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## **Environmental, Social, and Governance Performance as a Driver of Financial Access: The Influence of Firm Size and Leverage**

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### **Abstract**

**Purpose:** The purpose of this study is to investigate the influence of Sustainable Performance (Environmental, Social and Governance) with firm size and leverage on access to finance.

**Design/Methodology/Approach:** The study uses quantitative secondary data of top 100 companies of FTSE, 5 year data is collected from annual reports and Sustainability reports. OLS regression utilized to analyze the relationship between Sustainability Performance and Access to Finance.

**Findings:** The result shows that Sustainability Performance with Firm Size and Leverage significant impact on Access to Finance Companies that focus on sustainability endeavors such as environmental, social and governance undertakings have higher chances of raising funds. This implies that sustainability practices enhance more than merely a strategic benefit but also a major factor that attracts investors and lenders.

**Implications/Originality/Value:** This Study contribute the effect of Sustainability Performance on Access to Finance while incorporating Firm Size and Leverage into the same framework. The findings imply that investors and lenders treat ESG Score as informative signals of low risk and better creditworthiness.

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## Keywords

Financial Access, Environmental, Social Governance, Sustainable Performance

**JEL Classification:** Q00, Q01

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## Introduction

Sustainability performance is an important issue in the modern business world where organizations are gradually discovering the long term benefits of incorporating environmental, social and governance (ESG) issues into their business. In the past businesses were only interested in financial performance which involves earning as much profit as possible and shareholder wealth. Sustainability performance extends past financial results into effects on the planet and society of a company hence affecting its image, risk management policies, and the positioning on the market (Tarmuji et al., 2016). The sustainability performance is also becoming a vital factor in determining the long-term sustainability of the company, including the Environment, Social, and Governance (ESG) aspects. Originally, the corporate social responsibility (CSR) activities and initiatives were predominant in pushing sustainability issues, and companies focused on compliance, and ethical conduct.

The environmental performance looks at the ecological footprint of the firm and this includes energy use, waste disposal, and carbon emission. Social performance is the assessment of the relations of a company to the business stakeholders that are the employees, customers, and societies of the countries it operates in. Governance performance deals with the mechanisms and frameworks that guarantee ethical business practices, such as diversity in the board, remuneration of its directors, and shareholders rights (Rehman et al., 2020).

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The relevance of sustainability performance can be explained by the fact that it is increasing in terms of its importance in the decisions made on investments. Investors are moving toward considering the ESG standards that help determine the potential risks and returns of companies in the long run. Firms that have a high sustainability performance are likely to be viewed as less risky, more resilient and better placed to respond to regulatory changes or consumer behavioral change. On the other hand, inappropriate sustainability practices may result in reputational, fines, and losses. This has given companies the influence to incorporate measurable sustainability into their strategic plans, business models, as well as reporting strategies (Eccles et al., 2020). Sustainability performance is a critical measure that is used to indicate the capability of a company in terms of satisfying its immediate needs in line with the capability of the succeeding generations to satisfy theirs. With the world struggling with the complicated environmental and social issues, greener business leads are more likely to succeed in the more networked and mindful world market (Khan et al., 2022).

Availability of finance is a crucial determining factor to the growth and survival of a firm and especially in the developing and emerging economies where market inefficiencies, regulatory issues and institutional inefficiencies tend to pose blockades to capital. The financial avenue of firms to finance their operations, be it via loans, issuance of equity, or other means of financing sources, directly determines the ability of firms to grow their operations, invest in innovation and endure during economic downturns. Contrary to that, a company that has minimal access to finance is restricted by the inability to raise capital that can result to exploited opportunities, poor investment, and failure to compete favorably in the market (Tay et al., 2022).

The access to finance is usually more concerned with the notion of financial constraints, including the state at which firms find it difficult to find the necessary funds to accomplish both operational and strategic objectives. The underdeveloped capital markets often worsen

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the finance situation and the firms might find it difficult to raise external capital because of the risk factor, untrustworthiness of the investors, and poor financial reporting (Kijkasiwat et al., 2022). In addition, macroeconomic conditions determine the access to finance through changes in interest rates, inflation, and financial system stability in general. In the developing economies, investment may be discouraged because of the high interest rates and inflationary pressures, which restrict businesses to access the cheap credit.

The access to finance and the magnitude of the firm are also of interest. The bigger companies are usually in a better position to access finance because they are usually established in the market place, have multiple assets and credit histories. Smaller companies, especially startups, might have more serious problems with financing in comparison. Financial institutions and investors usually use alternative criteria of evaluating the credit-worthiness of companies depending on their size and the financial figure to counter these disparities (Dzomonda, 2022). Finance access is an ambiguous and multidimensional topic that is determined by diverse factors, such as the standards of financial reporting, regulatory framework, the size of firms, and the market environment. Through enhanced transparency, corporate governance, and increased relations with the providers of funds, firms will be in a better position to tap the funds necessary to grow and prosper in the competitive markets in which they operate (Al Hawaj & Buallay, 2022).

