IMPACT OF SUSTAINABILITY INDICATORS DISCLOSURE BASED ON GRI STANDARDS IN ACCOUNTING SUSTAINABILITY REPORTS ON ENHANCING THE COMPANY VALUE

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Abstract

This study aims to measure the impact of sustainability indicators disclosure, based on Global Reporting Initiative (GRI) Standards in accounting sustainability reports, on enhancing company value at Jordanian extractive and mining industries companies listed on the Amman Stock Exchange (ASE) with data available in the financial market during 2020–2023. The researchers used a number of financial indicators in the statistical program (EViews), including return on equity (ROE), earnings per share (EPS), return on assets (ROA), leverage (LEV), and also gave weights to the disclosure items of sustainability accounting, and its economic, environmental, and social indicators. The study found a positive impact of sustainability indicators disclosure on enhancing the company value of Jordanian extractive and mining industries companies. The study recommended Jordanian companies to utilize all available means and capabilities for the purpose of expanding their services and differentiating investments, in order to increase the efficiency of these companies and achieve returns. The study also recommended encouragement of all companies to commit to the disclosure of waste and emissions reduction requirements, which include direct and indirect greenhouse gas emissions resulting from energy consumption, where optimizing resource consumption across operations not only contributes to cost savings but also improves company value.

Keywords: Sustainability Disclosure, Company Value, Global Reporting Initiative (GRI), Accounting Sustainability Reports

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1. INTRODUCTION

The rates of harmful waste and emissions to the environment have increased globally, and environmental degradation has begun to take a dangerous curve (AlDabbagh & AlSaadoun, 2020), which has especially intensified after the economic and technological developments in the business sector, and become necessary for companies in all sectors of society to pay attention to the environment and environmental performance. Therefore, the issue of environmental degradation and pollution disclosure gained an important level in modern accounting thought, with significant impact

on financial reporting and the competitive advantage of companies, which increased environmental obligations, with several court cases caused by companies' violations of environmental regulations. The problems and conflicts within companies have worsened over the achievement of economic development and preservation of the environment, where this development will not achieve any welfare for society without taking into consideration the environmental aspects, because there will be no economic development value in case it harms the environment and society. Accordingly, companies of all societal sectors in many countries will be committed to implementing the sustainability concepts every time they set goals and operational performance to achieve a balance between their development processes and environmental preservation. The companies' report on sustainability activity has been under pressure from shareholders and public parties in order to decrease the impacts of unavailable information on sustainability (Duma et al., 2013). A study by the American Institute of Certified Public Accountants (AICPA) put emphasis on the need to disclose activities of environmental and economic companies, social costs and benefits, and the extent of their impact on all other sectors of society (Al-Obaidi, 2021). As a result, work was done at the end of the nineteenth century and the beginning of the twentieth century to develop a set of international initiatives and standards to regulate the disclosure of sustainability topics and reporting. The first of these initiatives was the creation of the so-called Sustainability Accounting Standards Board (SASB), which was formed primarily to focus on promoting the disclosure of non-financial information linked to sustainability indicators to supplement the financial information produced by traditional accounting. According to this initiative, the topic of environmental sustainability indicators has gained the attention and approval of many countries, where most of them have created many ministries and public bodies that have an interest in organizing activities related to the environmental aspect (AlDabbagh & AlSaadoun, 2020). In light of the above, dealing with economic, environmental, and social topics formed the sustainability concepts; as a whole and sustainability accounting in specific by companies' performance indicators, with the need to provide integrated and coherent sustainability information on these indicators by disclosing them in periodic sustainability reports submitted to the internal and external stakeholders with full transparency (Mohamaad, 2025). The financial and environmental individual reports, such as social responsibility reports, are no longer useful unless they are compatible and consistent in a comprehensive sustainability report to formulate a comprehensive view of companies' performance and to be able to create value for them (Balla, 2024; Mahmood et al., 2024; Abdel Dayem & Al Aqili, 2015). Therefore, in order to provide quality, reliable, and appropriate information, the sustainability reports, organizational entities, or companies can select one of the standard frameworks used to disclose this information, such as the Global Reporting Initiative (GRI) Standards (Yehezkiel et al., 2023). GRI is another global initiative that contributed to the development of sustainability reports beginning of the current century, which issued a set of guidelines and standards to express sustainability indicators that aid stakeholders and investors to evaluate the sustainable performance of companies and ensure information clarity (Mohamaad, 2025). In addition, the disclosing sustainability processes of reports based on these standards can encourage international stock markets and capital exchanges to use it as a trading precondition (Alhaj & Mansor, 2019). The disclosure level of environmental performance in sustainability accounting reports has become very important because it provides high accuracy and quality environmental information, within the framework of financial reports, which has reflections on its environmental performance and enhances the company value (Debnath et al., 2024; Bataineh et. al, 2018). Therefore, it has become obligatory for these companies to disclose this performance in transparent sustainability reports to improve their reputation and effectively enhance prospects (Shaban & Zarnoun, 2024; Alhaj & Mansor, 2019).

The study importance represented in sustainability accounting disclosure roles and its economic, environmental, and social indicators that contribute to accounting thought through the development of operations in extractive and mining industries sector companies; in a way that allows them to develop and improve company value by providing sustainability reports to all stakeholders, which shows interest in all aspects by companies' management to help different stakeholders in making the rational decisions.

The study aimed to measure the impact of sustainability indicators disclosure, based on GRI Standards in accounting sustainability reports on enhancing company value at the Jordanian extractive and mining industries companies listed on the Amman Stock Exchange (ASE), and to address their impact on organizing the disclosure processes of economic, environmental, and social indicators through the preparation of environmental sustainability reports, which consider the foundation of this aspect. The sustainability standards issued by GRI have significantly contributed to helping all sectors, especially the industrial to meet the most important challenges by providing the appropriate information to stakeholders, identifying sustainable performance dimensions, and measuring accounting disclosure methods through the sustainability accounting reports; to enhance the value of extractive and mining industries companies during the four years (2020–2023).

In light of the above, it is possible to formulate the main idea of the study by addressing the following question:

RQ: Does the sustainability indicators disclosure, based on GRI Standards in accounting sustainability reports, enhance company value at Jordanian extractive and mining industries companies listed on the ASE?

The rest of the paper is structured as follows. Section 2 reviews the literature. Section 3 provides research methodology. Section 4 presents the data analysis and results. Section 5 discusses the results of the study. Section 6 concludes the paper.

2. LITERATURE REVIEW

In light of the consecutive improvements in the business environment, interest of professional organizations and regulatory bodies increased in the accounting disclosure of companies' sustainability indicators, due to a belief that disclosure will contribute to improving financial reports.

