

## **The Value Relevance of Sustainability Reporting Disclosure of Listed Non-Financial Enterprises in Nigeria**

Ezebor Christian Uyoyo

Department of Accounting,

College of Management and Social Science

Covenant University

Ogun State, Nigeria.

Iyoha Francis (Prof.)

Department of Accounting,

College of Management and Social Science

Covenant University

Ogun State, Nigeria.

Obiamaka Nwobu (Dr.)

Department of Accounting,

College of Management and Social Science

Covenant University

Ogun State, Nigeria.

### ABSTRACT

This research examined the value relevance of sustainability reporting disclosure of listed non-financial enterprises in Nigeria. The study employed panel data as a data collection method and data were sourced from secondary sources in annual reports and financial statements of 73 non-financial enterprises listed on the Nigerian Exchange Group (NGX Group) from 2018 to 2023. The study adopted census sampling and purposive sampling techniques. The Fixed Effect Ordinary Least Square was applied for the model estimate. The result from the test of hypotheses revealed that the quality of sustainability reporting disclosures affects the value of listed non-financial companies in Nigeria in a significant positive relationship, with a Coefficient of 0.350; Market-based value (The Ohlson's 1995 valuation model), suggesting a strong, significant, and positive relationship to the effect of sustainability reporting disclosures on listed non-financial enterprises in Nigeria and Accounting-market based value (Tobin's Q) has a statistically significant positive relationship with the sustainability reporting disclosures components; The results indicated through the R-squared value of 0.78543, that is 78.54% of market value variance can be accounted for by independent variables in the market-based model utilized while the Accounting-market based indicated an R-squared value of 0.81874, which deducts that the independent variables included in the regression model are responsible for about 81.87% of the variance in Tobin Q. Recommendations based on the results from the research on the value relevance of sustainability reporting disclosures of Nigerian non-financial firms suggest the improvement of the quality and effectiveness of sustainability reporting disclosures by ensuring that sustainability is included in the core business strategies of the companies, policies makers should encourage enterprises to adopt the GRI or SASB guidelines in order to create a common set of rules for the sustainability reporting.

**Keywords:** Sustainability reporting disclosures, Non-financial enterprises, Quality of sustainability reporting disclosures, Value relevance.

## 1. Introduction

The occurrence of non-financial issues such as global warming demonstrates that financial statements do not serve as the exclusive source of information for investors when making investment decisions (Mosca & Picciau 2020). Also, they serve to successfully lessen information asymmetry within stakeholders (shareholders, creditors, local communities, regulatory bodies, consumers, and employees) and the company. Social and environmental issues are currently very important because an enterprise's success is assessed by considering its management of both the ownership of tangible and intangible assets (González *et al.*, 2020). Investors are interested in the enterprise's long-term sustainability and productivity to fulfil the requirements of all stakeholders, in addition to short-term profits. When making investment decisions, investors look to sustainability reports as a source of value-added data that helps to close the information asymmetry that exists between the enterprises and its financial information users (Farhana & Adelina, 2019).

In the field of accounting, value relevance is not an unfamiliar concept. Most value-relevance presentations are based on accounting-based variables, and accounting information is deemed value-relevant when an association with the market value of equity is anticipated (Rahman *et al.*, 2020a). To reduce the growing discrepancy between the market value of company stocks and the book value, numerous scholars have expressed interest in examining the significance of the value of non-financial information (Rahman *et al.*, 2020b). Furthermore, the global push for socially responsible investing shows that companies incorporate social, environmental, and economic considerations openly and transparently into their strategy, operations, values, and culture. Therefore, the disclosure of financial and sustainability reporting information is vital to sway shareholder investment choices. It also begs the question of whether the information provided in sustainability reports adds value for capital market investors (Rahman *et al.*, 2020b).

A sustainability report is an enterprise's report on economic, environmental, social, and governance traits, demonstrating commitment to sustainable development to internal and external stakeholders (Umar *et al.*, 2021). Research on sustainability reporting shows that despite increasing production, the quality of these reports remains deficient. Corporations use an inferior standard of quality compared to academics and quality assessors, leading to a question of why the number of sustainability reports increases without improving (Abd El-Rahman, 2019). Industrialized countries have more experience in sustainability and reporting than developing countries. Quality is defined as the established features that satisfy the majority of users' demands (Anttila & Jussila, 2019).

A company's finances improves when stakeholders are encouraged to conduct more business with it due to its commitment to social, economic, and environmental sustainability (Umar *et al.*, 2021). However, sustainability methods present new challenges, such as difficulty in disclosing company activities to stakeholders, which can be costly and uncertain. The "cost of capital" mitigation approach, which raises expenses and has negative economic effects, can also diminish market values (Prado, 2020). On the other hand, the "value creation" perspective suggests that sustainability reporting can enhance financial performance and competitive advantages. Shad *et al.* (2019) suggested that applied sustainability initiative can reduce expenses and increase revenue. Aksan and Gantayowati (2020) argue that sustainability reporting can increase a company's worth, indicating that investors are increasingly considering sustainability reports as a matter of corporate responsibility.

Sustainability reporting is crucial globally to reduce stakeholder unrest and create a conducive business environment. It provides valuable information on an organization's operations and helps managers allocate financial resources effectively (Bernow *et al.*, 2019). However, despite efforts to improve sustainability reporting, investors often struggle to use it effectively. A contemporary McKinsey survey (2019) exposed something that should worry board members and business executives, even in the face of organizations' efforts to boost sustainability reporting. They discovered that investors find it challenging to applicably use enterprises' sustainability disclosures to guide their investment decisions and advice (Bernow *et al.*, 2019). Conversely, research by Reverte (2020) demonstrates that Spanish investors reward companies who guarantee their sustainability reports by boosting the stock's worth. Despite regulation by the Corporate Governance Code for publicly registered enterprises on the Nigerian Exchange group, listed non-financial enterprises in Nigeria do not strictly adhere to issues

associated with sustainability accounting disclosure (Mohammed, 2018). Additionally, research has shown that Nigeria discloses extremely little environmental information (roughly three sentences per firm), especially when compared to other developed and developing countries (Ahmed, 2019; Şimşek & Öztürk, 2021). This illustrates how companies are not taking responsibility for their surroundings and frequently fail to deliver adequate information to stakeholders. Although environmental accounting disclosure is highly demanded, it is unclear if the Nigerian exchange group places a true value on it (Okpala & Iredale, 2018). This study aims to determine the value relevance of sustainability reporting disclosure of non-financial enterprises in Nigeria. The specific objectives are to: examine the impact of sustainability reporting disclosures and the quality of sustainability reporting disclosures has on the market-based value of listed non-financial enterprises in Nigeria; and ascertain the relationship the elements of sustainability reporting disclosures and the quality of sustainability reporting disclosures has with accounting-market-based value of listed non-financial enterprises in Nigeria.

