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The Effect of Eco-sustainability Disclosure in Financial Reports on the Market Value of Companies: Company Characteristics as Intermediary Role

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Abstract*. Environmental issues have become an increasingly significant topic in the accounting literature in recent decades. The public's apprehension regarding the financial and non-financial performance of companies has been heightened by environmental issues associated with industrial activities, which has resulted in a heightened demand for the disclosure and examination of environmental reports, particularly in developed countries. Nevertheless, there is a dearth of research in this field in developing countries, particularly in the Arab region, including Iraq. Therefore, this paper aims at investigating the potential impact of disclosure of eco-sustainability in financial reports on market value and the effect of disclosure of eco-sustainability in financial reports on market value under the context of company characteristics (size, age, and loss). This paper draws on the data disclosed by companies listed on the Iraq Stock Exchange. The hypotheses regarding the impact of eco-sustainability disclosure in financial reports on market value regarding company characteristics were verified by selecting 35 joint stock companies from 2011 to 2022. This paper reached several conclusions. The effect of disclosures regarding eco-sustainability in financial reports on market value has been revealed. Additionally, the market value of a company is influenced by the disclosure of eco-sustainability in financial reports, as indicated by the quality descriptors of the company, namely age and losses. The paper also found out that the disclosure of eco-sustainability in financial reports does not affect the market value of the company under the company qualities, as measured by the company's size.*

Keywords: *Eco-sustainability, Market value, Company characteristic, financial reports*

1.Introduction

Eco-sustainability is one of the most important issues affecting the global community at present. Therefore, there is growing awareness of the importance of protecting the environment and preserving future generations' natural resources. With this growing interest, the role of companies in achieving environmental sustainability has become a key part of their overall strategy. According to these foundations, companies have started incorporating information about their environmental performance into their financial reports, a practice known as the disclosure of environmental sustainability. Given today's environmental challenges, relying solely on financial disclosure does not meet the information needs that help investors and stakeholders to comprehensively assess companies' performance and predict their future. Countries across the globe have focused on the eco-sustainability challenges and their influence on the performance and sustainability of companies. As a result, interest has begun in corporate eco-sustainability disclosure initiatives at academic and professional levels for the purpose of providing environmental information appropriate to the needs of investors and decision makers and developing the traditional model of financial reporting in order to reflect

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all financial and non-financial information to its users. Ultimately, it is possible to assess the company's success in achieving its economic objectives and eco-sustainability. With accelerated technological advances, artificial intelligence has become one of the vital tools that can effectively influence improved disclosure of eco-sustainability in financial reporting. AI enables companies to collect and analyze huge amounts of environmental data with unprecedented accuracy and efficiency. This facilitates identifying areas that need improvement and helps provide more transparent and reliable reporting to investors and stakeholders. Financial reporting is the legal requirement of companies around the world. Therefore, the current requirements of non-financial corporate performance reporting, also known as corporate sustainability responsibility reporting, include accounting for the effects of practices, strategies, corporate outputs, and results, as well as measuring non-financial outcomes of stakeholders.

Thus, the disclosure of eco-sustainability in corporate reports includes providing detailed information on the company's efforts in areas such as carbon emission reduction, waste management, natural resource use, and biodiversity conservation. This type of disclosure not only enhances the company's image and public reputation but also plays a vital role in determining its market value. In the current business environment, investors and consumers are becoming more interested in knowing the environmental impact of the companies they deal with. Accordingly, companies that adhere to and clearly disclose eco-sustainability principles may be more attractive to investment. In the same vein, non-disclosure or lack of interest in sustainability can lead to a decline in confidence in the company and a reduction in its market value. Using artificial intelligence, companies can improve the accuracy and quality of environmental disclosures by analyzing environmental patterns, predicting the impacts of different sustainability strategies on the company's environmental performance, improving the efficiency of disclosures, automating reporting, and reducing human errors. In this context, this study aims to explore the relationship between disclosure of environmental sustainability in financial reports and the market value of companies, how such disclosure can influence investors' and consumers' decisions, and knowledge of the company's long-term financial performance.

1.Methodology and Previous Literature

1.1.Methodology

1.1.1. Statement of Research

In response to international and community demands for more information on their environmental and social performance, companies are required to disclose the effects of their various activities in society and economy. Given the lack of adequate accounting standards governing the disclosure of eco-sustainability reporting, negative implications have emerged at the level of disclosure of eco-sustainability among companies, which has made investment decisions difficult for investors. Consequently, these effects have significantly impacted the market value of companies. Therefore, the goal of this research is to understand the relationship between the disclosure of eco-sustainability in financial reporting and the market value of companies, highlighting the importance of environmental transparency in enhancing confidence and increasing the economic value of companies. Based on these premises, the following research question has been formulated: What is the impact of eco-sustainability disclosure in financial reports on companies' market value for company qualities?

Additionally, the following research sub-questions have been developed:

-Is there a correlation between the level of disclosure of eco-sustainability in financial reports and market value? To what extent do they affect investors' and stakeholders' perceptions?