The concept of sustainability performance has become one of the core aspects of business strategy over the past few years rather than being a marginal issue as it previous was a major factor in the major financial decisions, such as access to finance, etc. Conventionally, the accessibility of finance was considered in the perspective of financial performance where companies participated in the capital sourcing on the grounds of profitability, creditworthiness, and market standing. Nevertheless, with growing significance of Environmental, Social and Governance (ESG) issues the manner in which risk and value are assessed by businesses, investors and financial institutions has been reconfigured

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(Eccles et al., 2020). Consequently, sustainability performance has become an important variable when it comes to determining the financial capacity of a company.

The idea of sustainability performance to which a company devotes its activity in environmental protection, social responsibility, and corporate governance are directly correlated with the financial attractiveness and risk profile. Investors and lenders are moving away towards other financial measures in evaluating the management of the ESG factors by a firm. As an example, when companies become environmentally friendly, socially equitable and well organized in its governance structure, they are seen as less risky and more stable to face the changes of regulations, market fluctuations, and environmental stressors. Consequently, such firms enjoy higher chances of securing favorable financing facilities as well as increased access to capital (Dicuonzo et al., 2024).

Besides, the performance of sustainability may have an effect on finance accessibility due to the attitudes towards reputation and relationships with stakeholders by a company. Companies that participate actively in green activities will be in a better position to establish good rapport with their stakeholders such as customers, employees, and the society in general. Such improved image would be converted to increased market share, customer loyalty, and eventually, increased financial stability which makes the company more accessible to funding. Conversely, companies that do not have a good sustainability performance risk having a damaged reputation, losing their customer base, getting fined by the government, or lawsuits, making access to capital even more limited (Zheng et al., 2021).

Firm size also has an impact on relationship of sustainability performance and access to finance. The bigger companies, having more funds and already having markets, are usually in a better position to address the two concerns of sustainability reporting and compliance. Consequently, they usually have a greater access to the financial resources. Smaller companies might be not able to afford the financial and technical instruments needed to

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adopt strong sustainability principles, and might have other risks when trying to get funding as they are seen to be more risky (Starks, 2023). The sustainability performance has turned into a major determinant of access to finance of the firm. With the understanding of the long-term importance of the ESG factors rising among investors and financial institutions, one can expect that companies which focus on sustainability will enjoy more lucrative prospects. On the other hand, companies which are not ready towards sustainability risks might be left behind and there will be less access to capital and the financing cost will be high (Rehman et al., 2020). The role of ESG performance is expected to increase as the scope of its impact on the access to the finance is only set to increase in the future, transforming the financial landscape of years to come.

The issue considered in this work is the absence of the understanding of how the sustainability performance, which involves Environmental, Social, and Governance (ESG) is related to the possibility of accessing finance by a firm especially in the new and developing markets. Although the current literature tends to identify the increasing significance of sustainability in the impact of financial choices, the contribution of firm-specific factors: the size of the company and leverage to this relationship has not been investigated fully. Namely, bigger and better-endowed companies might have an advantage in carrying out and reporting on sustainability around, which enhance their opportunity to find capital, whereas smaller, highly levered companies might have a superior chance because of the increased financial risk associated and the inability to take advantage of ESG practices. To explore the impact of sustainability on performance on access to finance, and managing the effects of firm size and leverage, the researcher will explore this relationship to get a clear picture of what is going on as well as to give guidance to the business and the financial institutions to make better decisions in relation to financing. This research aims is to analyze the sustainability performance (ESG factors) and access to finance relationship, specifically how the leverages and firm size play out in the

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relationship. In particular, the research question in question is whether the companies that have high sustainability performance have a higher likelihood of obtaining financing and whether or not firm size and leverage are moderating variables in the said process. The results will provide information on the ways companies can advance with the access to financial services by improving their sustainability practice.

1. What is the effect of sustainability performance (ESG factors) on the access to the finance of a firm?
2. To what level do firm size and leverage moderate the sustainability performance-access to finance relationship?
3. How are firm specific factors (size and leverage) relevant in determining the financial opportunities in firms with sustainable performance at different levels?

The research is important because it illuminates the increasing relevance of sustainability performance (ESG factors) in establishing the access of finance to a firm, especially in the developing markets. The research provides more insights into the role of these characteristics in financing opportunities of various firms with different practices of sustainability by examining how the firm size and leverage moderate this relationship. The results can assist companies in improving sustainability approaches in order to enhance their economic accessibility, and present financial institutions with more knowledgeable grounds of evaluating danger and credit-worthiness. This study contributes to the literature of sustainable finance, to enable other companies, as well as investors to make more informed decisions in the changing world of finance.

