***
macap	.127	.003	36.48	0	.12	.133	***
Rnd	.006	.001	9.11	0	.005	.007	***
Year	Yes						
Country	Yes						
Companies	Yes						
Constant	-.471	.087	5.44	0	-.302	-.641	***
Mean dependent var	3.799		SD dependent var	0.593			
R-squared	0.242		Number of obs	13958			
F-test	153.230		Prob > F	0.000			
Akaike crit. (AIC)	21218.395		Bayesian crit. (BIC)	21437.165			

*** $p < .01$, ** $p < .05$, * $p < .1$

The above table 4.7 shows that regression analysis has high correlations between numerous factors and the dependent variable. The above results found a positive correlation between Shariah compliance and the dependent variable. This means that being Shariah-compliant boosts the result by 0.098 units, and this relationship is significant, supporting social value theory (Cialdini & Goldstein, 2004). The variables Tdter and tdpote exhibit positive correlations, with coefficients of 0.033 and 0.030 units respectively. Both coefficients exhibit significance at the 5% level, suggesting a robust association (Wooldridge, 2013). This supports the notion of autocorrelation, where past values of a variable are correlated with current values. In contrast, Err and Air had a negative impact on the dependent variable, causing a decrease of 0.142 and 0.096 units respectively, with a high level of statistically significant, supported by institutional theory (North, 1990). This theory emphasizes that institutions shape economic outcomes, in this case defects and emissions have a negative impact.

While Rade may have a substantial statistical impact, its effect size is minimal. The variables Eps and Icr have significant but relatively smaller impacts, with Eps leading to an increase in the dependent variable and Icr



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causing a decrease. On the other hand, Macap and Rnd are powerful positive predictors, with Macap making the largest contribution by increasing the dependent variable by 0.127 units, supporting the resource-based view theory (Barney, 1991). This theory suggests that firms' products and capabilities provide competitive advantage. Additionally, the model takes into account the effects of year, country, and company-specific factors, which means that one country result is different from another country and one year result is different from another year vice versa. The Yes in the table means that the year, country and companies are statistically significant.

According to the last section of Table 4.7, the R-squared value suggests that the regression model explains 24.2% of the observed variability in the dependent variable. The model uses a robust sample of 13,958 data in order to determine the average and variability of the dependent variable, which are 3.799 and 0.593, respectively. An F-test result of 153.230 with a p-value 0.000 indicates model significance (Greene, 2012) i.e. The collective impact of the independent factors on the dependent variables significant, as shown by the Akaike information criterion (AIC) value of 21,218.395 and the Bayesian information criterion of 21,437.165 (BIC) provide an estimate of the fit of the model, which is useful in comparison with other models (Akaike, 1974).

Cross-sectional time-series FGLS regression

In order to solve the problem of heteroskedasticity and autocorrelation FGLS is used.

Table 4.8 Cross-sectional time-series FGLS regression

Lenv	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Shariah	.117	.012	9.35	0	.141	.092	***
Tdpote	-.014	.014	-1.01	.311	-.042	.013	
Err	-.168	.013	-12.99	0	-.194	-.143	***
Rade	0	0	-2.49	.013	0	0	**
Air	-.074	.024	-3.03	.002	-.122	-.026	***
Eps	.003	.001	2.92	.004	.001	.006	***
Icr	-.001	.001	-1.66	.097	-.002	0	*
Macap	.136	.003	46.08	0	.13	.141	***
Rnd	.014	.001	25.08	0	.012	.015	***
Year	Yes						
Country	Yes						
Companies	Yes						
Constant	.821	.066	12.51	0	.693	.95	***

*** $p < .01$, ** $p < .05$, * $p < .1$

The data presented in Table 4.8 show the Shariah variable has significantly and positively impact on dependent variable, with a coefficient of 0.071. This finding is consistent with the theoretical framework of Social Identity Theory (Tajfel & Turner, 1979), which suggests that individuals derive part of their



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identity from group membership. Statistical analysis shows that this effect is significant, with a t-value of 2.79 and a p-value of 0.005. Even if the figures are correct, the confidence intervals appear to be misrepresented.