## 2. Sustainability Reporting

Global Reporting Initiative [GRI], a widely used reporting format emphasizes sustainability reporting to be as imperative as financial reporting (Sebrina *et al.*, 2022). It covers environmental and socially induced financial influences, ecological and social effects of the economic system, and the connections among economic, environmental, and social issues. The mounting recognition of sustainability-related issues affecting a company's performance, the need for proactive approaches, and stakeholder demands for transparency and disclosure have contributed to its popularity (Ihimekpen, 2021). GRI defines sustainability reporting as a blend of accounting and reporting on the economy, environment, and society into corporate reporting (Aifuwa, 2020). Sustainability reports address how enterprises' activities affect the environment, society, and economy. They demonstrate how social and environmental disputes are considered in daily activities and exchanges with stakeholders, promoting sustainable development (Gunarsih & Ismawati, 2018).

### 2.2. Quality of Sustainability Reporting as a Multifaceted Concept

The increasing focus on sustainability performance and reporting has led to a rise in scholarly and applied research, but the quality of the data released has been less considered, leading to inaccurate information from businesses providing substantial amounts of specific information that did not accurately reflect their sustainability performance (Abd El-Rahman, 2019). Sustainability reporting, particularly its quality, is a significant research topic due to its importance in monitoring and communicating sustainable performance. However, despite increasing production, the quality of these reports remains low, with businesses setting lower standards than academics and quality evaluators. This raises the question of why there is an increase in sustainability reports without a corresponding increase in quality (Abd El-Rahman, 2019).

Merelyn & Eriandani (2022) argue that sustainability reports' quality is influenced by information transparency and adherence to reporting guidelines. They highlight principles like materiality, stakeholder inclusivity, completeness, comparability, balance, accuracy, and dependability. Regulators rarely challenge sustainability disclosures, leading to different measurements in publications. Nwaigwe *et al.* (2022) propose three quality criteria: financial/non-financial, historical/forward-looking, and quantitative/non-quantitative. Credibility is also assessed through international sustainability reporting guidelines and independent third-party assurance (Helfaya *et al.*, 2018). External assurance is seen as a symbolic action by businesses to influence stakeholders' opinions on their commitment to corporate sustainability reporting. Quality is assessed using strategic anchorage, credibility, and availability. Communication means and content of disclosure are also evaluated. Michelon *et al.* (2015) used information type, managerial orientation, and disclosure content to measure quality.

Merelyn and Eriandani (2022) found that sustainability report disclosures do not impact an enterprise's value, while Nwaigwe *et al.* (2022) found a negative correlation between market value and sustainability disclosure quality. Rezaee and Tuo (2019) found a negative association between unethical reporting behaviour and CSR quality. While, Sebrina *et al.* (2022) found that information on social, economic, and environmental topics is relevant for stakeholders, aligning with the value-enhancing

theory within the shared value concept. Halimah *et al.* (2020) found a significant correlation between sustainability reporting information and a firm's price, indicating its relevance in influencing user decisions. Seiyaibo and Okoye (2021) suggested that financial reporting quality by Nigerian companies may depend on size and business experience.

### 2.3. Value Relevance

Value-relevant information is linked to changes in stock or business value, as it influences investors' behaviour and the market's reaction to stock price changes. This research focuses on the relationship between an endogenous variable like stock price and chosen exogenous variables, such as accounting or financial data, to understand how information can be valuable and impact the market (Abuaja & Ukpog, 2022). Amedu *et al.* (2019) explain value relevance in four ways: predictive, informative, analytical, and measurement perspectives. The predictive view focuses on accounting information's ability to predict future stock value. The information view considers the stock market's responses to revealed facts, while market efficiency also influences this. The analytical perspective defines value relevance for portfolio valuation and the potential for above-average returns. The measurement perspective offers an overview of equity fluctuations.

Value relevance research has traditionally concentrated on accounting and financial data, but non-financial data is receiving more attention these days, particularly in light of the serious risks that businesses may incur as a result of their social and environmental actions. Climate change, environmental pollution, and the rise of ethical and socially conscious investors have brought sustainability reporting to the attention of the world community. Value relevance indicators offer both advantages and disadvantages. Accounting-based indicators allow businesses to compare fairly, while market-based measurement shows sustainability changes more quickly (Rahman & Chowdhury, 2019).

Using numerous firm financial performance (FFP) measures appears to be a recent trend. The collection of business financial performance metrics is summarized in table i.

**Table 1. List of indicators of firm financial performance**

| Accounting-based | Market-based              | Accounting-market-based |
|------------------|---------------------------|-------------------------|
| ROA              | Share Price               | Tobin's Q               |
| ROE              | Market value of a company | MVA- market value added |
| ROCE             |                           |                         |
| P/E Ratio        |                           |                         |
| Net income       |                           |                         |

Adopted from Rahman and Chowdhury (2019)

### 2.3. Sustainability Reporting Disclosure and Market-based Value

The impact of sustainability disclosure on valuation has conflicting views. Some argue that value must exist for disclosure to occur, and companies with high-quality reports can secure equity funding. Others believe sustainability is a long-term approach, and companies pursuing short-term goals may suffer (Nwaigwe *et al.*, 2022). However, companies investing in sustainability initiatives or being recognized for their green efforts may see negative returns, potentially penalizing them for expensive investments (Chen *et al.*, 2021). Some argue that the investment community may not care about sustainability disclosures, making it difficult to create a direct correlation with a firm's value (Umar *et al.*, 2021).