## Literature Review

The sustainability performance has been a burning issue in the contemporary business operations as the corporate organizations are under pressures growingly by stakeholders, regulators and investors in the need to show accountable environmental, social, and governance practices. Environmental aspect of sustainability performance normally entails

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attempting to minimize the environmental footprint of a company, such as controlling resource use, waste reduction, and the use of renewable energy. Studies indicate that the high level of environmental performance goodwill enables firms to stabilize a greater level of regulatory risks, operational efficiencies, and competitive advantages within environment awareness markets (Amjad et al., 2021). Besides, firms that are able to focus on environmental sustainability are perceived to be more resilient against risks posed by climatic changes, shortage of resources and environmental regulation that enhances longevity of such firms.

As stated by (Aftab et al., 2023) social component of sustainability performance is concerned with organizations deal with their relationship that they have with their staff, clients, suppliers and the society at large. This involves matters, which include employee welfare, diversity, customer satisfaction and social impact. It has been demonstrated that companies that have sound social policies are likely to achieve improved employee retention, greater productivity and brand loyalty that subsequently leads to improved financial performance. Consumers and investors also have a better view of socially responsible companies and this can be translated into better market share and better financial performance (Kijkasiwat et al., 2022).

**H<sub>1</sub>: There is positive relationship between Sustainability performance (Environmental, Social, and Governance - ESG) and access to finance.**

As stated by (Ahmad et al., 2024) that governance in ESG defined as structures, processes, and policies that determine company decision-making. This involves composition of boards, executive pay, shareholder rights and transparency Availability of finance is one of the very significant factors of growth of a firm, its sustainability and its innovation capability. The term is defined as an ability of firms to finance themselves externally by various means such as loans, equity and bonds to finance their financial requirements of expansion, operations and investments (Assifuah-Nunoo, 2023). It is one of the



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determinants that play an important role in determining the ability of the firm to survive and excel in the competitive markets. Those companies with strong accounting practices and those that are frequently audited will have an opportunity to access finance easier due to the fact that the investors and the financial institutions trust the financial statements to make decisions that are accurate (Kijkasiwat et al., 2022).

In addition, the size of the firms is also a significant factor in finance accessibility. The bigger companies have an advantage in finance because they are already well established and have good credit history as well as being able to provide collateral as opposed to the smaller companies. The larger the company, the more financial instruments it can access, such as the stock markets and the syndicated loans, but smaller companies usually use loans provided by banks, or informal credit (Githaiga, 2022). This access gap in finance usually translates into the financial constraint of small businesses, preventing them to grow and be innovative.

Another important factor that determines access to finance is Leverage or the extent to which a company relies on its debt to finance its activities. High leverage ratios may be indicative of financial riskiness to investors and lenders, and it becomes challenging to get additional funding by high leverage companies. Lowly leveraged firms, however, might be regarded as less risky and therefore more appealing to the investors. Nonetheless, the companies that have too much debt can experience elevated interest rates on borrowing or access to credit, especially in the period of economic uncertainty or stock market fluctuations (Alrashidi et al., 2021).

The issues of access to finance are even more acute in less developed economies with less developed financial markets. Other issues in these markets include lack of credit, underdeveloped financial institutions and increased transaction costs which escalate financial limitations. It has been established that the businesses in the emerging markets have a higher chance of experiencing challenges in obtaining long term financing

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especially when they do not have sufficient collateral or when the business has no history of good banking. Access to finance is also involved in the government policies and institutional structures (Kumar et al., 2025). Regulatory surroundings that respect investor rights, transparency and financial incentives have the potential to improve access to capital by a firm. On the other hand, ineffective regulatory regimes, lack of investor protection, and lack of legal predictability may make it unwelcoming to invest and access finance. Here, financial intermediaries including banks, venture capitalists and private equity firms play a significant role in closing the gap between firms and sources of capital especially to the small firms and startups (Chin et al., 2024).

**H<sub>2</sub>: There is positive relationship between Sustainability performance (Environmental, Social, and Governance - ESG) and access to finance with controlling effect of Firm size.**

The problem of access to finance is quite a complicated one and depends on several different factors such as financial transparency, the size of the firm, the leverage, and also a wider regulatory and institutional framework. The companies, which manage these factors effectively, are more likely to have the improved access to the capital that may facilitate their development and sustainment in their turn. Nonetheless, the companies in the developing economies or those that possess underperforming governance systems can have serious problems with acquiring the needed financing that will allow them to sustain their functioning and further growth. It is important to resolve these obstacles to access to finance in order to develop entrepreneurship, innovation, and economic growth in the long term (Atz et al., 2023). The interdependence of sustainability performance that is often understood by means of environmental, social, and governance (ESG) has been gaining more and more popularity in recent years. The central aspect of this body of research is the notion that companies that have more sustainable profiles might experience less financing constraint, lending terms which are more favorable, and access more capital sources.

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Indicatively, empirical research has discovered that improved ESG participation is linked to reduced capital limitations and improved financial access (Liu & Wu, 2023).