-Do company characteristics play a role in disclosing eco-sustainability in financial reports? What is its impact on the company's market value?

Objectives

This paper aims to:

1. Revealing the impact of eco-sustainability disclosure in financial reports on market value, as well as the impact of eco-sustainability disclosure in financial reports on the market value of company characteristics (size, age, and loss).
2. Identifying the importance of environmental disclosure for companies by understanding how companies benefit from the disclosure of their environmental initiatives in building good reputation and increasing investor confidence.
3. Assessing the impact on financial performance by analyzing the relationship between environmental disclosure and corporate financial performance, such as profitability and equity returns.
4. Analyzing investors' feedback by understanding how environmental disclosure influences investors' decisions and behavior in the financial market.

Significance

This topic can be important owing to the following:

- Enhancing transparency and responsibility. This paper helps enhance transparency and corporate responsibility by highlighting the importance of disclosing environmental practices and their impact on the market. This can encourage companies to adopt more sustainable practices.
- Raising investors' awareness. This paper contributes to raising investors' awareness of the importance of environmental information in making their investment decisions. Investors may direct their investments towards companies that demonstrate a commitment to environmental sustainability.
- Improve companies' performance by understanding the relationship between environmental disclosure and market value. Companies can improve their environmental practices, which can improve their financial performance and increase their market value.
- Keeping up with global trends. This paper contributes to helping companies keep pace with global trends in sustainability and social responsibility, increasing their international competitiveness.
- Enhancing the company's reputation. Companies expressing their commitment to environmental sustainability can improve their reputation among customers and investors, increasing brand loyalty and attracting new investors.

Hypothesis

Based on the research questions and the problem raised above, the following hypotheses have been developed:

- Hypothesis 1: The disclosure of eco-sustainability in financial reports affects the market value.
- Hypothesis 2: The disclosure of eco-sustainability in financial reports affects the market value as far as company characteristics are concerned.

  Furthermore, the following sub-hypotheses are developed:
- The disclosure of eco-sustainability in financial reports affects the market value by company size.
- The disclosure of eco-sustainability in financial reports affects the market value by company age.
- The disclosure of eco-sustainability in financial reports affects the market value by company losses.

Methodology and Data Collection

This study employs the correlative-deductive method. It is a research design that explores the relationship between independent research variables, affiliates, and intermediaries, specifically the disclosure of eco-sustainability in financial reports, market value, and company qualities. The independent variable is the disclosure of eco-sustainability in financial reports, the affiliate variable is the market value, and the intermediate variable is the company characteristics, which represent size, age, and loss. Also, the quantitative method has been followed to find out the impact among different research variables. In data collection, secondary data have been gathered. These include the data published in previous studies, the financial statements of the companies specified in this study through the website of the Iraqi stock exchange www.isx-iq.net, and the website of the Iraqi securities authority www.isc.gov.iq. The multiple linear regression model has been utilized to process data using the statistical analysis software, Eviews13, due to its wide application and acceptance in tablet data estimation models. Additionally, the micro-square method (OLS) has been used in data analysis.

Sample and Limits

The sample includes all share-holding companies listed on the Iraqi stock exchange from 2011 to 2022. Thus, 110 joint stock companies have been chosen. The collection of samples required certain conditions. Companies must have sufficient data to calculate variables during the search period. Companies should not participate in any mergers or acquisitions until the data is consistent. Companies must continue to operate during the search period. Companies' financial statements should be accessible. After applying these conditions, only 35 joint stock companies have been selected.

Research Variables

These relation between research variables can be demonstrated as follows:

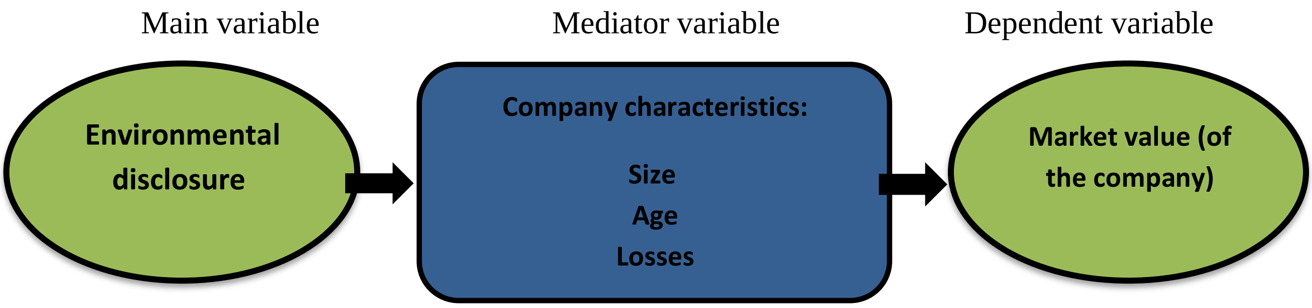

Fig.