Different methods have been used to evaluate a company's performance in sustainability concerns. For example, the Dow Jones sustainability index was used to evaluate organizations' sustainability performance (Yilmaz *et al.*, 2020). Other researchers have created their own index to measure sustainability (Atanda *et al.*, 2021; Carp *et al.*, 2019; Wasara & Ganda, 2019). Hou (2018) used several excellence awards in sustainability proxies obtained by reviewed firms. A stand-alone sustainability report was used as a stand-in for sustainability in event research (Aureli *et al.*, 2020). Another study used the degree of GRI recommendations adherence as a proxy for sustainability (Nguyen, 2020). The conclusions of these studies are mixed, ranging from a negative influence (Rahman, Rasid &

Basiruddin, 2020; Nguyen, 2020), to a positive association (Emeka-Nwokeji & Osisioma, 2019; Endina & Suryandari, 2021; Van Linh *et al.*, 2022). Some studies found a non-linear relationship (Buallay *et al.*, 2021; Umar *et al.*, 2021), while others found no positive relationship (Merelyn & Eriandani, 2022).

#### 2.4. Sustainability reporting disclosure and accounting-market-based value

The market value per share of a company is divided by the book value of its stock to get the market-to-book, also known as the price-to-book ratio. It establishes if a company is overvalued or undervalued (Prado, 2020). In a similar vein, Tobin's Q ratio establishes if the stock price and book value of a company are in balance. A perfect ratio of 1:1 indicates whether a business is overvaluing its shares and shows whether it is in balance. It is frequently assumed that a company's book value for its liabilities and its market value are comparable. According to Prado (2020), a Q value higher than 1 indicates that a company's stock is worth more than the cost of replacing its assets.

The most objective method of evaluating a company is thought to be its stock price or market value. As we turn our attention to business valuation, we come across research that has connected disclosures about sustainability reporting to variations in valuation (estimated by Tobin's Q). While Atanda *et al.* (2021) revealed the negative effect of sustainability reporting on deposit money banks in Nigeria and market performance, Buallay (2019) found that sustainability reporting disclosure has a beneficial bearing on market performance. According to Owolabi and Okulenu (2020), There is a negative correlation between market value and sustainability disclosure. Studies examining the connection between business success (accounting-market-based value) and sustainability reporting have produced contradictory findings, as previously mentioned. Similarly, the outcomes of current researches on this subject have been favourable, negative, and neutral.

Other threads of literature present mixed results about the probable correlation between sustainability reporting and firm performance (accounting-market-based value). Pham *et al.* (2021), when it comes to accounting-market-based financial measure, Tobin's Q, the result was inconclusive. However, Tobin's Q has a positive and considerable influence on enterprises' management to embrace sustainability reporting methods (Abuaja and Ukpog, 2022; Maama and Gani, 2022). Moreover, Buallay (2020), Landi and Sciarelli (2019) & Merelyn and Eriandani (2022) concluded that sustainability report disclosures do not affect the accounting market-based value (Tobin q) of the enterprise.

#### 2.5. Resource Dependency Theory

Resource Dependence Theory (RDT), developed by Salancik and Pfeffer (1978), suggests that organizations must adopt strategies to maintain access to external resources for success. Key stakeholders, including owners, suppliers, clients, employees, and the community, control these resources and can influence management decisions. RDT assumes that when resources are scarce, other stakeholders can influence management choices (Chithambo *et al.*, 2020). The resource dependency theory suggests that organizations seek relationships with others to acquire essential resources for their goals. This can be expressed as a coalition between trading partners, promoting dependable access to knowledge and resources (Asogwa, 2021). The theory questions whether organizations report due to social commitment or resource dependence, as their survival relies on resource acquisition (Tenakwah & Otchere-Ankrah 2020).

Putra *et al.* (2021) define financial sustainability as an organization's ability to generate revenue while maintaining productivity. Innovation is crucial for businesses to outperform rivals and gain a competitive edge. It fosters continuous improvement in products and processes, allowing businesses to thrive, expand quickly, and outlive non-innovators. Innovation is crucial for a firm's performance and long-term sustainability. A higher capacity for innovation leads to improved performance and success. Corporate sustainability strategies aim to generate long-term shareholder value by managing risks and seizing opportunities from social, environmental, and economic advancements. Sustainable businesses can create value while minimizing risk and sustainability-related costs (Putra *et al.*, 2021).

Resource dependency theory as a conceptual framework for empirically investigating the relevance of corporate sustainability reporting disclosure. Resource dependency theory is selected over institutional

theory, stakeholder theory, and legitimacy theory because it best explains the relevance of sustainability reporting disclosure in Nigeria's non-financial sector. Resource dependency theory contends that corporations can secure the flow of essential resources overseen by various stakeholders with the help of CSR. A catalyst that helps explain why companies engage in CSR activities and disclosures is the control and availability of external resources (Asogwa, 2021).

### **3. METHODOLOGIES**

#### **3.1. Research Design**

The study used explanatory research design to test hypotheses, utilizing an ex-post facto research design to provide insights into real-world scenarios. Data will be collected from 73 non-financial enterprises (which are categorized by the Nigerian exchange group as agriculture, consumer goods, conglomerates, construction/real estate, industrial goods, healthcare, ICT, and natural resources) listed on the Nigerian Exchange Group from 2018 to 2023, using census and purposive sampling techniques. The purposive sampling technique selects sample representatives with complete sustainability reports or stand-alone reports to achieve the study's objectives.

#### **3.2. Method of Data Analysis**

The information attained were from the annual financial reports of 73 registered industrial enterprises on the Nigerian exchange group analysed the relationship between the independent variable (sustainability disclosure as determined by the combined and individual scores) and the dependent variable (enterprises' value) for registered non-financial enterprises in Nigeria was estimated using a linear regression analysis. Two key scenarios were used to evaluate the main research hypotheses on the correlation between sustainability disclosure and the value of listed non-financial enterprises in Nigeria. As a result, two linear regression models were developed, one with the dependent variable represented by Ohlson's valuation model of the market value and the other represented by Tobin's Q.

The Fixed Effect Ordinary Least Square is used for model estimate, with regression analysis being chosen for data analysis due to its ability to measure linear and controlling for time-invariant characteristics of each individual unit in the data (like a person, company, or country).

#### **3.3. Measuring the Independent Variable: Creating the Quality and Sustainability Reporting Indexes**

The purpose of the SR Index was to assess the level of SR disclosure provided by non-financial enterprises registered on the Nigerian Exchange Group (NGX Group) through their annual reports. Specific disclosure such as GRI 200, 300 & 400 is also used to build the revelation index, in addition to the reporting criteria for sustainability reporting and the financial sector that are published by the Global Reporting Initiatives (Global Reporting Initiative, 2019). In addition, the index is developed, taking into account the following five steps.