According to (Assifuah-Nunoo, 2023) that environmental sustainability commitment was found to be a positive predictor of finance access by one study of small and medium enterprises (SMEs) in South Africa both directly and indirectly through superior financial performance. According to such findings, environmental performance has the potential to serve as a kind of a signal that helps to minimize information asymmetry between firms and capital providers. On the social and governance aspect, the same is operating. Firms that participate in good social practices, to the degree of employee welfare, community involvement, diversity, and those firms that have strong governance structures through transparent boards, accountable to stakeholders, and risk controls are then considered to be lower-risk investments. Such beliefs can be converted to improve financing (Georgiev et al., 2023).

This relationship has a number of theoretical foundations. The stakeholder theory implies that any sustainability initiative can positively affect the relations with all the main external stakeholders, such as financiers, thereby increasing the potential of a firm to obtain resources. Signaling theory argues that visibility of sustainability performance signals to an outsider (investors, banks) that the management is of high quality and long-term strategy. Since there exist high levels of information asymmetry in financial markets, particularly in smaller or less transparent firms, financially visible investment in sustainability can lead to a perceived lower level of risk reduction and, hence, access to finance (Andriamahery & Qamruzzaman, 2022).

According to (Rao et al., 2023) that environmental sustainability commitment was a significant predictor of access to finance within SMEs and the influence was mediated by the issue of financial performance that is, firms have to turn their sustainability-related actions into financial results in order to realize the full effect of financing benefits. The

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effect of the sustainability performance in access to finance is not the same across firms or settings. As an illustration, the impact can be greater in more mature stable and/or better disclosure practices among firms as compared to smaller companies or opaque firms. Other obstacles to the impact of sustainability may be suggested by financial markets in emerging economies including, possibly, weaker institutional arrangements or increased cost of capital. Furthermore, it is claimed that the process of how sustainability is converted to access to finance may take different forms: some research indicates that better financial performance may mediate between sustainability and the access to finance, others state that it is governed or disclosed that facilitates this linkage (Chin et al., 2024).

The literature indicates that sustainability performance is positively and significantly related to access to finance. Companies that have a high level of environmental, social and governance score are likely to access superior financing facilities either with less limits or with more friendly conditions. However, this correlation is conditional: the size of a firm, the situation on a market, quality of disclosure, and financial performance influence the intensity of the correlation. This literature offers a rich basis of the study of the relationship between sustainability performance and firm-level aspects (size and leverage) in determining access to finance- providing understanding of both when and why sustainability is important in raising capital (Starks, 2023).

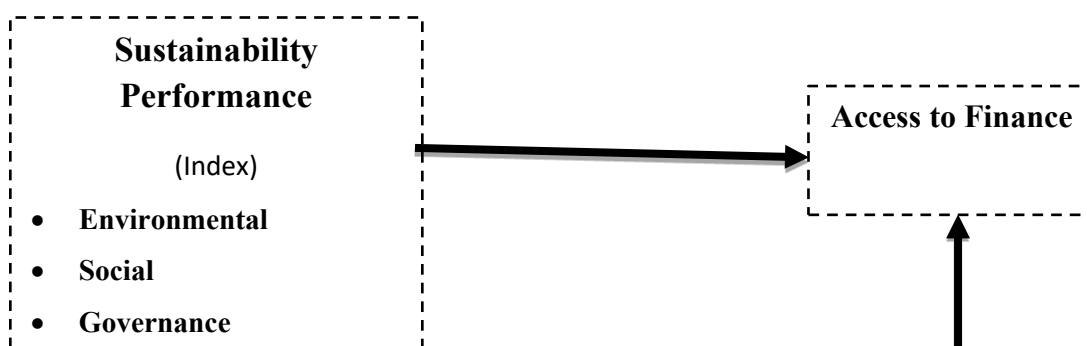
According to (Dicuonzo et al., 2024) indicate that there is a rising positive correlation between sustainability performance with the ESG dimensions and the access to finance. Companies with good environmental behavior (resource efficiency, waste minimization, reduction in emissions etc.) send a good signal to financiers concerning decreased risk of operation and regulation (Assifuah-Nunoo, 2023). Companies that are both socially responsible, in terms of their connection with stakeholders, their fair labor policies, their participation in the community, and governance, in terms of transparency, strong oversight, and the shareholder rights.

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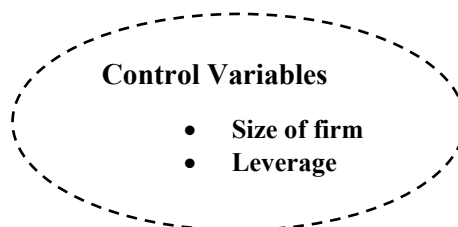
This relationship is further complicated by the control variables of firm size and leverage. The bigger companies will have better chances to benefit in economies of scale in implementing ESG, more established history in credit, and more visibility, which helps to increase the range of opportunities to turn ESG practices into better access to finance (Atz et al., 2023). Simultaneously, the less leveraged firms have a reputation of being less risky, which adds to the high ESG files and enhances capital accessibility (Starks, 2023). Leverage serves as a structural regulation and companies that have more debt would have less finances available even though they demonstrate good ESG practices as the level of debt increases the risk perception (Gao et al., 2023).