The International Federation of Accountants (IFAC, 2009), at the international level, ensures that all companies' sectors need to publish information on sustainable development in their annual reports. The GRI initiative has issued a set of guidelines and standards to express a comprehensive framework for preparing sustainability reports that companies can use as a guide when reporting their economic, environmental, and social indicators. The GRI initiative stated that the process of disclosing sustainability indicators is a vital step towards achieving sustainable growth through its accountability to companies about the effects of their activities. In addition, it allows governments in all countries to assess the contribution of companies' sectors to economic development and to get a more comprehensive understanding of companies' issues (GRI, 2013).

Despite the above, there are many studies that dealt with the sustainability accounting topic according to GRI Standards on companies, and there are other studies that focused on performance and ways to improve it. These studies have been implemented in different local, Arab, and foreign environments.

Alhyasat's (2023) study aimed to measure the impact of disclosure by GRI-G4 Standards on company value, via a systematic descriptive method on a study sample of 33 industrial companies listed at ASE for the 2018–2021 period by collecting data from companies' annual reports. Results showed a positive significant impact of GRI-G4 Standards on the company value, and recommended that industrial companies should use GRI-G4 Standards for the sustainability reports disclosure. They should adopt all activities and practices that enable them to contribute to maximizing and increasing the company value. Amin and Mhedin's (2022) study aimed to show the effective role of green accounting in raising the environmental performance level at industrial companies located in Sulaymaniyah Governorate (Iraq), and also to measure the impact of decisions that enhance environmental performance, to add economic value to companies in the study sample. The researchers designed a questionnaire and distributed it to 240 individual specialists from these industrial companies, and analyzed 186 of them. Most results showed a positive relationship between green accounting or environmental disclosure and the increase in environmental performance level through the existence of the environmental accounting disclosure variable. The study recommended government work on finding solutions to environmental problems by adhering to the disclosure standards of environmental indicators; to protect and preserve the environment from environmental pollution that results from industrial companies' violations in their basic lists or as a separate one from financial statements, and to facilitate the possibility of meeting the needs of all stakeholders. But Al-Obaidi's (2021) study addressed the importance of identifying the relationship between accounting disclosure of environmental performance and sustainability reports quality based on GRI principles, where the researcher measured this relationship through content analysis of sustainability accounting reports, the existence level of environmental indicators disclosure, and the measurement of the relationship between indicators and sustainability reports quality. The most important results showed a positive relationship between accounting disclosure of environmental performance indicators and the quality of the sustainability report. The study recommendations called for increasing the commitment to using GRI principles, in order to improve the environmental performance disclosure inside sustainability reports, along with motivating companies listed in the Iraqi financial market to disclose sustainability indicators in the financial reports.

In a similar study, Younis (2021) dealt with identifying the importance of sustainability reports, as well as measuring the impact of disclosure quality in those reports on financial performance indicators of Saudi companies listed in the financial market. The researcher selected a study sample of 60 companies during the period 2015–2019 and used multiple linear regression analysis model in order to measure the relationship between independent, dependent, and controlled variables. The financial performance of sample companies was measured through return on assets (ROA), return on equity (ROE), market share value, earnings per share (EPS), ratio of market value to book value of shares. The results showed a positive impact of the sustainability reports disclosure level on companies' financial performance; however, the study sample, while other results found no effect of disclosure quality in sustainability reports on the companies' financial performance. The study recommended issuing accounting standards for the disclosure of economic, social, and environmental indicators in sustainability reports.

In contrast, Al-Jajawi and Al-Khafaji's (2020) study aimed to address the employment process of GRI Standards for analyzing content of financial annual reports; for companies' sample listed in Iraq stock exchange, to identify the disclosure commitment level of economic, environmental, and social indicators, and governance principles to achieve their responsibilities towards society; based on the sustainable development perspective during 2014–2015. It also identified the relationship of disclosure transparency based on the S&P scale for Iraqi companies, as the study sample with their disclosure level of sustainability reports, in accordance with GRI Standards and ESG/ISX indicators. The most important results showed a weak commitment level of Iraqi companies to disclosing indicators in sustainability reports; based on GRI/ESG/ISX indicators, by only achieved a disclosure rate of 29.10%, due to the weak disclosure of most indicators. Results also showed that measurement of disclosure transparency degree through the S&P transparency scale achieved a weak disclosure rate of 39.53%, which led to a weak level of companies' contribution, as the study sample achieved a sustainable development perspective. The study recommended that companies should pay attention to disclosing sustainability indicators through the development of obligatory accounting laws or instructions for companies listed in the financial market by disclosing sustainability in accordance with GRI Standards. As for Oncioiu et al.'s (2020) study aimed to measure the strength of the relationship between sustainability reports and the financial performance variable of Romanian companies, by distributing a designed standard questionnaire to 320 individual managers in these companies. This study sample represented in the questionnaire that measures disclosure of institutional sustainability reports contained

20 items for economic indicators, 18 for the social, and 25 for environmental indicators; in accordance with the requirements of GRI 3.1 Standards. The most important results indicated that the sustainability reports disclosure of Romanian companies seeks new opportunities to improve management practices and increase companies' financial performance, regardless of company size. Results also showed that sustainable disclosure helps both stakeholders and management in environmental decisions and regulations, where the integration of companies' sustainability indicators with financial performance reports would transform sustainability into tangible value for all relevant stakeholders. Whereas AlDabbagh and AlSaadoun's (2020) study aimed to measure the impact of employing sustainability accounting standards on improving environmental disclosure quality of the health sector in the city of Nineweh, Republic of Iraq. The researchers selected the non-financial information related to environmental performance in sustainability reports, along with the financial environmental information provided by the department. The study reviewed the implementation levels of environmental disclosure and sustainability indicators and accounting for them, according to the universal sustainability standards of SASB. The most important results showed that SASB standards contribute to a high degree in helping the various service sectors in facing difficulties and challenges related to the environment and sustainability because these standards provide the appropriate measurable and comparable information for multiple stakeholders. The study of Al-Matarneh (2019) aimed to measure the impact of sustainability disclosure on performance at 13 Jordanian mining and extractive industrial companies before 2015. It used the descriptive analytical method and content analysis of annual financial reports, and also used the multiple linear correlation analysis tests to analyze study data and test its hypotheses. The most important results showed a discrepancy between the disclosure of sustainability indicators and companies' performance. Results also showed a deficiency in the implementation of sustainability indicators disclosure requirements, as well as a weakness in disclosure, especially for environmental and social indicators. The study recommended that companies disclose all sustainability indicators and include them in their goals and policies; due to the fact that it increases financial performance, and also these companies must disclose them to a large number of relevant stakeholders. But Bataineh et al.'s (2019) study aimed to identify the commitment level of industrial pharmaceutical companies in Jordan to implement environmental disclosure requirements, where the study sample included all 11 Jordanian pharmaceutical companies, with data available in the ASE during 2016–2018. Results showed that the total environmental disclosure rate reached 48%. The researchers recommended that companies should increase environmental awareness and education of accountants and auditors towards the environment by focusing on holding many training courses to keep pace with global publications in the environmental field. The study also recommended that companies should commit to an energy index, which leads to an increase in company value. While the study of Hahn and Kühnen (2013) aimed to identify important factors that limit the sustainability reports disclosure of 178 studies published between 1999–2011, in many journals related to business, management, and accounting, which highlighted the important factors that impact adoption, extent, and quality of reports. The important results showed that company size is considered one of the important variables; due to its positive impact on disclosure and sustainability level, and for the reason that large-sized companies have a significant impact on society, while small ones will face large marginal costs in order to disclose sustainability performance. As for the profitability and size variables, they consider most internal determinants for identifying the sustainability disclosure level, while for ownership structure variable considers an external determinant for the disclosure level of sustainability performance.