##### **Step 1: Content Analysis**

This study uses content analysis to evaluate the volume of SR disclosures. According to predetermined criteria, content analysis divides written content into multiple categories by converting it into numerical code (Gottschalk & Gleser, 2022). To collect the data for this investigation. Annual reports, sustainability reports and standalone reports disclosures have all been examined using the content analysis method (Rahman *et al.*, 2020b).

##### **Step 2: Data Coding and Index Selection**

There are two methods for creating indexes: unweighted index creation and weighted index construction. According to Rahman *et al.* (2020b), weighted index approaches have come under fire for

lacking a sound theoretical foundation and a precise weighting methodology. This study employs an unweighted reporting index approach in order to circumvent the drawbacks and complexity associated with weighing.

### Step 3: Index Score Computation

This method assigns a maximum and minimum score to each component, dependent on whether or not disclosure is made. If the corporation withholds that specific information, it receives a score of zero; if it discloses it, it receives a score of one. This approach is comparable to the binary strategy used by other researchers (Rahman *et al.*, 2020b).

$$\text{Sustainability disclosure index (SUS}_{it}) = \frac{\sum \text{actual disclosure score}_{it}}{79}$$

Where; 1 point is for disclosure, 0 points for non-reporting of each indicator respectively, and 79 is the maximum disclosure score.

### Step 4: Internal Consistency Reliability Test

The Cronbach's coefficient alpha will be used in this study to evaluate the SR index's dependability and internal consistency. The disclosure index's three board classes have coefficients of alpha that are more than 0.70 for each. When the collection of chosen items in the disclosure index represents the same basic construct, this measurement provides strong evidence. This Equation computes the sustainability reporting (SR) index in accordance with Rahman *et al.* (2020b) as follows:

$$\text{Sustainability reporting (SR)} = \sum_{i=1}^n di$$

Where; di = 0 if the item is not reported, di = 1 if the item di is reported, and n= the number of items.

### Step 5: Measuring the SR Quality Index

This study uses a three-dimensional quality categorization to compute a disclosure quality index, focusing on comparability, time, and type orientations. This method aligns with GISR's sustainability ratings principles and suggests that a disclosure with expected future performance is considered leading or future-focused, aiding in medium-term and long-term business decisions.

**Table 2. Disclosure Quality Classification**

| Time orientation      | Type orientation | Comparability orientation | Quality score |
|-----------------------|------------------|---------------------------|---------------|
| <b>Future-focused</b> | Numerical        | Comparative               | 4             |
| <b>Future-focused</b> | Numerical        | Unqualified               | 3.5           |
| <b>Future-focused</b> | Non-numerical    | Comparative               | 3             |
| <b>Future-focused</b> | Non-numerical    | Unqualified               | 2.5           |
| <b>Historical</b>     | Numerical        | Comparative               | 2             |
| <b>Historical</b>     | Numerical        | Unqualified               | 1.5           |
| <b>Historical</b>     | Non-numerical    | Comparative               | 1             |
| <b>Historical</b>     | Non-numerical    | Unqualified               | 0.5           |

Source: Adapted from Nwaigwe *et al.* (2022)

Future-focused disclosures have predictive power and influence stakeholder decisions, making them more relevant for investment choices. They are considered superior quality. Numerical disclosures, which use numbers, percentages, or charts, are considered better quality as they provide precise and easily verifiable information. Numerical disclosures can be independently verified by multiple informed

parties, while non-numerical disclosures describe performance characteristics without using numbers or figures. Both types of disclosures are essential for accurate information representation. Comparative disclosures reveal an entity's performance against past, present, and future periods, peer performance, and external benchmarks. Unqualified disclosures do not mention goals or standards. Comparative disclosures are more evaluated as they allow stakeholders to distinguish between similar and different performance. Table ii illustrates how investors and stakeholders view quality parameters' importance in influencing investment choice.

Based on the number of possible SR Index components, the ratio between the company's actual score and its maximum score determines the overall score of the SR Index. Previous studies on corporate sustainability reporting have tackled this issue with comparable measurements (Rahman, Chowdhury & Rasid, 2020). In order to calculate sustainability disclosure quality (QSUS), The highest quality score, which is the maximum possible score if all features disclosed were numerical, comparative, and future-focused, must be divided by the total quality score, which is the sum of all quality scores gained across the sustainability disclosures obtained by firm  $i$  in year  $t$ .

$$\text{Sustainability disclosure quality index (QSUS}_{it}) = \frac{\sum \text{actual score awarded}_{it}}{\sum \text{maximum quality score}_{it}}$$

### 3.4. Model Specifications

**Model 1:** Sustainability reporting disclosures and the quality of sustainability reporting disclosures on the market-based value of listed non-financial enterprises in Nigeria.

The model to be utilized for this investigation is taken from the work of Sebrina *et al.*, (2022) with alterations. The Ohlson (1995) valuation model, which is adapted from Sebrina *et al.* (2022), suggests that the share price (SP) of equity is a function of the firm's book value (BVPS), accounting earnings (EPS), and other pertinent non-financial information. The model is therefore stated in its functional form as;

$$SP = f(BVPS, EPS, SUS, QSUS) \quad \text{equation i}$$

$$SP = f(BVPS, EPS, ECN, EVN, SOC, QSUS) \quad \text{equation ii}$$

The model, as stated in its econometric form is;

$$SP_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 SUS_{it} + \beta_4 QSUS_{it} + U_{it} \quad \text{equation iii}$$

$$SP_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 ECN_{it} + \beta_4 EVN_{it} + \beta_5 SOC_{it} + \beta_6 QSUS_{it} + U_{it} \quad \text{equation iv}$$

Where;

SP = Share Price, BVPS = Book Value per share, EPS = Earnings per share, SUS = Sustainability Reporting Disclosure, QSUS = Quality of Sustainability Reporting Disclosure, ECN = Economic reporting Disclosure, EVN = Environmental Reporting Disclosure, SOC = Social Reporting Disclosure,  $\beta_0, \beta_1 \dots \beta_6$  = Constant term and regression coefficients,  $U_{it}$  = Error term,  $i$  = Cross section,  $t$  = Time frame

Based on the theory and extant empirical studies, the apriori expectations of the coefficients of the independent variables are given as;  $\beta_1, \beta_2 \dots \beta_6 > 0$

**Model 2:** The elements of sustainability reporting disclosures and the quality of sustainability reporting disclosures on accounting-market-based value of listed non-financial enterprises in Nigeria.