**H<sub>3</sub>: There is positive relationship between Sustainability performance (Environmental, Social, and Governance - ESG) and access to finance with controlling effect of Leverage.**

The literature indicates that ESG performance is positively linked to access to finance and this relationship still exists once the firm size and leverage are controlled. The size moderating effect and the leverage controlling one indicate that sustainability performance does not operate independently and instead is related to firm specific elements to influence the financing results.



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## Figure 2.1 Conceptual Framework

### Methodology

To ensure that the relevance of the selected enterprises ensures representation of different economies and sustainability approaches, a purposive sample design applies in the study (Saunders et al., 2009). The sample is sampled on the FTSE equity classification data that classifies countries as developed, advanced emerging economies, secondary emerging and frontier economies. The first sample included 150 firms of advanced countries with high income and good financial markets. Refining process has been undertaken to guarantee the consistency of the data. Only organizations that were publishing annual reports but not reporting sustainability were excluded of the dataset. Similarly, other companies that made sustainability disclosures but did not prepare annual reports were eliminated because of inadequate information (Hashmi et al., 2021).

The analysis scopes 5 years, to 2019- 23. Due to the need to consider the lag effects, financial and environmental disclosure reports began their collection in 2018. The last dataset consists of 100 companies that were monitored during the period of five years, with the selection measures considered. This results in the formation of a powerful panel that applies to econometric analysis.

### Measurement of Variables

Following table 1 comprises of the variable names, types, measurement adopted in this study.

Variable	Measurement	References
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<b>Environmental Issues, Social Issues, Governance Issues</b>	Environmental index Social index Governance Index ESG Indices: ESG indices provide benchmarks for investors by selecting and tracking a portfolio of companies that meet specific ESG criteria. These indices consider ESG performance alongside traditional financial metrics.	Morgan Stanley Capital International (MSCI): <a href="https://www.msci.com/esg-index-methodology">https://www.msci.com/esg-index-methodology</a> S&P Dow Jones Indices: <a href="https://www.spglobal.com/esg/criteria-guidelines">https://www.spglobal.com/esg/criteria-guidelines</a> FTSE Russell: <a href="https://www.ftserussell.com/products/indices/esg-ratings">https://www.ftserussell.com/products/indices/esg-ratings</a> Bloomberg ESG
<b>Access to Finance</b>	Access to Finance (KZ, K4, WW index and KZE)	Baker et al. (2003), Whited and Wu (2006), KZE", based on Cheng et al. (2014). Alrashidi, R., Baboukardos, D., & Arun, T. (2021).
<b>Firm Size</b>	Measured by the logarithm of total assets.	(Chairina et al., 2023), (Marliana, 2024)
<b>Leverage</b>	Determined by the ratio of long-term debt to equity.	(Appiah et al., 2020)

According to Cheng et al. (2014), the functional form of the KZE index is given as:

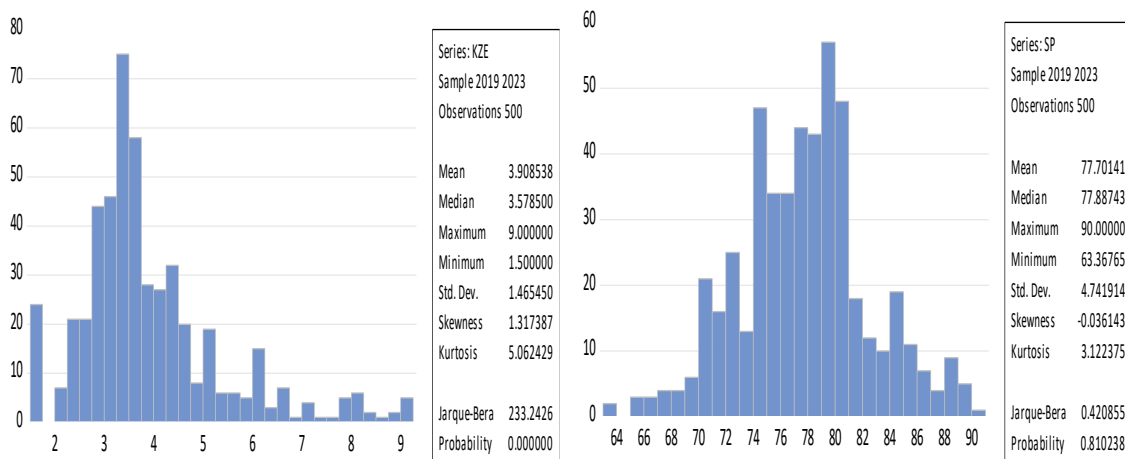
$$KZE_{it} = \{1/5(-1.002CF_{it}/A_i(t-1))\} - \{1/5(39.368DIV_{it}/A_i(t-1))\} - \{1/5(1.315C_{it}/A_i(t-1))\} + \{1/5(3.139LEV_i(t))\} + \{1/5(0.283Q_i(t))\}$$