(1) Inter-variable relation

Previous Literature

Numerous field studies have addressed the impact of eco-sustainability disclosure, exploring various aspects such as the relationship between eco-sustainability disclosure and financial reporting, the impact of such disclosure on the market value of companies, and the relationship between artificial intelligence and sustainable development.

1. Abdul Haleem (2017). This study aimed to demonstrate the extent to which Saudi companies disclose sustainable development practices by analyzing the content of published reports for a sample of companies listed on the Saudi stock market. The study discovered that Saudi companies only disclose sustainable development practices in their annual reports, not in independent reports. Also, the study revealed a low level of accounting disclosure regarding the sustainable development of these companies.
2. Shaaban (2019). This study aimed to determine whether sustainability accounting disclosure enhances the company's value. To this end, the study examined the level of corporate sustainability disclosure, the impact of different levels of sustainability disclosure on the company's value, and the application to companies listed in the Egyptian market. The study revealed that the relationship between sustainability performance disclosure, financial performance, and company value varied among the studies. The study also noted that most studies supported a positive correlation between corporate social and environmental liability disclosure on the one hand and financial performance and corporate value on the other. The study found a positive correlation between sustainability accounting disclosure and the company's market value.

3. Hardiningsih et. al. (2020). This study analyzed the impact of sustainability disclosure on financial and market performance. This study focused on 21 mining companies in Indonesia and 18 companies in Malaysia, following the collection of intentional samples. The regression analysis, assisted with WarpPLS, has been utilized to test the proposed hypotheses. The findings showed that environmental and social disclosure has a significant impact on asset return, return on equity, price-to-profit ratio, and Tobin's Q ratio in Indonesia and Malaysia, and that there is no significant difference in financial and market performance between Indonesia and Malaysia. The study also found that favorable disclosure of sustainability information improves financial performance and confidence among stakeholders and regulators in decision-making, which in turn increases the company's value.
4. Alsahlawi et al. (2021). This study aimed to demonstrate the impact of eco-sustainability disclosure on stock returns of companies listed in the Saudi financial market using a database of these companies. The relationship between eco-sustainability disclosure and equity returns has been tested, as has whether this relationship is moderate due to financial constraints. The study found that the disclosure of eco-sustainability has a significant negative impact on equity returns, indicating that investors do not consider environmental disclosure when valuing stocks. The results also suggested that the negative impact of environmental disclosure on equity returns is more pronounced in companies with financial constraints.
5. Khalifa and Ibraheem (2023). This study identified the impact of the disclosure of eco-sustainability practices in the governing variables of investors' decisions by analyzing the news content of the annual reports published by selected companies listed in the Egyptian sustainability index from 2018 to 2020. The study aimed to measure the impact of eco-sustainability disclosures on the governing variables of investors' decisions, specifically share price, trading size, earnings per share, and market value-to-book ratio. The study found a noticeable increase in the disclosure levels of eco-sustainability index items in Egyptian sustainability index companies.
6. Lampropoulos et al. (2024). This study demystified the relationship between artificial intelligence and sustainable development. Following the global environmental and social changes, achieving the sustainable development goals requires a combination of artificial intelligence and the internet to create data-driven systems and more efficient, smarter, and more independent infrastructure. To this end, the study used artificial intelligence methods and algorithms to analyze 9182 documents from Scopus and Web of Science (WoS)

published between 1989 and 2022. The study analyzed these documents using a descriptive statistical approach. The study found an important and active role for artificial intelligence in ensuring sustainability and achieving sustainable development goals.

Theoretical Foundations of Eco-sustainability Disclosure in Financial Statements

1. **Disclosure and Eco-sustainability**

Disclosure is an accepted accounting principle and is as old as accounting. The importance of disclosure has increased as a result of the evolution of accounting and its perception as an information system. The function of accounting has historically shifted from focusing on bookkeeping and protecting owners' interests to focusing on its role as an information system, providing appropriate information for decision-making for all beneficiaries (Hilal, 2017). Disclosure of eco-sustainability can be defined as the assessment and dissemination of financial, non-financial, descriptive, and quantitative information about environmental, economic, and social performance in a balanced manner for the environment and the society in which it is part. It is an optional process to assess the current state of the company's environmental, economic, and social dimensions for the reporting period on financial and non-financial information to communicate the company's efforts and sustainability processes to a variety of internal and external stakeholders (Abdul-Hadi, 2023).