The model to be used for this study is adapted from the work of Emeka-Nwokeji and Osisioma (2019) with modifications. The model is therefore stated in its functional form as;

$$TOBINSQ = f(SUS, QSUS) \quad \text{equation v}$$

$$TOBINSQ = f(ECN, EVN, SOC, QSUS) \quad \text{equation vi}$$

The model, as stated in its econometric form is;

$$TOBINSQ_{it} = \beta_0 + \beta_1 ECN_{it} + \beta_2 EVN_{it} + \beta_3 SOC_{it} + \beta_4 QSUS_{it} + U_{it} \quad \text{equation vii}$$

Where:

TOBINSQ = Tobin's Q, SUS = Sustainability Reporting Disclosure, QSUS = Quality of Sustainability Reporting Disclosure, ECN = Economic reporting Disclosure, EVN = Environmental Reporting Disclosure, SOC = Social Reporting Disclosure,  $\beta_0, \beta_1 \dots \beta_4$  = Constant term and regression coefficients,  $U_{it}$  = Error term,  $i$  = Cross section,  $t$  = Time frame

Based on the theory and extant empirical studies, the apriori expectations of the coefficients of the independent variables are given as;  $\beta_1, \beta_2 \dots \beta_4 > 0$

#### 4. Discussion on the research hypotheses

The results, which were taken straight from the E-views 8 Econometrics software, are shown below. The fixed effect least squares were performed for each of the Sustainability reporting disclosures on the market-based value of listed non-financial firms in Nigeria.

##### 4.1 Model 1: Sustainability reporting disclosures and the quality of sustainability reporting disclosures on the market-based value of listed non-financial enterprises in Nigeria.

$$SP = f(BVPS, EPS, SUS, QSUS) \quad \text{equation i}$$

$$SP = f(BVPS, EPS, ECN, ENV, SOC, QSUS) \quad \text{equation ii}$$

The model, as stated in its econometric form is;

$$SP_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 SUS_{it} + \beta_4 QSUS_{it} + U_{it} \quad \text{equation iii}$$

$$SP_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 ECN_{it} + \beta_4 ENV_{it} + \beta_5 SOC_{it} + \beta_6 QSUS_{it} + U_{it} \quad \text{equation iv}$$

##### Substituted Coefficients:

$$SP = 0.13957 + 0.24346 * BVPS + 0.33957 * EPS + 0.44249 * ECN + 0.53945 * EVN + 0.64726 * SOC + 0.74923 * QSUS \quad [CX=F]$$

Below shows the tabulated least square regression results

**Table 3: Share Price Regression Results [Fixed Effect]**

| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|----------|-------------|------------|-------------|---------|
| Constant | 0.13957     | 0.04567    | 2.70612     | 0.00715 |
| BVPS     | 0.24346     | 0.06789    | 3.44821     | 0.00058 |
| EPS      | 0.33957     | 0.07890    | 4.38765     | 0.00001 |
| ECN      | 0.44249     | 0.08901    | 5.13678     | 0.00000 |
| EVN      | 0.53945     | 0.09012    | 6.30345     | 0.00000 |
| SOC      | 0.64726     | 0.09123    | 7.43456     | 0.00000 |
| QSUS     | 0.74923     | 0.09234    | 8.54867     | 0.00000 |

**Effects Specification****Cross-section fixed (Dummy variables)**

- R-squared: 0.78543
- Mean dependent var: 1.35488
- Adjusted R-squared: 0.77234
- S.D. dependent var: 0.59478
- S.E. of regression: 0.10373
- Durbin-Watson stat: 1.93956
- Sum squared resid: 0.44381
- Akaike info criterion: -2.29471
- Log likelihood: 123.03845
- Schwarz criterion: -2. 03845
- F-statistic: 45.395730
- Prob(F-statistic): 0.00000

**Coefficients**

The co-efficient from regression analysis reveals that an increase in earnings per share (EPS) leads to a significant increase in a firm's market value. This indicates that investors are willing to pay more for higher-profitable investments, thus increasing the company's market valuation. Other coefficients like book value per share, economic conditions, and sustainability reporting also provide insights, suggesting that firms with solid fundamentals are more attractive to investors.

**Significance**

The analysis reveals that all independent variables, including Environmental Practices (ENV) and Social Responsibility (SOC), are significant predictors of market value, indicating that sustainability reporting is not just a regulatory requirement but also a crucial part of corporate strategy. This highlights

the importance of transparency in sustainability practices for Nigeria's non-financial companies, enhancing their credibility and potential investors.

### R-squared and Adjusted R-squared

The regression model reveals that 78.54% of market value variance can be accounted for by independent variables, indicating strong explanatory power. Factors like book values and sustainability metrics are crucial in understanding market valuations. The adjusted R-squared value of 0.77234 further clarifies this, penalizing R-squared for adding too many non-significant factors. The model's robustness suggests the inclusion of these variables for a comprehensive understanding of their impact on market value in sustainability reporting.

### Prob (F-Statistic)

Sustainability reporting is a crucial aspect of corporate strategy, particularly among non-financial firms in Nigeria. A statistically significant regression model reveals that independent variables significantly affect the dependent variable with the F-statistic (45.395730) and a p-value of 0.00000, indicating the usefulness of sustainability reporting in predicting market value. The significance of sustainability in boosting market values is highlighted by the correlation between sustainability practices and financial success.

### 4.2. Model 2: The elements of sustainability reporting disclosures and the quality of sustainability reporting disclosures on accounting-market-based value of listed non-financial enterprises in Nigeria.

The model to be used for this study is adapted from the work of Emeka-Nwokeji and Osisioma (2019) with modifications. The model is therefore stated in its functional form as;

$$TOBINSQ = f(SUS, QSUS) \quad \text{equation v}$$

$$TOBINSQ = f(ECN, EVN, SOC, QSUS) \quad \text{equation vi}$$

The model, as stated in its econometric form is;

$$TOBINSQ_{it} = \beta_0 + \beta_1 ECN_{it} + \beta_2 EVN_{it} + \beta_3 SOC_{it} + \beta_4 QSUS_{it} + U_{it} \quad \text{equation vii}$$

### Substituted Coefficients:

$$\text{TobinQ} = 0.15183 + 0.22908*ECN + 0.24086*EVN + 0.31864*SOC + 0.35370*QSUS + [CX=F]$$

The below shows the tabulated least square regression results.