In Table No: 4.8 several factors have different effects on the dependent variable. The Shariah variable exhibits a coefficient of 0.117, where the p-value is zero and the t-value is 9.35. This coefficient has a significant and positive impact. This supports Institutional Theory (DiMaggio & Powell, 1983), which suggests that firms are influenced by their organizational environment. The coefficient of tdpote change was -0.014, and the t-value was -1.01. However, its p-value of 0.311 indicates that it lacks statistical significance. However, its p-value of 0.311 indicates that it is not statistically significant. The Err variable has a strong negative effect, as seen by its coefficient of -0.168 and t-value of -12.99. Again, with a p-value of 0, it is significant. This supports signaling theory (Spence, 1973), which suggests that firms with more defects and poorer performance are perceived as less efficient. The coefficient of the Rade change is 0, indicating no effect. However, its significance level (p-value = 0.013) shows a significant effect even though the coefficient is zero. The wind variable characterized by a coefficient of -0.074 and a t-value of -3.03 has a statistically significant negative effect (p-value = 0.002). The Eps variable has a significant positive impact, as shown by a coefficient of 0.003 with a t-value of 2.92, and is statistically significant (p-value = 0.004) with a slightly significant negative effect of the Icr variable indicating -0.001 and a t-value of -1.66 (p-value = 0.097) was the value. The Macap variable has a strong positive effect, as seen in its coefficient of 0.136 and t-value of 46.08 (p-value = 0). Similarly, the variable Rnd exhibits a coefficient of 0.014 with a t-value of 25.08, showing a strong and statistically significant positive effect (p-value = 0). The coefficient for the constant term is 0.821, indicating high significance (p-value = 0). The use of year, country, and companies as variables indicates that the model considers the effects of time, place, and structure.

According to the last portion of table 4.8 the dependent variable has a mean of 3.642 with a standard deviation of 1.029. The results are reliable with 13,958 observations. Based on the high chi-square value of 3664.423, the model is statistically significant, indicating that the independent variable is correctly estimating the variability of the dependent variable.

Conclusions

This study aims to examine the relationship between Islamic label and their environmental, social and governance (ESG) performance in emerging markets. Empirical evidence suggests that Sharia enterprises exhibit superior performance in environmental and social endeavors. Consequently, Sharia firms demonstrate heightened awareness among these considerations due to their adherence to the principles of Maqasid al-Sharia. A study by Abdul Salam et al. (2014), BinMahfouz and Kabir Hassan (2013), Hassan and Syafri Harahap (2010), and Hayat and Kabir Hassan (2017) provided valuable insights that serve as the basis for our research.

The study shows that there is a positive and statistically significant



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relationship between Shariah variable and dependent variable, also supporting by some other theories like Social Identity Theory and Institutional Theory. The results of FGLS of Lenv show that Err has a strong significant but negative effect, which supports the signaling theory, while Macap and Rnd have strong positive and significant effects. Other variables have mixed results, with Tdpote having no significant effect, Rade having a significant effect despite a zero coefficient, Wind having a negative and significant effect, Eps having a positive and significant effect, and Icr having a marginally significant negative effect.

The results of Normal VS Covid-19 FGLS show us that different variables have different effects on outcomes during normal times and during the COVID-19 pandemic, supporting different theories. The effects of Shariah, Tdpote, Err, Air, Eps, Icr, Macap and Rnd on LESG, LGOV, LSOC and LENV are different during normal and pandemic periods.

Limitations of the Study

Like any academic research, it is important to acknowledge and address some constraints in order to enhance the reliability and accuracy of the study. Therefore, the aforementioned information represents a limitation of the study:

First, the sample size is small it only includes companies in developing countries that comply with Sharia. This may not be a good representation of all Islamic banks. Company selection may also be biased toward larger, more established companies or smaller or newer companies. Second, the research relies on secondary data, which may not be as accurate or reliable as primary data. Third, the study narrows its scope to examine ESG performance within Islamic finance without addressing other possible links between Islamic finance and sustainability.

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