Accounting disclosure of sustainability practices is an important two-way indicator. It demonstrates the extent to which companies understand the importance of sustainable development and how it impacts their operations, while also providing a measure for financial reporting users to understand the company's efforts towards achieving social and environmental sustainability (Maligi, 2015, p. 7). The eco-sustainability issue has served many of countries as a basis for preserving the environment for present and future generations. Developed countries are no longer the only ones paying attention to environmental and social issues. Industrialized countries have come to the attention of many local and international bodies with an interest in environmental and social issues, as industries have a direct impact on environmental pollution and the depletion of natural resources. The concept of sustainability emerged in the 1987 report of the World Commission on Development and the Environment, known as the Burndtland report (Burndtland). This report defined sustainability as development that meets the needs of present generations without compromising the ability of future generations to meet their needs (Khalaf et al., 2023). Despite the enormous interest in sustainability and reporting globally, there is no uniform definition of sustainability that receives the general acceptance of all parties. The Global Reporting Initiative (GRI) defined sustainability as reports that help companies set goals, measure performance, and manage change in order to make their operations more sustainable and help disclose the company's impacts, whether positive or negative, in the environment, society, and the economy (Mahmood et al., 2023). Financial reports must include disclosure of environmental information as a necessary component. This information encompasses the performance and activities of the company's environmental management, as well as its financial implications. Environmental performance disclosure has evolved from a mere item in the annual report to the preparation of independent environmental reports published by companies (Hilal, 2017). According to a previous study, sustainability reports refer to the company's disclosure of environmental, social, and economic issues that are crucial to sustainability. The sustainability report includes disclosure of the company's continued performance (Ghallab, 2011, p. 96).

According to GRI, the sustainability report is the practice of preparing open reports containing performance information on economic, environmental, and social aspects (Surjati and Yanti, 2023). Sustainability reports reveal the company's commitment to managing a sustainable business, as well as the company's responsibility to contribute to the sustainable development of both internal and external stakeholders (Bhatia and Tuli, 2017). Sustainability reports present a global framework in a consistent language, measuring the transparency of the company's economic and social activities and initiatives. Sustainability reports can also align with the environmental concept of sustainable development (Surjati and Yanti, 2023). Sustainability reporting is a balance between profit, individuals, and planet Earth and is known as the triple bottom line (TBL). Therefore, not only are companies focused on profit, they are expected to be able to contribute by participating in the development of the community and the surrounding environment (Ariastini and Semara, 2019). This concept posits that companies should prioritize stakeholder interests over shareholder interests, as successful human empowerment and planetary sustainability will automatically generate profits for management, acting as an administrative agent, and for investors, who are the owners of these economic entities (Nurhidayat et al., 2020). Some researchers formulated TBL. Stakeholders' interests are concentrated in three areas: profit, which not only aims to maximize profit but also fosters fair trade and ethical business practices; individuals, where the company prioritizes the interests of the workforce, upholds labor rights in accordance with labor procedures, refrains from exploiting underage workers, provides reasonable wages, and sets reasonable overtime (Nurhidayat et. al., 2020). The planetary concept places emphasis on preserving the environment, particularly non-renewable natural resources, avoiding environmental pollution, recycling waste production, reprocessing industrial waste to ensure its safe return to the environment, and conserving energy (Gunawan & Sjarief, 2022). Accordingly, profit, individuals, and the planet form the basis for the implementation of sustainability reports or disclosures.

2. **Types of Disclosures in Company Sustainability Reports**

Reviewing previous studies reveals two types of disclosure: mandatory reports on the social and environmental impact of corporate activities and voluntary reports on the same. These reports have emerged increasingly in recent years. You can also refer to these reports as Corporate Sustainability Reports (CRS). International and national regulations and requirements, developed by national governments and international bodies like the European Union and the United Nations in the form of environmental protection laws, instructions, or guidelines, have exerted considerable pressure on these reports, despite their availability under a wide range of other names. Accordingly, these new regulations mandated the preparation of mandatory rather than voluntary reports (Alhaj and Noorhayati Mansor, 2023).

On the other hand, companies can positively influence their overall image and reputation, which is why they often publish voluntary reports about their environmental activities and sustainability development. The voluntary nature of sustainability reports may result in an incomplete representation of the impact of the company's activities. In order to enable comparison and increase responsibility for the information provided, some researchers advocate the need for robust regulation of the content of voluntary reports, with a view to enabling contrast and increasing accountability for the provision of actual information (Aldrugi and Abdo, 2014) and (Nickell and Roberts, 2014).

In this context, the corporate sustainability report should outline the steps companies are taking to mitigate the negative environmental effects of their operations, their future plans, and the significance of voluntary (non-mandatory) environmental reporting. Many non-governmental organizations (NGOs) are working to propose comprehensive frameworks for sustainable environmental reporting and to demand that companies disclose a variety of social and environmental issues. These well-known organizations include the SRG sustainability reporting guidance, the Global Reporting Initiative (GRI), and Standards International, which has established a series of ISO standards (Alhaj and Noorhayati Mansor, 2023). Researchers see that corporate disclosure of their environmental and social practices along with economic activities achieves value for different stakeholders, improves the image and reputation of the company, and reflects positively on the value of the company. Despite the growing demand of different stakeholders for sustainability information, most companies disclose sustainability performance optionally. As the level of disclosure varies from company to company, disclosure may affect company value differently.

3. **Analysis of the Relationship Between Eco-sustainability Disclosure and Company Value**

According to the stakeholders' theory, a variety of stakeholders pursue different economic, environmental, and social interests. Balancing the goals and interests of those parties determines a company's success. Companies often draft sustainability reports to meet these different needs. Through these environmental disclosures, companies aim to increase transparency, enhance brand value, improve reputation and legitimacy, comparability with competitors, enhance competitiveness, motivate employees, support information credibility, and control operations (Shaaban, 2019).