where  $CF_{it}/A_i(t-1)$  is cash flow over lagged assets;  $DIV_{it}/A_i(t-1)$  is cash dividends over lagged assets;  $C_{it}/A_i(t-1)$  is cash balances over lagged assets;  $LEV_i(t)$  is leverage; and  $Q$  is the market value of equity (price times shares outstanding) plus assets minus the book value of equity all over assets and also called Tobin's  $Q$ . A higher KZE score indicates greater financial constraints, and therefore lower access to finance.

## Results and Analysis

The histograms and descriptive statistics are two datasets KZE and SP. The KZE dataset is positively skewed, and it has a supreme level of middle-range values between 3 and 4, and a mean of 3.91. It has a large skewness (1.14) which shows a longer right tail whereas the kurtosis (3.43) which indicates that the distribution is near normal. The Jarque-Bra test shows that there is the significant deviation of normality which proves non-normality.

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On the contrary, the SP dataset is much more balanced, with a maximum at the range of 77-80, a mean of 77.70, and the standard deviation of 4.74. It is not very skewed (even negatively = -0.36), but it is also nearer to the normal, which is shown by the non-significant Jarque-Bra value (probability = 0.12). Standard deviation and range of SP dataset (63.37 to 90) are greater than that of KZE. These two datasets are significantly spread, although SP lacks a well-defined focus, whereas KZE is focused on the middle values.

**Table 2 Descriptive Statistics**

	KZE	SP	FS	LEV
<b>Mean</b>	3.908538	77.70141	5.445501	6.479517
<b>Median</b>	3.578500	77.88743	4.869758	6.516348
<b>Maximum</b>	9.000000	90.00000	8.898611	9.300000
<b>Minimum</b>	1.500000	63.36765	3.140537	3.623704
<b>Std. Dev.</b>	1.465450	4.741914	1.312021	1.245685
<b>Observations</b>	500	500	500	500

The table 2 is descriptive statistics of four variables, which are KZE, SP, FS, and LEV. KZE mean is 3.91 which shows that the average is a little above 3. The median stands at 3.58 that is lower than the mean implying positive skewness distribution. The range of the dataset is 1.5 to 9 and the standard deviation of the data is 1.47 thus the dataset has a



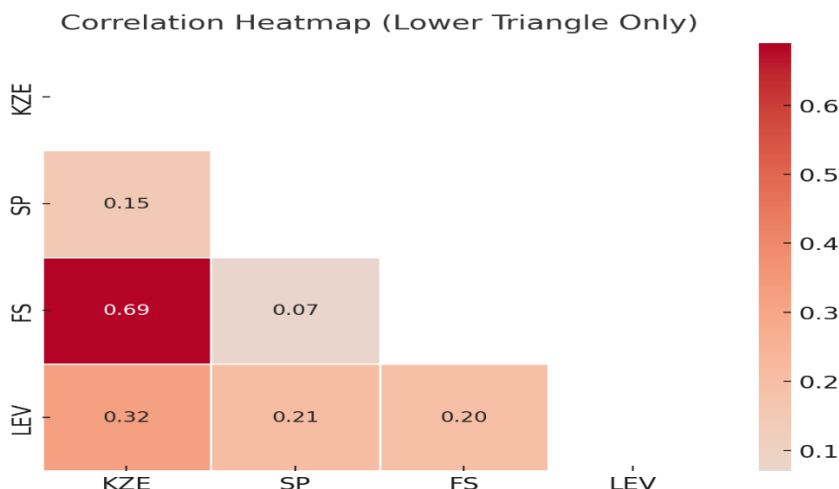
moderate variability around the mean. Conversely, SP mean is 77.70, and median is 77.89, which implies that the distribution is rather symmetric and only slightly skewed to the negative (0.04). Its standard deviation of 4.74 is more variable than KZE. The mean of FS (Firm Size) is 5.45 and the median of the distribution is 4.87 which means that the distribution is skewed positively (skewness = 0.67) but a little, with a standard deviation of 1.31. The mean of LEV (Leverage) is 6.48 and the median value is 6.52 which indicates that distribution is almost symmetric with a slight negative skew (-0.13). Its standard deviation is 1.25 which depicts average variability. Such statistics offer some information about the central tendency, spread, and shape of distribution of each variable which are necessary to know their nature and possible influence on the analysis.