As for the environmental performance of industrial companies, it is considered one of the most essential standards implemented by external parties of investors or government agencies to judge the proficiency of environmental performance in these companies, within the framework of achieving the sustainability principle that preserves the environment from harmful effects. These companies must disclose financial and non-financial information related to environmental performance in a way that allows other parties to identify and evaluate their performance (Bataineh et al., 2018).

By investigating the previous studies related to the study topic, the researchers found that most companies adapting to sustainability reports have countless investors in the long term, since information on sustainability indicators emphasizes contributions of these companies in serving their environment and society, and techniques employed to generate cash and value for them. Therefore, the study of Suttipun and Stanton (2012) aimed to measure the disclosure content of information and environmental performance contained in the annual reports prepared by Thai companies listed in the Stock Exchange of Thailand (SET), where the study measures the relationship between environmental content disclosure and the Thai companies' characteristics. The sample includes 75 companies listed on the SET, and the researchers analyzed the companies' annual reports in the study sample for 2007. The most important results showed that 62 companies, or approximately 83% have provided environmental information in their annual reports, where resource industry group companies achieved the highest rank in their environmental information disclosure level, while the agri-food industries group achieved the lowest rank. Furthermore, results revealed a positive relationship between the environmental disclosure level and company size. In contrast, the study of Tang and Chan (2010) aimed to evaluate sustainability reports and measure the relationship between economic performance and disclosure of social and environmental indicators in the State of Hong Kong, where the study performed content analysis of annual reports for a group of 180 companies. The most important results found that 60% of companies in the sample provide disclosures about social indicators in their annual reports, and showed that company size and variables of financial leverage level play an important role in improving the disclosure level of sustainability indicators. Results also showed that the industry nature variable is largely related to the disclosure extent of sustainability indicators in

Hong Kong companies' reports. The things that distinguish this study from previous studies are that most previous ones focused on the sustainability concept and the need to expand disclosure voluntarily in the financial reports, with regard to environmental, economic, and social performance. On the contrary, the current study examines ways to develop the disclosure level of environmental performance in sustainability accounting reports by providing precise environmental information, within the financial report framework, and reflecting its environmental performance. It will also enhance the company value by identifying required input for stakeholders and capital markets, as well as determining the information content of the sustainability report, in accordance with GRI.

3. DATA AND METHODOLOGY

3.1. Study sample and population

The study population and sample represented in seven companies operating in the Jordanian extractive and mining industries sector that list their shares on the ASE. The researchers will study its financial reports for the period of four years (2020–2023) to obtain data that covers study variables during the study period[1]. There are several reasons for selecting the mining and extractive industries companies' sector in Jordan; as a study sample, the most important reason is that companies operating in this sector are considered vital by playing an effective role in driving Jordanian economic growth, where the total revenues of this sector reached 4.4 billion dollars in 2021, or 9.12% of gross domestic product (GDP). On the other hand, the industrial sector contributed to the stock market, as the trading volume of this sector reached approximately 47.8 million JD in 2024. The public shareholding extractive and mining industrial companies topped this sector with a trading volume of 32.2 million JD, as a major part of the Jordanian market.

3.2. Methodology

The study sample contained seven companies operating in the Jordanian extractive and mining industries sector with shares listed on ASE, and had available financial statements during the period (2020–2023). In this study, the researchers relied on the financial reports of these companies during this period to measure company value using EViews program, through a number of financial indicators that include ROE, EPS, ROA, and LEV based on studies of Dincer et al. (2023), Fahlevi et al. (2023), Park and Shin (2004), Tang and Chan (2010), Younis (2021), which related to company value. The researchers also studied the disclosure level of economic, social, and environmental sustainability indicators through annual reports; by giving companies that disclose (1) and companies that do not disclose (0), and then calculating the average by dividing the total indicators that the company disclosed during the study period by the total of 28 views. Table 1 shows the most important indicators that are measured as independent variables represented by the sustainability disclosure and GRI Standards that measure those indicators, as well as the most important previous studies that dealt with the measurements of these indicators.

Table 1. Independent variables that measured sustainability disclosure based on the GRI Standards

Variable	*Measuring tool*	*Sources*
Economic indicator	GRI 200 Standards	Al-Jajawi and Al-Khafaji (2020), Al-Obaidi (2021), AL-Shwiyat et al. (2013), Bataineh et al. (2018)
Environmental indicator	GRI 300 Standards	Al-Jajawi and Al-Khafaji (2020), Al-Matarneh (2019), Al-Obaidi (2021), AL-Shwiyat et al. (2013), Bataineh et al. (2018)
Social indicator	GRI 400 Standards	Al-Jajawi and Al-Khafaji (2020), Al-Obaidi (2021), AL-Shwiyat et al. (2013), Bataineh et al. (2018)

Table 2 shows the most important financial indicators that are measured as dependent variables, represented by company value, measurement methods, and the most important previous studies that dealt with measuring these variables.

Table 2. Dependent variables that measure company value

Variable	*Measuring tool*	*Sources*
ROE	Net income/Total of equity	Al-Karasneh and Bataineh (2018), Al-Matarneh (2019), Younis (2021)
EPS	Net income/ Number of outstanding shares	Dincer et al. (2023), Younis (2021)
ROA	Net income/Total of assets	AL-Shwiyat et al. (2013), Dincer et al. (2023), Younis (2021)
LEV	Total of debt/Total of assets	Abed et al. (2012), Fahlevi et al. (2023), Park and Shin (2004), Tang and Chan (2010)

3.3. Research hypotheses

The study exposed the following hypotheses to examination:

H1: There is an impact of the sustainability indicators disclosure based on GRI Standards in sustainability accounting reports on improving the company value in the Jordanian extractive and mining industries sector.