The recent period has seen a boom in corporate sustainability reports, yet their spread does not guarantee effective disclosure and is consistent with relative importance. Companies' current sustainability reports use the key term of relative importance. Relative importance means practices that have an active impact on the environmental and societal performance of companies or that have a fundamental impact on stakeholders' assessments and decisions. According to Ortar (2016), companies should select, engage with, and reveal the majority of issues related to sustainability challenges that hold relative importance. The main reason for the differences in sustainability disclosure practices is the debate over whether or not good environmental and social performance yields financial benefits to companies. According to the stakeholder theory, Corporate social responsibility can help build and strengthen trust relationships with a variety of parties, which contributes significantly to the company's long-term success (Brook and Oikonomou, 2018). In the same vein, there are researchers who believe that applying corporate social and environmental responsibility imposes a fundamentally unfair tax on shareholders given that the costs of implementing social and environmental responsibility outweigh any tangible potential benefits, which could lead to a misallocation of resources and reduce the company's value. From the traditional point of view, maximizing shareholder wealth is the ultimate objective of the company, but from the stakeholders' point of view, there are other parties with different goals and objectives (Li et. al., 2018).

Therefore, companies with better sustainability disclosures can be more attractive to both shareholders and other key stakeholders. Improving the relationship between companies and different stakeholders will benefit profitability and the company's long-term value. The disclosure of sustainability practices provides additional non-financial information beyond financial statements, thereby reducing information asymmetries between companies and related parties. That additional and varied information improves information about stock prices and increases their market value (Shaaban, 2019). Therefore, by enhancing stakeholder satisfaction and facilitating communication, corporate sustainability practices positively influence the company's long-term value. Therefore, corporate sustainability disclosure plays a positive role in improving the reputation and image of the company, improving financial performance, reducing financial risk, and enhancing the company's value. Although companies carry out social responsibility and environmental protection activities to ensure their sustainability, these practices may incur a variety of expenses and costs. Kim et al. (2018) expect the benefits of corporate sustainability activities to outweigh their related costs.

4.The Impact of Company Characteristics on the Market Value of Companies

Differences in corporate characteristics lead to the importance and necessity of different disclosures in each company. Companies provide disparate environmental disclosures due to a variety of corporate characteristics (Isnalita and Romadhon, 2018). This research discusses several characteristics of companies that influence their market value, including size, age, and losses.

4.The Impact of Company Characteristics on the Market Value of Companies

4.1. Size

Company size is one of the most important factors that can affect market value. Therefore, small-sized companies suffer from information asymmetry (Santosa, 2020). Investing in these companies is more risky than investing in large companies, so these investors demand a higher return on their investments. Also, the agency's problem increases with small-scale companies as a result of the growing problem of information asymmetry because large-scale companies are subject to shareholder control and are therefore less vulnerable to information asymmetry (Baqlia and Akoor, 2018). On the other hand, a recent study revealed that the size of a company significantly influences its sustainability. The larger the company, the more ready its management is to disclose the company's social and environmental performance (Al-Shahri and Al-Asimy, 2023). Thus, large companies with eco-sustainability tend to maintain a positive social image towards society and stakeholders due to their superior resources, which enable them to consider environmental issues. Large-sized companies are likely to be subject to public scrutiny, so these companies are interested in eco-sustainability (Quraishy and Zarkoon, 2020). Likewise, the size of the company affects the level of disclosure of eco-sustainability because the cost of preparing and publishing reports in large companies is lower than in small companies with qualified and experienced cadres (Al-Shahri and Al-Asimy, 2023). Accordingly, the size of the company essentially influences its eco-sustainability. The larger the company and its activities negatively impact the environment, the more it must disclose environmental information, and the greater its responsibility and need for stakeholders (Al-Quraishy, 2021).

4.2. Age

Relevant literature and other previous studies have extensively investigated the relationship between age and the company's performance. Theoretical and empirical research has shown that there is ambiguity regarding the relationship between age and company performance. Additionally, research suggests that older companies outperform younger ones because they have more experience in the industry. This phenomenon is referred to as "learning through practice." Other research suggests that older companies do not have the flexibility to adopt new changes as they age, so that they perform worse than younger ones (Haykir and Çelik, 2018). Another study suggests that a company's interest in environmental disclosure increases with its longevity, as long-established companies gain experience in processing methods and reducing emission rates, which in turn prompts them to disclose their environmental information. Long-term companies in the market often have many environmental and social contributions and are more experienced and efficient in reporting and disclosing environmental information (Al-Shahri and Al-Asimy, 2023). Companies engaged in long-time environmentally sensitive activities have gained experience in reducing emission rates, especially with environmental liability committees scrutinizing and monitoring these rates to determine their compatibility with the rates stipulated in environmental laws and legislation. Accordingly, these procedures prompt those companies to optionally disclose environmental information (Shama, 2018).