**Table 3 Correlation**

	KZE	SP	FS	LEV
KZE	1			
SP	0.15	1		
FS	0.69	0.07	1	
LEV	0.32	0.21	0.20	1

The correlation matrix presented above indicates the correlation between the variable KZE, SP, FS and LEV. The correlation between KZE and SP is quite low (0.15) with respect to the fact that the two variables are weakly associated with a positive relationship existing between them. This means that there is no strong linear relationship between KZE and SP. Conversely, KZE is positively related with FS (0.69), which is a moderate to strong correlation. This indicates that KZE has a closer relationship with FS than with SP. KZE and LEV have a weak to moderate positive relationship with correlation of 0.32. In the case of SP, its relationship with FS is 0.07, which is very weak positive, which also points to the fact that SP is not closely correlated with FS. The SP and LEV have a correlation of 0.21, which is not high enough implying that the relationship between these two variables is weak, but positive.

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Finally, the relationship between FS and LEV is 0.20, which implies the weak positive relation between the two variables, implying that the firm size and leverage do not have a very strong association. On the whole, the correlations demonstrate that KZE is rather more strongly correlated with FS than ASEs are, whereas the correlations between SP and other variables are lesser.

### Econometric Model

$$KZE(Index)_{it} = \beta_0 + \beta_1 SP_{it} + \beta_2 \text{Firm size} + \beta_3 \text{Levit} + \varepsilon_{it}$$

The failure to reject the Hausman Test shows that no simple decision can be made on whether random effects or fixed effects should be applied in the model as the p-value of 0.2234 shows that there is no significant difference between random effects and fixed effects models on the dependent variable KZE. That is, in this case, the random effects model will be used since the test statistics (Chi- sq = 4.378011) is insignificant according to conventional levels (p-value = 0.05). This indicates that the random effects assumption does not face any problems, and the cross-sectional (in this case, firm) variation is not seriously related to the explanatory variables. Thus, it is reasonable to employ a random effects model, and the null hypothesis of the lack of correlation between the effects on individuals individually and the regressors is not rejected.

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Bearing a glance at the coefficients of the random effects model, results indicate that SP, FS and LEV are significant predictors of KZE. In particular, the positive effect is significant with a coefficient of 0.039979 (p-value = 0.0017) meaning that more appropriate sustainability performance correlates with higher values of KZE. Equally FS (Firm Size) also has a strong positive effect with the coefficient of 0.891969 (p-value = 0.0000) indicating that higher a firm, the more likely it exhibits higher KZE. LEV (Leverage) is also positively correlated with KZE (coefficient = 0.156517, p-value = 0.0089), that is, the more highly leveraged a firm is, the more it can get access to finance or performances. The R-squared = 0.8225 that indicates that model explains a good fit which is 82 percent of the variation in KZE. The value of Durbin-Watson (1.7) indicates that the incidence of autocorrelation in the residuals is not a serious challenge. In general, these findings indicate that firm-specifics as well as sustainability practices have a significant impact on the performance or the access to finance of a firm as KZE documents.

#### Table 4 Regression analysis

##### Dependent Variable: Access to Finance (KZE)

Variables	OLS	RANDOM	FIXED
Intercept	-2.9740 (-3.897)***	-4.33476(-5.3384)***	-5.069(-5.463)***
SP	0.020448 (2.0718)***	0.03553(3.338)***	0.039979(3.16)***
FS	0.72794 (20.4473)***	0.77574 (14.219)***	0.8919 (8.9812)***
LEV	0.20521 (5.35846)***	0.19415 (4.3185)***	0.1565(2.6285)***
N	500	500	500
F-Statistic	177.9432	117.7156	18.036330
R-Square	0.518367	0.415884	0.822507
Adjusted R-Square	0.515454	0.412351	0.776904

The table 4 of the results of the OLS regression of KZE as dependent variable illustrates that the SP (Sustainability Performance), FS (Firm Size), and LEV (Leverage) have significant predictive power of KZE. The SP coefficient is 0.020448, thus demonstrating that there is a positive relationship between SP and KZE, with t-statistic of 2.07 and the p-value of 0.0388, which means that the effect of SP on KZE is statistically significant at the 5 percent level. FS is positively related to KZE with a coefficient of 0.727944 and (p-value

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= 0.0000) is significant. On the same note, LEV also affects KZE ( $= 0.205211$ , and it has a highly significant p-value ( $= 0.0000$ ). The value of the R-squared is 0.518367 which implies that about 52 percent of the variation in KZE is attributed to independent variables. The value of Adjusted R-squared (0.515454) is relatively smaller and it takes into consideration the number of the predictors used in the model. The F-ratio of 177.94 ( $p=0.0000$ ) shows that the model in this case is statistically significant (Cooke, 2024).