The main hypothesis (*H1*) will be tested from the following four sub-hypotheses:

H1a: There is an impact of the sustainability indicators disclosure based on GRI Standards in sustainability accounting reports on improving ROE in the Jordanian extractive and mining industries sector.

H1b: There is an impact of the sustainability indicators disclosure based on GRI Standards in sustainability accounting reports on improving EPS in the Jordanian extractive and mining industries sector.

H1c: There is an impact of the sustainability indicators disclosure based on GRI Standards in sustainability accounting reports on improving ROA in the Jordanian extractive and mining industries sector.

H1d: There is an impact of the sustainability indicators disclosure based on GRI Standards in sustainability accounting reports on improving LEV in the Jordanian extractive and mining industries sector

[1] www.ase.com.jo

4. DATA ANALYSIS AND RESULTS

This aspect includes the study results related to the commitment level of extractive and mining industries companies' sector at the ASE, during 2020–2023, to the sustainability disclosure requirements based on GRI Standards in sustainability accounting reports for enhancing company value, through the growth level of overall sustainability disclosure, and the data analysis for each indicator and standard of disclosure. It also examines the statistically significant relationship between disclosure level based on GRI Standards in the sustainability accounting reports and a set of independent variables represented in their economic, environmental, and social indicators. Moreover, it displays the correlation coefficients between independent variables and descriptive analysis results of variables.

4.1. Development level of sustainability indicators disclosure based on GRI Standards in sustainability accounting reports during 2020–2023

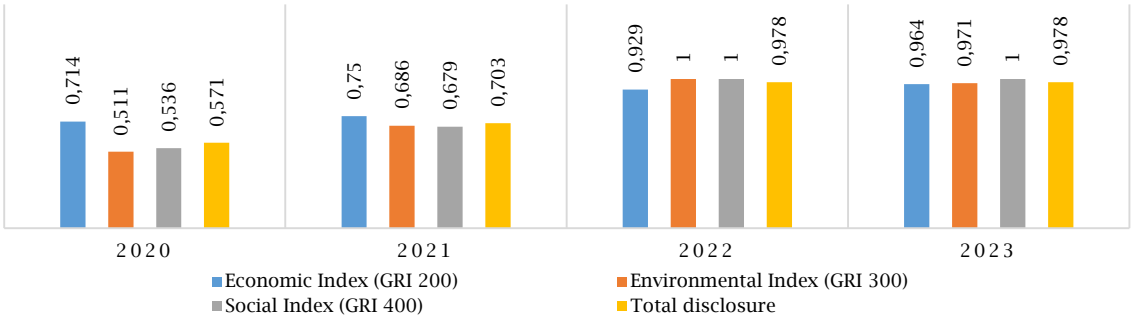
Table 3 shows the disclosure level of sustainability indicators based on GRI Standards in sustainability accounting reports during 2020–2023, where the researchers calculated the disclosure level of each indicator separately by dividing the average disclosure level of each indicator; for each company by the total study sample of seven companies.

Table 3. Development level of sustainability disclosure based on the GRI Standards by indicator

Indicator	*2020*	*2021*	*2022*	*2023*	*% change*
Economic indicator (GRI 200)	0.714	0.750	0.929	0.964	+35%
Environmental indicator (GRI 300)	0.511	0.686	1.000	0.971	+90%
Social indicator (GRI 400)	0.536	0.679	1.000	1.000	+86%
Total disclosure	0.571	0.703	0.978	0.978	+71%

The data in Table 3 shows that disclosure level of sustainability disclosure indicators based on the GRI Standards at the sustainability accounting reports in study sample companies has developed from 2020 to 2023, where the environmental indicator of sustainability disclosure level was most growing with 0.511 in 2020, increased to 0.686 in 2021, and increased again to 1.000 in 2022, then it developed to become 0.971 in 2023. The level of disclosure has evolved for all areas of study, where the level was 0.571 in 2020, developed to become 0.703 in 2021, then it developed again in 2022 to become 0.978, and remained at 0.978 in 2023; which indicates the existence of sufficient awareness for the importance of adhering to GRI Standards implementation in the company's sustainability reports; as study sample. This remarkable progress in the overall disclosure level of all indicators is attributed to the fact that companies' management in the extractive and mining industries sector, their employees, and Jordanian industrial environment are striving hard to implement the GRI Standards' requirements in sustainability accounting reports; for Jordan to remain among countries that adopt everything new in the sustainable accounting field. Figure 1 below shows the level of sustainability disclosure based on GRI Standards in the sustainability accounting reports during 2020–2023.

Figure 1. Level of sustainability disclosure based on the GRI Standards in sustainability accounting



4.2. Average level of sustainability indicators disclosure at the indicators level

Table 4 shows the analysis of descriptive results for the average total level of sustainability disclosure requirements related to the economic, environmental, and social indicators in Jordanian extractive and mining industries companies for the period 2020–2023.

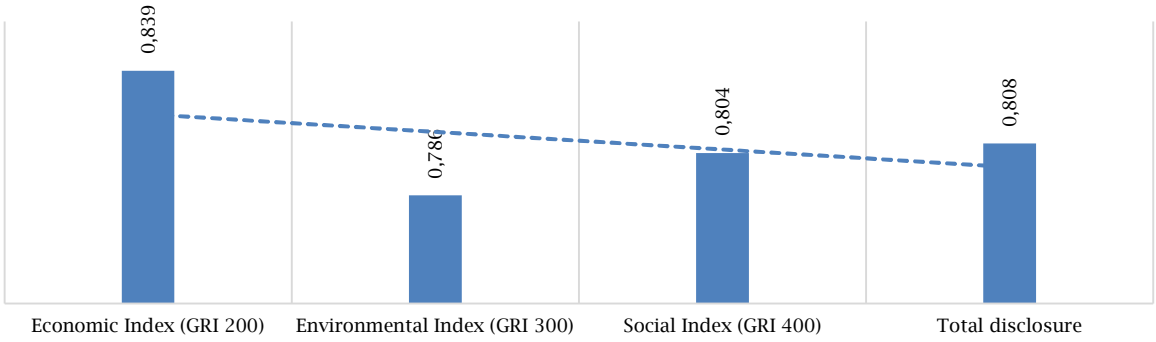
Table 4. Descriptive statistics

Indicator	*Mean*	*SD*	*Range*	*Variance*	*Skewness*	*Kurtosis*
Economic indicator (GRI 200)	0.839	0.228	0.750	0.052	-1.122	0.043
Environmental indicator (GRI 300)	0.786	0.357	1.000	0.127	-1.404	0.490
Social indicator (GRI 400)	0.804	0.336	1.000	0.113	-1.310	0.000
Total disclosure	0.808	0.297	0.846	0.088	-1.212	-0.223