4.3. Losses

Loss as an accounting term is defined as the negative value of income; in other words, a company incurs a net loss when expenditure for a specified period is higher than revenue for the same period (CFI, 2024). According to Indriani et al. (2019: 102-103), the company influences investors' decisions and discloses losses as one of the most important pieces of information. Moreover, loss is the most important factor influencing companies' performance. Therefore, the company needs to efficiently reduce costs to boost revenue, thereby increasing profits and improving financial performance (Sinta et al., 2023:23). Following some researchers, decision-makers require easily accessible, accurate, disaggregated, and relevant data and statistics to advance sustainable development goals. The information revolution has contributed to supporting and developing data collection and analysis methods to benefit from them, formulating long-term policies, and achieving environmental sustainability. In short, AI is able to play a pivotal role in promoting environmental sustainability by improving resource efficiency, reducing waste and emissions, and supporting efforts to combat climate change.

5.Role of AI in Achievement of Eco-sustainability

In today's growing environmental challenges, it has become necessary to seek innovative solutions to promote sustainability and conserve natural resources. In this context, we can harness the power of AI to achieve environmental sustainability goals by improving resource efficiency, reducing emissions, and improving waste management. Also, AI offers tremendous potential to support environmental conservation and protection efforts for future generations. Therefore, this relationship between AI and sustainability represents an important step towards a more sustainable and balanced future (Vinusea et al., 2020).

Adopting and integrating technologies into societal, environmental, and industrial sectors is essential for achieving sustainable development goals. AI is one of the most influential technologies, capable of influencing significantly in many fields (Lampropoulos et. al., 2024) The multidisciplinary field of AI focuses on creating intelligent agents capable of simulating human behavior and actions, simulating human intelligence to perform specific tasks effectively and independently, and making decisions that require human intelligence without human intervention (Russell, 2010). AI aims primarily to provide systems and processes with increased abilities for learning, communication, reasoning, perception, rationality, adaptability, and understanding of the surrounding environment (Lampropoulos, 2022).

AI plays an increasingly important role in achieving eco-sustainability through its diverse applications that contribute to improving efficiency and reducing environmental impact. The most important ways AI contributes to the promotion of eco-sustainability are (Vinusea, et al., 2020):

1. Management of natural resources: AI can improve the management of natural resources such as water and energy by analyzing big data, predicting resource requirements, improving resource distribution, and reducing poverty.
2. Smart farming: Using technologies, such as computer vision and data analysis, AI helps improve the efficiency of farming by providing customized recommendations to farmers

about the use of water, fertilizer, and pesticides, reducing the negative environmental impact.

3. Pollution control: AI is used in air and water quality control by real-time data analysis of different sensors. These analyses help make quick decisions to reduce pollution.
4. Improved energy efficiency: In smart buildings, AI systems can improve energy consumption by predicting thermal and electrical needs and automatically adjusting systems for better performance.
5. Waste management: AI helps improve recycling processes by classifying waste more accurately and quickly, increasing the efficiency of reuse processes, and reducing the amount of waste reaching landfills.
6. Natural disaster forecasting: AI is used to analyze weather patterns and geographical data to predict natural disasters such as floods and droughts. These processes enable preparedness and reduce potential damage.
7. Environmental data analysis: AI can analyze huge amounts of environmental data to understand climate changes and contribute to the formulation of better environmental policies.

Practical Analysis

Study Variables

Measurement of Study Variables

To achieve research objectives, quantitative models have been designed to analyze the impact of eco-sustainability disclosure in financial reports as an independent variable on market value as a subordinate variable, considering the company characteristics as an intermediate variable, as well as a set of control variables to adjust the inter-variable impactful relationship using multiple linear regression equations detailed below:

Where

Market value. It is measured by shares in the price of year-end market shares

Eco-sustainability

Company size. It represents the natural algorithm of company assets

Company age. It represents the natural algorithm of years from indexing in Iraqi stock exchange to present

Loss. Binary variable that is (1) in case of losing. Otherwise, it is (0).

Return on assets: equals net profit/total asset

Return on equity: equals net profit/ equity

Leverage: Equal to gross liabilities/total assets

Operating cash flow: equal to net operating cash flow/total inventory

Fixed asset ratio: Fixed asset equal to book value/total asset

Liquidity ratio: equal to current assets/current liabilities

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Operating cash flow: equal to net operating cash flow/total inventory

Fixed asset ratio: Fixed asset equal to book value/total asset

Liquidity ratio: equal to current assets/current liabilities

Capital growth: Binary variable that is (1) in case of capital increase. Otherwise, it is (0)

Error value: Remainders

Findings of Statistical Analysis

1.Descriptive Analysis

Table (1) below demonstrates the descriptive statistics of 35 companies during the 12-year observation, i.e., from 2012 to 2023. Thus, the total of the observations is (420) per variable.

Capital growth: Binary variable that is (1) in case of capital increase. Otherwise, it is (0) Error value: Remainders

Findings of Statistical Analysis

1.Descriptive Analysis

Table (1) below demonstrates the descriptive statistics of 35 companies during the 12-year observation, i.e., from 2012 to 2023. Thus, the total of the observations is (420) per variable.