The purpose of the current study is to explain the variation in KZE through the use of Sustainability Performance (SP), Firm Size (FS), and Leverage (LEV) as independent variables based on the Random Effects Panel EGLS regression model (Cross-section random effects). The findings indicate a significant effect of the three independent variables on KZE. The SP coefficient of the relationship is 0.035533, and a p-value of 0.0009, a positive and significant relationship between sustainability performance and KZE is therefore observed, that is better sustainability performance is related with better financial performance or access to finance. The FS coefficient of 0.775746 is significant ( $p\text{-value} = 0.0000$ ) and it means that the firm has close positive relationship with KZE where big firms are likely to perform better. On the same note, LEV coefficient is 0.194153, and p-value of 0.0000 shows that increased leverage is positively correlated to KZE, which shows that more leveraged companies are more likely to have good financial results. The obtained R-squared value of 0.415884 means that the model helps to explain about 41.59 of the variation in KZE, whereas the Adjusted R-squared of 0.412351 is a better measurement after considerations are made on the number of predictors. The fact that F-statistic of 117.72 ( $p\text{-value} = 0.000000$ ) is considerable implies that the model is significant in its entirety.

According to (Gourieroux & Jasiak 2023) the Fixed Effects Panel Least Squares (PLS) regression model is expected to demonstrate the difference in KZE based on three independent variables Sustainability Performance (SP), Firm Size (FS), and Leverage

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(LEV) model using data available between the years 2019 and 2023 on 100 firms. The model results indicate that all the three independent variables have significant effects on KZE. The SP coefficient is 0.039979 with a p-value of 0.0017 which suggests that there is a positive relationship existing between sustainability performance and KZE whereby the better firms perform or access finance, the better sustainability they have practiced. KS FS coefficient value stands at 0.891969 and its p-value = 0.0000 which is also very significant meaning that bigger companies are linked with higher KZE values indicating that financial performance or access is more favorable.

According to (Firebaugh et al., 2013), LEV has a positive correlation and a coefficient of 0.156517 that corresponds with an insignificant p-value of 0.0089 indicating that more leveraged firms are also more likely to possess better conditions or performance in terms of their finances. The model describes the variation in KZE of around 82.25%, as suggested by the R-squared value, indicating a good strong fit to the model. The model is also reliable as is evidenced by the different Adjusted R-squared value of 0.776904, which explains the number of predictors. The F-statistic 18.04 (p-value = 0.000000) implies that the overall model was significant and the Durbin-Watson statistic is 1.7, which means that no major problem of autocorrelation of the residues is observed. All in all, the regression analysis shows that the sustainability performance, firm size, and leverage have strong effects on KZE, and the model offers a good fit and viable results regarding the aspects that can affect the financial performance of a firm.

## Conclusion

The results of this paper can be valuable when it comes to understanding the correlation between Sustainability Performance (ESG) and access to finance; therefore, firm size and leverage can be considered as the essential control variables. The findings continually indicate a positive significant correlation between Sustainability Performance and access to finance (which is KZE) to support Hypothesis 1. Companies that focus on sustainability

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endeavors such as environmental, social and governance undertakings have higher chances of raising funds. This implies that sustainability practices enhance more than merely a strategic benefit but also a major factor that attracts investors and lenders. Also, the Firm Size (FS) was discovered to contribute positively to the positive relationship of the sustainability performance and access to finance, which corroborates Hypothesis 2. The larger companies enjoy the advantages of their sustainability practices more probably because of their presence in the markets, resources, and the opportunity to comfortably execute the sustainability strategies. Hypothesis 3 was also proved by the analysis, which revealed that the Access to finance is positively affected by Leverage (LEV) albeit at a lesser level than the firm size. Even highly leveraged firms may be able to enjoy better sustainability performance in the financing operation which implies that leverage does not always create a barrier to accessing funds under the condition that firms have efficient ESR practices (Assifuah-Nunoo, 2023). Altogether, the paper emphasizes the increased relevance of sustainability in the realm of financial decisions and the fact that the size and leverage of firms can affect the financial advantages of sustainability initiatives. The results indicate that firms, especially large ones are able to enhance their financial performance by incorporating sustainability practices both in their operations and strategies besides underscoring important firm size and leverage factors in improving access to finance.

### **Future Research Direction**

There are a few directions that the further investigation can take in enhancing the results of the presented research. To begin with, a more general analysis of industry-specific differences in the correlation between Sustainability Performance (ESG) and access to finance would offer more insights. The regulatory and market requirements of different industries might be different and such requirements might impact the effects of sustainability practices on financial accessibility. Also, a research can be conducted on the

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long term implications on sustainability and its impact on access to finance and whether firms that undertake sustainability produce better financial performance over the years. The other intriguing direction to conduct future studies is how external variables, including macroeconomic conditions or country-specific regulations moderate the ESG performance-access to finance relation. Moreover, it may be possible to include qualitative information in the future research including interviews with investors or financial analysts in order to gain a better understanding of the decision making process of financial decisions related to sustainability. Finally, the comparison across countries might offer useful information on the effect of global disparities in sustainability expectations and financial markets on the correlation between ESG and finance.

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