Table 4 shows that the average implementation level of the Jordanian extractive and mining industries sector companies for disclosure requirements contained in the GRI Standards of accounting sustainability reports; during 2020–2023, ranged between 75% as a low level of

implementation and 100% as a high level, with a standard deviation (SD) of 22.8. Results indicate that disclosure average level of the least significant for companies in the Jordanian extractive and mining industries sector was the disclosure of environmental indicator, with implementation average level of 78.6% and SD of 22.8%; since companies in this sector had a low treatment level of environmental indicator accounting while the most important level was disclosure of economic indicator, with average level of 83.9% and SD of 22.8%; since companies in extractive and mining industries sector are more vulnerable to economic risks and profit. Therefore, the management of these companies considers it necessary to disclose them, which shows the importance of disclosing this indicator in financial markets. All of this indicates the level of compliance with ASE authority instructions, where companies that registered in the ASE 20 indicator sample, end of 2022, published sustainability reports based on the GRI Standards. The company had the choice to submit its sustainability report in one of two ways: a sustainability report separated from the company's annual report or one integrated with the company's annual report, which in turn has a reflection on the investment level, trading volume, profitability, and competitiveness of those companies.

Figure 2. Average level of sustainability disclosure requirements for all indicators in the companies of the study sample (2020–2023)



4.3. Average level of indicators disclosure at the standard level

Table 5 shows the descriptive analysis results for the average sustainability disclosure level of economic, environmental, and social indicators at each level of 33 GRI Standards (GRI, 2013; Mihai & Alec, 2023) to improve companies' value in the Jordanian extractive and mining industries sector for the period 2020–2023.

Table 5. Indicators based on the GRI Standards

Indicator	*Indicators based on GRI Standards*	*Mean*	*SD*	*Variance*	*Skewness*	*Kurtosis*
Economic indicator (GRI 200)	GRI (201): Economic Performance	0.714	0.460	0.212	-0.003	-4.076
	GRI (202): Market Presence	0.821	0.390	0.152	-0.775	3.234
	GRI (203): Indirect Economic Impacts	0.750	0.441	0.194	-0.221	-4.554
	GRI (204): Procurement Practices	0.893	0.315	0.099	-0.686	5.614
	GRI (205): Anti-corruption	0.571	0.503	0.254	-0.305	-3.060
	GRI (206): Anti-competitive Behavior	0.857	0.356	0.127	-0.159	9.859
	GRI (207): Tax	1.000	0.000	0.000	-	-
Environmental indicator (GRI 300)	GRI (301): Materials	0.964	0.188	0.036	-0.292	11.000
	GRI (302): Energy	0.714	0.390	0.152	-0.775	5.234
	GRI (303): Water & Effluents	0.821	0.460	0.212	-0.003	-6.076
	GRI (304): Biodiversity	0.714	0.460	0.212	-0.003	-4.076
	GRI (305): Emissions	0.694	0.416	0.152	-0.775	12.234
	GRI (306): Effluents & Waste	0.697	0.356	0.127	-0.159	3.859
	GRI (308): Supplier Environmental Assessment	0.750	0.440	0.194	-0.221	-5.554
Social indicator (GRI 400)	GRI (401): Employment	0.786	0.417	0.175	-0.473	7.176
	GRI (402): Relations of Labor-Management	0.893	0.315	0.099	-0.686	5.614
	GRI (403): Occupational Health & Safety	0.678	0.475	0.152	-0.775	3.234
	GRI (404): Training & Education	0.964	0.188	0.099	-0.686	5.614
	GRI (405): Diversity & Equal Opportunity	0.750	0.441	0.194	-0.221	-3.554
	GRI (406): Non-discrimination	0.750	0.441	0.194	-0.221	-4.554
	GRI (407): Association & Collective Bargaining Freedom	0.857	0.356	0.127	-0.159	4.859
	GRI (408): Labor of Child	0.928	0.262	0.069	-0.520	11.183
	GRI (409): Forced/Compulsory Labor	0.785	0.417	0.175	-0.473	7.176
	GRI (410): Practices of Security	0.821	0.390	0.152	-0.775	5.234
	GRI (411): Indigenous Peoples' Rights	0.714	0.460	0.212	-0.003	-3.076
	GRI (413): Local Communities	0.750	0.441	0.194	-0.221	-4.554
	GRI (414): Assessment of Supplier Social	0.750	0.440	0.194	-0.221	-9.554
	GRI (415): Public Policy	0.821	0.390	0.152	-0.775	8.234
	GRI (416): Customer Health & Safety	0.928	0.262	0.069	-0.520	11.183
	GRI (417): Marketing & Labeling	0.785	0.418	0.175	-0.473	3.176
	GRI (418): Privacy of Customer	0.857	0.356	0.127	-0.159	3.859

GRI uses an interconnected and structured set of standards to help corporate management in the preparation process of principal sustainability reporting; in order to measure the sustainability disclosure level through economic, environmental, and social indicators in the sustainability accounting reports for improving companies' value. Therefore, it noticed from results in Table 5 that disclosure level of economic indicators; which measured based on a set of seven GRI 200 Standards showed that GRI 207 Standard related to "taxes" ranked first with a mean of 100% because companies have disclosed their paid and due taxes in the sustainability lists, followed second by GRI 204 Standard "procurement practice", while GRI 205 Standard "anti-corruption" came at the lowest disclosure level with an a mean of 57.1% and SD of 0.503; due to the lack of interest of some companies in defining anti-corruption disclosure requirements, which include disclosures related to (number of operations undergone a corruption risk assessment, communications and training on anti-corruption policies and procedures).

Regarding indicators of environmental disclosure, their implementation level were measured through a set of eight GRI 300 Standards; which showed that GRI 301 Standard "materials" has achieved the highest disclosure rate with a mean of 96.4% and SD of 0.188, because companies have disclosed the requirements related to materials that include (used materials by weight or size, a percentage of materials used from materials entered, recycled materials, and packaging materials) in sustainability lists. It followed in the rank by GRI 303 Standard of water and effluents, while the GRI 305 Standard "emissions" came at the lowest disclosure rate with a mean of 69.4% and SD of 0.416, which attributable to the little interest of a lot companies in determining the disclosure requirements of emissions that include (direct and indirect greenhouse gas emissions resulting from energy consumption, ozone-depleting substances emissions, nitrogen and sulfur oxides, and other important air emissions). Emissions disclosed a negligible amount of noise elements and odors that pollute the environment; therefore, the researchers in this study advise corporate management to adhere to the disclosure of emission standards to avoid payment of environmental fines, which have a reflection on their impact to maintain a clean and emission-free environment of all hazardous types.