Table (1) Descriptive statistics of research variables

S.D	Min	Max	Median	Mean	Variable
16.626	0.180	100.000	4.185	10.113	MS
0.129	0.286	0.766	0.519	0.520	SDI
1.378	19.245	27.050	22.390	22.413	FSIZE
13.571	10.000	76.000	29.000	33.753	AGE
0.478	0.000	1.000	0.000	0.352	LOSS
0.284	-3.527	0.619	0.008	-0.014	ROA
0.581	-6.217	3.445	0.046	0.058	ROE
0.349	-0.005	3.404	0.179	0.281	LEV
0.165	-0.878	1.437	0.000	0.007	CFO
1.469	-27.723	0.967	0.288	0.249	FXR
20.921	-53.982	274.456	2.154	6.950	LIQ
0.381	0.000	1.000	0.000	0.176	CG

Table (1) above shows that;

1. The mean value of the market value index (MS) during the search period was 10.113, while the highest level was (100) and the lowest value was (0.18), with a standard deviation of 16.626.
2. The mean value of the tax ratio (SDI) during the search period was 0.520, with the highest is (0.766) and the lowest is (0.286), with a standard deviation of 0.129.
3. The mean value of the company's size variable (FSIZE) reached during the search period (22.413), while the highest (27.050) and lowest (19.245), with a standard deviation of 1.378.
4. The mean value of the company's age (AGE) during the search period was 33,753, with the highest level is (76) and the lowest level is (10), with a standard deviation of 13,571.
5. The mean value of the loss variable during the search period was 0.352, with the highest is (1.000) and the lowest is (0.000), with a standard deviation of 0.478.

2. Results of Hypothesis Verification

1.Verification of Hypothesis 1

Impact of eco-sustainability disclosure in financial reports on market value. To verify the validity of the hypotheses adopted here, the multiple linear regression model has been used, as illustrated in the table below.

Table (2) Verification of Hypothesis 1

VIF	Prob.	t-Statistic	Std. Error	Coefficient	Variable
-	0.000	6.554	3.389	22.210	C
1.388	0.000	6.909	2.265	15.650	SDI
1.320	0.003	-2.968	0.147	-0.437	FSIZE
1.385	0.001	3.361	0.031	0.103	AGE
1.528	0.017	-2.392	0.581	-1.389	LOSS
2.329	0.000	5.560	2.223	12.360	ROA
1.138	0.014	2.472	0.785	1.942	ROE
1.626	0.463	-0.735	1.058	-0.778	LEV
1.100	0.689	0.400	1.500	0.601	CFO
1.973	0.000	-3.713	0.437	-1.623	FXR
1.065	0.008	-2.657	0.011	-0.030	LIQ
1.135	0.262	-1.124	0.542	-0.609	CG
	0.312		Adjusted R-squared	0.332	R-squared
	0.000		Prob (F-statistic)	17.144	F-statistic
			1.496		Durbin-Watson stat

The results of the statistical analysis in Table (2) above show that the model is significant. The probability value of the F-statistic test is less than 0.05. This value reached (0.000), indicating that the model is fit for testing and its results are reliable. Also, the table shows that Durbin-Watson's value is (1.675), which is perfect. This value falls between (2.5-1.5), which indicates that there is no self-correlation problem or false regression in the samples under study.

Similarly, the R-squared value was found to be 0.332, meaning that the interpretive power of the independent variables with the dependent variable is 33%. As for the adjusted R-squared value, it was (0.312). This indicates that the independent variable affects the affiliate variable by 31%. The remainder, which is (69%), is due to other non-model factors. The results above indicate that all the values of variance inflation factors (VIF) did not exceed 10 degrees, as the highest value has been (2.329). These statistical figures indicate no problem in the linear interrelationship between the independent variables used in this research.

Interpretation of Hypothesis Outcomes

The results of the statistical analysis show that the probability value (Prob) of the independent variable, the disclosure of eco-sustainability in financial reports, is less than (0.05), amounting to (0.000). This indicates that the hypothesis is valid, i.e., there is an effect of eco-sustainability disclosure in financial reports on market value. Therefore, we conclude that the higher the disclosure of eco-sustainability in the final reports of these companies, the higher the share prices of these companies will be.