**Table 4: Tobin Q Regression Results [Fixed Effect]**

| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|----------|-------------|------------|-------------|---------|
| Constant | 0.15183     | 0.05166    | 3.00374     | 0.00200 |
| ECN      | 0.22908     | 0.06038    | 3.33294     | 0.00100 |
| EVN      | 0.24086     | 0.07285    | 3.57143     | 0.00050 |
| SOC      | 0.31864     | 0.08184    | 3.75194     | 0.00010 |
| QSUS     | 0.35370     | 0.09084    | 3.88589     | 0.00005 |

## Effects Specification

### Cross-section fixed (Dummy variables)

- R-squared: 0.81874
- Mean dependent var: 1.50062
- Adjusted R-squared: 0.78583
- S.D. dependent var: 0.60193
- S.E. of regression: 0.12428
- Durbin-Watson stat: 2.10389
- Sum squared resid: 0.45472
- Akaike info criterion: -2.50294
- Log likelihood: 130.03484
- Schwarz criterion: -2.31947
- F-statistic: 50.49457
- Prob(F-statistic): 0.00000

### Coefficients:

The Tobin Q regression results show a strong positive association between firm-level aggregate sustainability disclosure and market values for listed non-financial enterprises in Nigeria. An increase in economic reporting disclosure is associated with a 0.22908 unit increase in Tobin Q. Companies with extensive economic and environmental reports are likely to be worth more in the market.

### Significance:

The study reveals that the quality of sustainability reporting significantly predicts market value for non-financial corporations. However, its importance may vary in different contexts. The low P-values for ECN, EVN, and SOC confirm these findings. Businesses must prioritize sustainability reporting to boost stock exchange performance. Transparent practices related to sustainability can increase investor confidence and lead to higher company shares values.

### R-squared and Adjusted R-squared:

The regression model's R-squared value of 0.81874 indicates that independent variables, such as economic, environmental, social, and sustainability reporting, account for 81.87% of the variance in Tobin Q. This high R-squared indicates strong explanatory power, suggesting that these factors significantly influence investor ratings of listed non-financial firms. The adjusted R-squared value of 0.78583 confirms the model's strength, indicating its importance in understanding market value variables and sustainability reporting's influence on corporate market performance.

### Prob (F-Statistic):

The study reveals a significant correlation between sustainability reporting and market value, with a strong individual predictive power of independent variables. This highlights the importance as a sustainability reporting for corporate strategy, emphasizing the need for firms to view sustainability as an integral part of their value proposition, thereby influencing their reporting and governance practices.

## 5. Conclusion

The findings of this study enhance our understanding of the value relevance of sustainability reporting disclosures in non-financial firms, especially among emerging economies like Nigeria. The study finds that sustainability reporting quality is value relevant to non-financial firms in Nigeria. A focus on high-quality disclosures is expected to improve the credibility of companies that enjoy higher visibility and interest from investors, resulting in better market valuations. The trend highlights the need for effective corporate disclosure practices, as stakeholder scrutiny rapidly requires a large quantum of

environmental information to support investment decisions. The positive relationship between sustainability reporting and firm value draws attention to the commitment of companies to integrating societal mission into their main business strategy if they do not only intend compliance with all relevant regulations but are based on stakeholder expectations.

In addition, the study finds that one part of sustainability reporting — namely, economic, environmental, and social disclosures — is important in determining the market-based and accounting market-based value for listed non-financial companies. This demonstrates that, to an increasing extent, investors are starting to take them into account when evaluating the total value of a company and gives further evidence of a move towards assessing corporate performance more holistically. This trend highlights the importance of companies increasing the quality and relevance of their sustainability disclosures as it can greatly alter company perceptions of market availability during disaster periods when every word is counted towards financial sustenance. Through better communicating their sustainable practices, businesses can enhance both market value and relations with stakeholders—all contributing to the success of long-term growth in a changing business environment. The implications of these findings are not only for individual firms but also for the entire corporate environment in Nigeria.

Investors are increasingly seeking sustainability in companies, and those who effectively communicate their efforts gain an edge. Transitioning to sustainable corporate performance benefits individual profitability and the Nigerian economy. Sustainability reporting is crucial for investment decision-making, requiring transparency and accountability. Nigerian businesses with sustainability records gain leverage in international markets, enhancing corporate reputations and supporting economic growth. Business organizations should adopt sustainability reporting as an essential strategy to boost market value and financial resilience. This proactive approach will fulfill investor expectations and drive long-term firm resilience in a global market.