In regard to indicators of social disclosure, their implementation level was measured through a set of 17 GRI 400 Standards which showed GRI 404 Standard "training and education" to achieve the highest disclosure rate with a mean of 96.4% and SD of 0.118, because companies have disclosed the requirements related to training and education, which include (average training hours a year per employee, employees skills upgrading programs, percentage of employees receiving regular performance and career development reviews) on sustainability lists. It followed in the rank by GRI 408 Standard "child labor", while the GRI 403 Standard "occupational health and safety" came at the lowest disclosure rate with a mean of 67.8% and SD of 0.475, which attributable to the slight interest of a lot companies in determining disclosure requirements of occupational health and safety that include workers representing official joint management-worker health and safety committees, type and rates of occupational injury and disease, lost working days and absenteeism and total number of work-related deaths, workers with a high incidence or high risk of occupational disease. Results also showed that some sample companies did not regularly reveal any information about claims and environmental accidents.

Based on the above, commitment of many study sample companies to disclose economic, environmental, and social sustainability indicators; based on the GRI Standards in preparing sustainability accounting reports will improve the value of those companies, and considers a good indicator; from the standpoint of researchers with SD of GRI Standards group between 0.188–0.503, which indicates the convergence of commitment level of study sample companies to disclose these indicators, and the nonexistence of significant dispersion between the study sample companies.

4.4. Descriptive analysis of dependent variables

Table 6 showed the descriptive analysis results of dependent variables during 2020–2023, represented in mean, median, SD, max, min, skewness, and kurtosis, offered by the EViews program.

Results of the study indicated that coefficients of skewness values for variables came within the normal acceptable range and were restricted to ±1 between 0.091 for the debt ratio and 0.423 for earnings per share (EPS), while the kurtosis behavior for study variables exceeded the normal distribution (kurtosis = 3).

Table 6. Descriptive statistics of dependent variables included in the models

Variables	*Mean*	*SD*	*Var*	*Min*	*Max*	*Skewness*	*Kurtosis*
ROE	7.671	6.758	7.804	-12.195	48.309	0.279	1.316
EPS	1.066	2.256	5.089	-0.171	8.693	0.423	5.506
ROA	5.687	2.960	7.130	-7.903	34.614	0.121	4.843
LEV	32.125	4.732	8.438	10.912	73.695	0.091	7.158

It showed from the data contained in Table 6 above that the following:

- In regard to ROE for companies in the Jordanian extractive and mining industries sector, the researchers found that mean of this variable reached 7.671 with a SD of 6.758, a max of 48.309, and a min of -12.195; which indicates that companies in the study sample achieve an average annual profits that accumulate returns to shareholders, with a disparity between those companies related to this variable.
- In regard to EPS, the mean of this variable amounted to 1.066 with a SD of 2.256, a max of 8.693, and a min of -0.171, which indicates a disparity between the study sample companies; in terms of the ability to achieve returns for shareholders, and increase per share of the achieved net profits.

- In regard to ROA, results showed that the mean of this variable reached 5.687 with a SD of 2.960, a max of 34.614, and a min of -7.903, which indicates a disparity between the study sample companies in terms of the ability to achieve efficiency and investment in available resources to achieve returns and increase profitability.
- In regard to LEV, the study found a mean of 32.125 with a SD of 4.732, a max of 73.695, and a min of 10.912, which indicates a disparity between the study sample companies in terms of the ability to repay debts and interest incurred on them.

4.5. Data validity tests for statistical analysis

To test data validity for regression analysis, the study must verify the nonexistence of high correlation levels between independent variables in the multicollinearity model, because their presence makes it hard to define the role of each variable in explaining changes that occur in the dependent variable (AL-Shwiyat et al., 2013). Based on Sekaran and Bougie (2016), the existence of a correlation higher than 70% between two independent variables or more is considered high, which can misrepresent the relationship between one variable and the dependent variable. The researchers set up a cross-correlation matrix between independent variables to confirm the nonexistence of this problem in the study's regression model.

The researchers noticed from Table 7 the nonexistence of high correlations between independent variables to the level that has an impact on regression analysis results, and therefore, there is no linear interference between variables, which indicates the strength of the study model to explain the impact on the dependent variable. They also noticed that correlations between the independent study variables were acceptable, where the correlation degree (0.146) ranged between the GRI 400 Standards group and GRI 300, while 0.224 ranged between the GRI 400 Standards group and GRI 200, and was statistically significant at level 1%.

Table 7. Correlation matrix and multicollinearity test for independent variables

Variable	*Correlation matrix*			*Multicollinearity test*	
	GRI 200	*GRI 300*	*GRI 400*	*Tolerance*	*VIF*
Economic indicator (GRI 200)	1.000	0.182	0.224	0.337	2.970
Environmental indicator (GRI 300)	0.182	1.000	0.146	0.285	4.784
Social indicator (GRI 400)	0.224	0.146	1.000	0.398	2.215

*Note: ** p < 0.01.*

The researchers used the collinearity diagnostics scale to ensure that the model is suitable for implementation, which depends on the computation of the tolerance coefficient and the variance inflation factor (VIF) for each variable, and considers a measurement for the correlation effect between independent variables. Gujarati (2004) showed that obtaining a VIF value higher than 10 indicates the existence of a multicollinearity problem for the independent variable in question, and concluded that independent variables do not depend on each other, which indicates low values of VIF that did not exceed the statistical standard for this test. It also indicated that statistical values of tolerance were greater than 20%, which confirms that independent variables are free of linear interference and that the multicollinearity problem does not affect the validity of the study model, and indicates data appropriateness for regression analysis.

4.6. Regression results

The hypothesis testing step comes after verifying data suitability for statistical analysis, where the study model deals with the correlation among a number of independent variables symbolized in the sustainability indicators disclosure; based on GRI 200, 300, 400 Standards, and the dependent variable represented in company value (ROE, EPS, ROA, LEV), where the relationship between independent and dependent variables will be measured through pooled data of regression model. The sample of the study embodied in companies' data in the extractive and mining industries sector through time series of 2020–2023, where the researchers used the EViews program to estimate the relationship between variables, and the following are the test results of the study model

Table 8. Analysis results of the sustainability indicators disclosure impact based on the GRI Standards on ROE

Independent variable	*Expected sign*	*Coefficient*	*t-statistic*	*Prob.*
Economic indicator (GRI 200)	+	0.183	2.121	0.032**
Environmental indicator (GRI 300)	+/-	0.495	0.859	0.399
Social indicator (GRI 400)	+	0.214	2.152	0.026**
R	0.571			
R2	0.321			
Adj. R2	0.224			
F-statistic	33.021			
Prob. (F-statistic)	0.010***			
Durbin-Watson statistic	1.529			

Note: Dependent variable: ROE. Significance levels are at 1% (***) and 5% (**).