Verification of Hypothesis 2: Impact of eco-sustainability disclosure in financial reports on market value under company characteristics (size, age, and loss). To verify the hypotheses adopted here, the multiple linear regression model was used, as shown in Table (3) below:

Table (3) Verification of Hypothesis 2

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.000	3.814	21.288	81.189	C
0.001	3.463	32.648	113.050	SDI
0.078	-1.768	0.928	-1.641	FSIZE
0.000	-6.139	0.115	-0.709	AGE
0.001	-3.448	2.820	-9.721	LOSS
0.172	1.368	1.418	1.939	SDI*FSIZE
0.000	6.477	0.219	1.417	SDI*AGE
0.002	3.154	4.605	14.525	SDI*LOSS
0.000	5.272	1.831	9.653	ROA
0.018	2.386	0.560	1.336	ROE
0.271	-1.104	1.097	-1.211	LEV
0.934	0.083	1.572	0.130	CFO
0.004	-2.923	0.385	-1.126	FXR
0.000	-4.281	0.010	-0.041	LIQ
0.061	-1.882	0.554	-1.042	CG
0.368	Adjusted R-squared		0.391	R-squared
0.000	Prob (F-statistic)		17.259	F-statistic
		1.542	Durbin-Watson stat	

The results of the statistical analysis in Table (3) above show that the model is significant. The probability value of the F-statistic test is less than 0.05. This value reached (0.000), indicating that the model is valid for testing and its results are reliable. Also, the table shows that the

Durbin-Watson value is 1.542, which is favorable. This value falls between (2.5-1.5), indicating that there is no self-correlation problem and false regression in the template time series values specified in the samples. Additionally, the table shows an R-squared value of 0.391, indicating a 39% interpretive power between the independent variables and the dependent variable. As for the adjusted R-squared value, it reached 0.368, indicating that the independent variable affects the dependent variable by 37%. The remainder, 63%, is due to other non-model factors.

Interpretation of the Results of Sub-hypothesis 1 (Main Hypothesis 2)

Statistical analysis shows that the probability value (Prob) of the independent variant, which is eco-sustainability disclosure in financial reports, regarding company characteristics, mainly size, is higher than (0.05). This value was 0.172. This indicates that this sub-hypothesis is invalid, i.e., there is no impact of eco-sustainability disclosure in financial reports on market value regarding company characteristics, mainly size.

Interpretation of the Results of Hypothesis 2:

Statistical analysis shows that the probability value (Prob) of the independent variant, which is eco-sustainability disclosure in financial reports, regarding company characteristics, mainly age, is less than (0.05). This value was 0.000. This indicates that this hypothesis is valid, i.e., there is an impact of eco-sustainability disclosure in financial reports on market value regarding company characteristics, mainly age.

Interpretation of the Results of Sub-hypothesis 2:

Statistical analysis shows that the probability value (Prob) of the independent variant, which is eco-sustainability disclosure in financial reports, regarding company characteristics, mainly losses, is less than (0.05), reaching (0.002). This indicates that this hypothesis is valid, i.e., there is an effect of eco-sustainability disclosure in financial reports on market value regarding company characteristics, mainly losses.

Conclusions

Based on the discussions and analysis elaborated on above, the following conclusions have been reached:

1. Sustainability reports should be disclosed as having many benefits and advantages. These advantages mainly enhance the company's reputation. Accordingly, this will be positively reflected in the price of its shares in the financial market, facilitating access to bank credit,

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improving the efficiency of performance by reducing the environmental costs and damage resulting from its activities and operations, and building a good relationship with the government, which helps solve legal problems or disputes.

2. The disclosure of eco-sustainability practices achieves financial value for the company, greatly supports the company's reputation, and attracts new investments.
3. Eco-sustainability practices have attained great importance both economically, environmentally, and socially. These practices help link social and environmental goals with economic goals in order to maximize human benefit today without compromising the abilities of future generations.
4. Despite ongoing efforts to encourage companies to implement and disclose sustainability practices, businesses currently lack the legal obligation to do so. This limits the impact and effectiveness of these practices on companies, given that there are no laws that require these companies to consider the relevant environmental, social, and economic impacts. Therefore, an acceptable international standard must be proposed to apply those initiatives and guidelines well, thereby safeguarding the environment and society.
5. Statistical analysis demonstrated an effect of eco-sustainability disclosure in financial reports on market value.
6. Statistical analysis revealed a significant impact of eco-sustainability disclosure in financial reports on a company's market value, particularly in relation to its age and losses.
7. Statistical analysis showed no effect of eco-sustainability disclosure in financial reports on the market value of the company regarding company qualities, particularly size.

Recommendations

The paper, following the findings and results reached above, proposes the following recommendations:

1. Relevant authorities should enhance companies' awareness of the importance of disclosure of eco-sustainability practices, by preparing sustainability reports and disclosing sustainability reports as they actions bring social, environmental, and economic benefits.
2. Future research must involve more companies and diverse sectors and industries as this provides more comprehensive results covering different geographical areas. Accordingly, companies in different regions of the world can be compared to check whether there are regional differences in the impact of sustainability disclosure.

3. Various factors that may affect the relationship between environmental disclosure and market value, such as company size, government policies, and market maturity, should be examined.
4. The role of government and legislation should be examined by analyzing how government policies and sustainability legislations affect companies' behavior and market value and comparing the impact of disclosure in countries with strict environmental legislation against those with flexible environmental legislation.
5. Developing countries which experience low or less research focusing on this area should undertake further research on the disclosure of eco-sustainability, given the absence of the role of non-governmental organizations and media as supportive lobbies in order to improve public awareness and encourage businesses to disclose environmental reports.

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