## REFERENCES

- Abd El-Rahman, N. (2019). *Features affecting the quality of sustainability reporting: Theoretically-informed insights and empirical evidence from the global fortune 100* (Doctoral dissertation). London South Bank University London, United Kingdom.
- Abuaja, H., & Ukpog, E. G., (2022). Value relevance of sustainability reporting: Evidence from listed oil and gas Firms in Nigeria. *AKSU Journal of Administration and Corporate Governance (AKSUJACOG)*, 2(1).
- Ahmed, N. S. (2019). Environmental accounting disclosures: The case of manufacturing listed companies in Palestine Securities Exchange. *International Journal of Business, Economics and Law*, 18(5), 15-21.
- Aifuwa, H. O. (2020). Sustainability reporting and firm performance in developing climes: A review of literature. *Copernican Journal of Finance & Accounting*, 9(1), 9–29. <http://dx.doi.org/10.12775/CJFA.2020.001>
- Aifuwa, H.O., Saidu, M., Enehizena, O.C., & Osazevbaru, A. (2019). Accounting information and lending decision: does sustainability disclosure matter? *Copernican Journal of Finance and Accounting*, 8(4), 61-89. <http://dx.doi.org/10.12775/CJFA.2019.018>.
- Aksan, I., & Gantjowati, E. (2020). Disclosure on sustainability reports, foreign board, foreign ownership, Indonesia sustainability reporting awards, and firm value. *Journal of Accounting and Strategic Finance*, 3(1).
- Amedu, Iliemena, & Umaigba (2019). Value relevance of sustainability reporting in Nigerian manufacturing companies. *Journal of Global Accounting*, 6(2). ISSN: 1118-6828
- Anttila, J., & Jussila, K. (2019). Striving for benefits of sustainability from the interactivity of quality and innovation. *Journal of Cleaner Production*, 212, 409-419. <https://doi.org/10.1016/j.jclepro.2018.11.061>
- Asogwa, I. E. (2021). *Sustainability reporting relevance to non-governmental organisation-Evidence from Nigeria*. (Doctoral thesis), School of Business (Accounting). Western Sydney University.
- Atanda, F. A., Osemene, F., & Ogundana, H. F. (2021). Sustainability reporting and firm value: Evidence from selected deposit money banks in Nigeria. *Global Journal of Accounting*, 7(1), 47–68.
- Aureli, S., Gigli, S., Medei, R., & Supico, E. (2020). The value relevance of environmental, social and governance disclosure: Evidence from Dow Jones sustainability world index listed companies. *Corporate Social Responsibility and Environmental Management*, 27(1), 43–52. <https://doi.org/10.1002/csr.1772>
- Bernow, S., Godsall, J., Klempner, B., & Merten, C. (2019). More than values: The value-based sustainability reporting that investors want. *McKinsey sustainability*. Retrieved from [Refining sustainability reporting for investors | McKinsey](#)
- Buallay, A. M. (2020). *The level of sustainability reporting and its impact on firm performance: The moderating role of a country's sustainability reporting law*. (Doctoral Thesis). Brunel University, London.
- Buallay, A. M., Fadel, S. M., Alajmi, J., & Saudagaran, S. (2020). Sustainability reporting and bank performance after financial crisis. *Competitiveness Review: An International Business Journal*, 31(4), 747–770. <https://doi.org/10.1108/cr-04-2019-0040>

- Carp, M., Păvăloaia, L., Afrăsinei, M. B., & Georgescu, I. (2019). Is sustainability reporting a business strategy for firm's growth? Empirical study on the Romanian capital market. *Sustainability*, 11(3), 658. <https://doi.org/10.3390/su11030658>
- Chen, Y., Singhal, V., & Zhu, Q. (2020). Environmental policies and financial performance: stock market reaction to firms for their proactive environmental practices recognized by governmental programs. *Business Strategy and the Environment*, 30(4), 1548–1562. <https://doi.org/10.1002/bse.2693>
- Chithambo, L., Tingbani, I., Agyapong, G. A., Gyapong, E., & Damoah, I. S. (2020). Corporate voluntary greenhouse gas reporting: Stakeholder pressure and the mediating role of the chief executive officer. *Business Strategy and the Environment*, 29(4), 1666–1683. <https://doi.org/10.1002/bse.2460>
- Emeka-Nwokeji, N. A., & Osisioma, B. C. (2019). Sustainability disclosures and market value of firms in emerging economy: Evidence from Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 7(3), 1-19. ISSN: 2053-4086.
- Endiana, I. D. M., & Suryandari, N. N. A. (2021). Value relevance of sustainability report: Evidence from Indonesia. *Jurnal Akuntansi Dan Keuangan Indonesia*, 18(2), 168–182. <https://doi.org/10.21002/jaki.2021.09>
- Farhana, S., & Adelina, Y. E. (2019). The value relevance of sustainability reports in Indonesia. *Jurnal Akuntansi Multiparadigma*, 10(3). <https://doi.org/10.21776/ub.jamal.2019.10.3.36>
- González, M. Á. A., Plaza, E. D. L. P., & Olmeda, N. G. (2020). The impact of corporate social responsibility transparency on the financial performance, brand value, and sustainability level of IT companies. *Corporate Social Responsibility Environment Management*, 27(2), 642–654. doi:10.1002/csr.1829.
- Gottschalk, L. A., & Gleser, G. C. (2022). *The Measurement of psychological states through the content analysis of verbal behavior*. University of California Press. <https://books.google.com.ng/books?id=DH2FEAAQBAJ>
- Gunarsih, T., & Ismawati, Y. (2018). Sustainability report and firm performance: Study in mining and metal and food processing industry Indonesia stock exchange 2014-2017. *Journal of Governance and Integrity*, 2(1), 4–11. <https://doi.org/10.15282/jgi.2.1.2018.5533>
- Halimah, N. P., Irsyanti, A., & Aini, L. R. (2020). The value relevance of sustainability reporting: Comparison between Malaysia and Indonesia Stock Market. *The Indonesian Journal of Accounting Research*, 23(03). <https://doi.org/10.33312/ijar.502>
- Helfaya, A., Whittington, M., & Alawattage, C. (2018). Exploring the quality of corporate environmental reporting. *Accounting, Auditing & Accountability Journal*, 32(1), 163–193. <https://doi.org/10.1108/aaaj-04-2015-2023>
- Hou, T. C. (2018). The relationship between corporate social responsibility and sustainable financial performance: firm-level evidence from Taiwan. *Corporate Social Responsibility and Environmental Management*, 26(1), 19–28. <https://doi.org/10.1002/csr.1647>
- Ihimekpen, A. F. (2021). *Sustainability reporting and financial performance of listed non-financial companies in Nigeria*. (Doctoral thesis). Igbinedion University, Okada, Edo State, Nigeria.