Table 8 shows that total correlation coefficient value between the sustainability indicators disclosure based on GRI Standards and ROE is high at 0.571 with a positive correlation relationship, where this conclusion is supported by F significance value of 33.021 at level 1%, and that adjusted R2 value shows that 0.224% of the variation in dependent variable is due to the change level in sustainability indicators disclosure based on GRI Standards which indicates the importance of disclosing sustainability indicators; based on GRI Standards in interpreting changes of ROE. Results also show that sustainability indicators disclosure in accordance with GRI Standards affects ROE in companies operating in the extractive and mining industries sector, where results indicated a statistically significant positive impact of the economic and social indicators on ROE with a strong impact of 18.3%, 21.4%, respectively, and that disclosure of social indicators is the most significant at 21.4%, which confirmed by the significant value of T at level (5%). Moreover, results showed the nonexistence of a statistically significant effect of disclosing environmental indicators on ROE, where the T-value was not statistically significant at level 5%.

Table 9. Analysis results of the sustainability indicators disclosure impact based on the GRI Standards on EPS

Independent variable	*Expected sign*	*Coefficient*	*t-statistic*	*Prob.*
Economic indicator (GRI 200)	+	0.172	2.659	0.008**
Environmental indicator (GRI 300)	+	0.192	2.206	0.026**
Social indicator (GRI 400)	+	0.163	2.325	0.069
R	0.455			
R2	0.226			
Adj. R2	0.137			
F-statistic	15.222			
Prob. (F-statistic)	0.004			
Durbin-Watson statistic	1.616			

Note: Dependent variable: EPS. Significance levels are at 1% (***) and 5% (**).

In regard to the impact of sustainability indicators disclosure based on GRI Standards on EPS in industrial companies, results in Table 9 indicated that total correlation coefficient value between the sustainability indicators disclosure based on GRI Standards and EPS is high at 0.455 with direct correlation relationship, where this conclusion is supported by the F significance value of 15.222 at level 1%, and that adjusted R2 value shows that 0.137 of variance in dependent variable is due to the change level in sustainability indicators disclosure based on GRI Standards which indicates the importance of sustainability indicators disclosure based on GRI Standards to interpret changes in EPS of companies operating at the extractive and mining industries sector. Results also show that sustainability indicators disclosure based on GRI Standards affects ROE in companies operating at the extractive and mining industries sector, where results indicated a statistically significant positive impact of economic and environmental indicators on EPS with an impact strength of 17.2%, 19.2%, respectively, and that environmental indicators disclosure is the most influential at 19.2%, which confirmed by T-significant value at level 5%. Moreover, results showed the nonexistence of a statistically significant effect for social indicators disclosure on EPS, where the T-value was not statistically significant at level 5%.

Table 10. Analysis results of the sustainability indicators disclosure impact based on the GRI Standards on ROA

Independent variable	*Expected sign*	*Coefficient*	*t-statistic*	*Prob.*
Economic indicator (GRI 200)	+	0.193	2.011	0.046**
Environmental indicator (GRI 300)	+	0.324	4.526	0.001***
Social indicator (GRI 400)	+	0.212	2.182	0.034**
R	0.483			
R2	0.333			
Adj. R2	0.237			
F-statistic	46.327			
Prob. (F-statistic)	0.024			
Durbin-Watson statistic	1.769			

Note: Dependent variable: ROA. Significance levels are at 1% (***) and 5% (**).

In regard to the impact of sustainability indicators disclosure based on GRI Standards on ROA in industrial companies, results in Table 10 indicated that total correlation coefficient value between the sustainability indicators disclosure based on GRI Standards and ROA is high at 0.483 with direct correlation relationship, where this conclusion is supported by the F significance value of 43.327 at level 1%, and that Adjusted R2 value shows that 0.237 of variance in dependent variable is due to the change level in sustainability indicators disclosure based on GRI Standards which indicates the importance of sustainability indicators disclosure based on GRI Standards to interpret changes in ROA of companies operating at the extractive and mining industries sector. Results also show that sustainability indicators disclosure based on GRI Standards affects ROA in the industries companies, where results indicated a statistically significant positive impact of economic, environmental, and social indicators on ROA with an impact strength of 19.3%, 32.4%, 21.2%, respectively, and that environmental indicators disclosure is the most influential at 32.4%, followed by social indicators which confirmed by the different significant T-value of indicators at level 5%.

Table 11. Analysis results of the sustainability indicators disclosure impact based on the GRI standards on LEV

Independent variable	*Expected sign*	*Coefficient*	*t-statistic*	*Prob.*
Economic indicator (GRI 200)	+	0.308	3.564	0.023**
Environmental indicator (GRI 300)	+	0.198	2.294	0.014**
Social indicator (GRI 400)	+	0.227	3.768	0.002***
R	0.683			
R2	0.434			
Adj. R2	0.338			
F-statistic	32.266			
Prob. (F-statistic)	0.000			
Durbin-Watson statistic	1.739			

Note: Dependent variable: LAV. Significance levels are at 1% (***) and 5% (**).

In addition to the above, results in Table 11 related to the impact of sustainability indicators disclosure based on GRI Standards on LEV, in companies operating at the extractive and mining industries sector indicated that total correlation coefficient value between the sustainability indicators disclosure based on GRI Standards and LEV is high at 0.683 with direct correlation relationship, where this conclusion is supported by the F significance value of 32.226 at level 1%, and that adjusted R2 value shows that 0.338 of variance in dependent variable is due to the change level in sustainability indicators disclosure based on GRI Standards which indicates the importance of sustainability indicators disclosure based on GRI Standards to interpret changes in LEV of companies operating at the extractive and mining industries sector. Results also show that sustainability indicators disclosure based on GRI standards affects LEV in the industries companies, where results showed a statistically significant positive impact of economic, environmental, and social indicators on LEV with an impact strength of 30.8%, 19.8%, 22.7%, respectively, and that economic indicators

disclosure is the most influential at 30.8%, followed by social indicators (22.7%), and the impact of environmental indicators came last with 19.8%, which confirmed by the different significant T-value of indicators.