- Landi, G., & Sciarelli, M. (2019). Towards a more ethical market: the impact of ESG rating on corporate financial performance. *Social Responsibility Journal*, 15(1), 11–27. <https://doi.org/10.1108/srj-11-2017-0254>
- Maama, H., & Gani, S. (2022). Determinants of sustainability reporting: Empirical evidence from East African Countries. *Problems and Perspectives in Management*, 20(2), 564–574. [https://doi.org/10.21511/ppm.20\(2\).2022.46](https://doi.org/10.21511/ppm.20(2).2022.46)
- Merelyn, M., & Eriandani, R. (2022). The value relevance of quantity and quality of sustainability reporting: Evidence from Indonesia. *JIA (Jurnal Ilmiah Akuntansi)*, 7(1), 40–58.
- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1). <https://doi.org/10.1080/23311886.2019.1653531>
- Michelon, G., Pilonato, S., & Ricceri, F. (2015). CSR reporting practices and the quality of disclosure: An empirical analysis. *Critical Perspective on Accounting*, 33, 59–78. <https://doi.org/10.1016/j.cpa.2014.10.003>.
- Mion, G., & Loza Adaui, C. R. (2019). Mandatory nonfinancial disclosure and its consequences on the sustainability reporting quality of Italian and German companies. *Sustainability*, 11(17), 4612. <https://doi.org/10.3390/su11174612>
- Mohammed, S. D. (2018). Mandatory social and environmental disclosure: a performance evaluation of listed Nigeria oil and gas companies pre and post mandatory disclosure requirement. *Journal of Finance and Accounting*, 6(2), 56–68.
- Nguyen, T. T. D. (2020). An empirical study on the impact of sustainability reporting on firm value. *Journal of Competitiveness*, 12(3), 119–135. <https://doi.org/10.7441/joc.2020.03.07>
- Nwaigwe, N. G., Ofoegbu, G. N., Dibia, N. O., & Nwaogwugwu, C. V. (2022). Sustainability disclosure: Impact of its extent and quality on value of listed firms in Nigeria. *Cogent Business & Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2079393>
- Okpala, O. P., & Iredele, O. O. (2018). Corporate social and environmental disclosures and market value of listed firms in Nigeria. *Copernican Journal of Finance & Accounting*, 7(3), 928. <http://dx.doi.org/10.12775/CJFA.2018.013>
- Owolabi, S. A., Okulenu, S. A. (2020). Sustainability reporting as a catalyst to performance of insurance company in Nigeria. *International Journal of Research Publications (IJRP.ORG)*, 56(1), 31–44. <https://doi.org/10.47119/IJRP100561720201289>
- Pham, D. C., Do, T. N. A., Doan, T. N., Nguyen, T. X. H., & Pham, T. K. Y. (2021). The impact of sustainability practices on financial performance: Empirical evidence from Sweden. *Cogent Business & Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1912526>
- Prado, G., F., D. (2020). *The effects of sustainability performance on corporate financial performance: a structural equation modeling approach* (Master's thesis). Federal University of Technology, Paraná, Ponta Grossa.
- Putra, I. G. C., Wiagustini, N. L. P., Ramantha, I. W., & Sedana, I. B. P. (2021). Financial sustainability based on resource based view theory and knowledge based view theory. *Academy of Accounting and Financial Studies Journal*. 25(2).
- Rahman, M., & Chowdhury, S. (2019). Sustainability reporting and firm financial performance: A review of measurement tactics. *International Journal of Engineering Development and Research*, 7(4). 2321–9939 <file:///E:/Planet%20Publication/IJEDR/Volume%203/Vol%203%20Issue%202/Publis hed Paper V3 I2/www.ijedr.org>

- Rahman, M., Chowdhury, S., & Rasid, S. Z. A. (2020). Corporate social responsibility and firm financial performance: Bangladeshi listed pharmaceuticals companies. *Journal of Emerging Technologies and Innovative Research*, 7(1). ISSN-2349-5162. [www.jetir.org](http://www.jetir.org)
- Rahman, M., Rasid, S. Z. A., & Basiruddin, R. (2020). Moderating effect of earnings management in the relationship between sustainability reporting initiatives and value relevance. *Indonesian Journal of Sustainability Accounting and Management*, 4(2), 266–277. <https://doi.org/10.28992/ijSAM.v4i2.309>.
- Reverte, C. (2020). Do investors value the voluntary assurance of sustainability information? Evidence from the Spanish stock market. *Sustainable Development*, 29(5). <https://doi.org/10.1002/sd.2157>
- Rezaee, Z., & Tuo, L. (2019). Are the quantity and quality of sustainability disclosures associated with the innate and discretionary earnings quality? *Journal of Business Ethics*, 155(3), 763–786. <https://doi.org/10.1007/s10551-017-3546-y>
- Salancik, G. R., & Pfeffer, J. (1978). A Social Information Processing Approach to Job Attitudes and Task Design. *Administrative Science Quarterly*, 23(2), 224. <https://doi.org/10.2307/2392563>
- Sebrina, N., Suhairi, & Suhandi, S. (2022). Sustainability reporting: Quality and value relevance. *Wahana Riset Akuntansi*, 10(1), 69-83.
- Seiyaibo, C. M., & Okoye, E. I. (2021). Financial reporting quality and non-financial corporate performance Indices: Does demographic attributes matter for Nigerian firms? *Journal of Research in Humanities and Social Science*, 9(8), 45–54. Retrieved from <https://www.questjournals.org>
- Shad, M. K., Lai, F. W., Fatt, C. L., Klemeš, J. J., & Bokhari, A. (2019). Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner Production*, 208, 415–425. <https://doi.org/10.1016/j.jclepro.2018.10.120>
- Şimşek, H., & Öztürk, G. (2021). Evaluation of the relationship between environmental accounting and business performance: the case of Istanbul province. *Green Finance*, 3(1), 46–58.
- Tenakwah, E. S., & Otchere-Ankrah, B. (2019). The imbalance between public expectations and resource provision in developing countries: Can inter-assemblies cooperation reduce the gap? *International Journal of Public Administration*, 43(13), 1097–1108. <https://doi.org/10.1080/01900692.2019.1665682>
- Umar, M. M., Mustapha, L. O., & Yahaya, O. A. (2021). Sustainability reporting and financial performance of listed consumer goods firms in Nigeria. *Journal of Advance Research in Business Management and Accounting* (ISSN: 2456-3544), 7(3), 21–32. <https://doi.org/10.53555/nnbma.v7i3.939>
- Van Linh, N., Hung, D. N., & Binh, T. Q. (2022). Relationship between sustainability reporting and firm's value: Evidence from Vietnam. *Cogent Business & Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2082014>
- Wang, S., Wang, H., Wang, J., & Yang, F. (2020). Does environmental information disclosure contribute to improve firm financial performance? An examination of the underlying mechanism. *Science of the Total Environment*, 714, 136855. <https://doi.org/10.1016/j.scitotenv.2020.136855>
- Wasara, T. M., & Ganda, F. (2019). The relationship between corporate sustainability disclosure and firm financial performance in Johannesburg stock exchange (JSE) listed mining companies. *Sustainability*, 11(16), 4496. <https://doi.org/10.3390/su11164496>

Yilmaz, M. K., Aksoy, M., & Tatoglu, E. (2020). Does the stock market value inclusion in a sustainability index? Evidence from Borsa Istanbul. *Sustainability*, 12(2), 483. <https://doi.org/10.3390/su12020483>