5. DISCUSSION

The study results showed that companies in Jordan's extractive and mining industries sector disclose the sustainability indicators contained in GRI Standards in the sustainability accounting reports. In light of the previous results, the researchers conclude that the commitment level of study sample companies, which joined the ASE 20 index sample in 2022, with instructions from the ASE authority about publishing sustainability reports. It also includes an impact assessment of the environmental, economic, and social indicators through the electronic disclosure system Extensible Business Reporting Language (XBRL), provided that the report will be prepared based on GRI Standards. These instructions gave companies the option to submit their sustainability report in one of two ways: a sustainability report separated from the company's annual report or a sustainability report that is automatically integrated with the report, which in turn has a reflection on the investment level, trading size, profitability, and competitiveness among those companies. These findings agree with the results of some previous studies (Alhyasat, 2023; Al-Jajawi & Al-Khafaji, 2020; Al-Matarneh, 2019; Younis, 2021).

In addition, results showed an impact of sustainability disclosure based on GRI Standards on improving ROE, where the significant impact was shown in both economic and social aspects, while it did not appear in the environmental aspect. This influences the importance of disclosing sustainability activities and areas linked to the economic side; due to its ability to achieve financial growth, making earnings, and capitalizing on stakeholder capital. Furthermore, it will improve the social aspect by providing information on human resources and its guidelines for improvement, training, teaching, suppliers' relationships, and product safety to boost company value, as well as creating diverse investment opportunities by reflecting a positive image of the company and refining its position. These findings agree with the results of some previous studies (Al-Matarneh, 2019; Younis, 2021). Results showed an impact of sustainability disclosure based on GRI Standards on improving EPS, where the significant impact appeared in both economic and environmental areas while it did not appear in the social aspect, which indicate the importance of disclosing activities and areas of economic sustainability dimension due to its ability in reaching financial evolution, making incomes, and exploiting investor treasure, along with areas of environmental side that have obligation for environment protection, energy waste reduction, and pollution discharges. These findings agree with the results of some previous studies (Younis, 2021).

In a related context, results showed an impact of sustainability disclosure based on GRI Standards on improving ROA, where the significant impact appeared in both environmental and social areas, while it did not appear in the economic aspect. This impact refers to the importance of sustainability disclosure of substances and sections linked to the environmental aspect, as part of its responsibility to preserve the environment and reduce energy waste. In addition, it is related to areas of social aspects due to information about human resources and its guidelines in development, training, and teaching, as well as relationships with suppliers to ensure product safety for society, and create and increase company value by creating a positive company image and refining its standing. These findings agree with the results of some previous studies (Younis, 2021).

Finally, results showed a significant impact of sustainability disclosure based on GRI Standards on improving LEV, which appeared in both economic and social aspects but did not appear in the environmental, and shows the importance of disclosing sustainability activities and areas linked to economic; as a result of its ability to attain economic evolution, generate revenues, and capitalize stockholder prosperity; as well as areas of social aspect in terms of information related to human resources and its guidelines in development, training, and education. It also includes suppliers' affairs and the promise of product safety for society to generate and maximize company value, where these findings agree with the results of some previous studies (Tang & Chan, 2010).

6. CONCLUSION

The study results showed that companies in Jordan's extractive and mining industries sector disclose the sustainability indicators contained in GRI Standards in the sustainability accounting reports by 80.8%, which indicates the commitment of sample companies to the stock exchange commission instructions. Many companies included in the ASE 20 index sample published sustainability reports based on GRI Standards, which in turn reflect the investment level, trading size, and profitability in those companies. Results showed that companies in the Jordanian extractive and mining industries sector will be committed to disclosing economic indicators by 83.9%, which is categorized first and indicates interests in financial performance, competitive edge, market situation, and the financial outcomes of events and tasks on society. Findings conclude that companies in the Jordanian extractive and mining industries sector work to disclose social indicators by 80.4%, which ranked second due to numerous standards linked to females, civil rights, infection rates, occupational diseases, the total number of work-related deaths, and diseases related to their profession that are not disclosed by some of the study sample companies. Results also show that companies in the Jordanian extractive and mining industries sector will be committed to disclosing environmental indicators by 78.6%, which ranked last, and clarify that study sample companies often disclose their positive environmental activities of operations and avoid negative ones, such as direct and indirect greenhouse gas emissions that result from energy consumption, for fear of accountability and environmental fines.

The study recommends that Jordanian companies raise the invested funds in assets to generate returns and profits and pay their obligations, in order to improve financial performance and increase their competitiveness. It advised Jordanian companies to utilize all their accessible means and capabilities for expanding the services they provide and diversifying their

investments to surge company productivity, attain earnings, and increase company value. The study recommended that companies should convince the government to encourage companies that contribute to activities serving the environment and society by removing the tax burden on their investments. It also recommended that companies provide scientifically and practically qualified and trained staff on sustainability dimensions disclosure, and increase their awareness of sustainability dimensions and their disclosure.

Despite the fact that the researchers gave their best in this study to avoid any source of bias and reduce constraints that might affect the generalization of results, this study is not without limitations. The current study is a cross-sectional study that reflects phenomena under study over a specific period of time. In addition, the study explored disclosure of sustainability indicators in sustainable accounting reports for only seven industrial companies in the mining and extraction sector. These companies are limited compared to the entire industrial sector, but this does not diminish the importance of the current study, as it opens new horizons for future studies. In fact, future studies could focus on the disclosure of sustainability indicators and the employment of financial reporting standards of GRI as an important variable in future accounting studies. Additional research could also be conducted on the topic of sustainability indicator disclosure across multiple sectors, and the adoption of other financial indicators to measure company value, and produce more appropriate results for these studies.

REFERENCES

Abdel Dayem, S., & Al Aqili, L. (2015). Assessing the relationship between disclosure content in integrated reports and company value: An applied study. *Journal of Accounting Research, 2*(2), 113–178. https://abj.journals.ekb.eg/article_127458.html

Abed, S., Al-Attar, A., & Suwaidan, M. (2012). Corporate governance and earnings management: Jordanian evidence. *International Business Research, 5*(1), 216–225. https://doi.org/10.5539/ibr.v5n1p216

AlDabbagh, L. M. A., & AlSaadoun, M. H. A. (2020). Using sustainability accounting standards to enhance the quality of environmental disclosure applied to the Nineveh Health Department. *Tikrit Journal of Administrative and Economic Sciences, 16*(52), 77–95. https://www.tjaes.org/index.php/tjaes/article/view/1756

Alhaj, A., & Mansor, N. (2019). Sustainability disclosure on environmental reporting: A review of literature in developing countries. *American Based Research Journal, 8*(1), 10–32. https://www.researchgate.net/publication/331543249_Sustainability_Disclosure_on_Environmental_Reporting_A_Review_of_Literature_in_Developing_Countries

Alhyasat, M. (2023). The effect of disclosure based on the GRI-G4 Standards on firm value. *Jadara Journal for Studies and Research, 9*(2), 1–24. https://doi.org/10.54161/jrs.v9i2.267

Al-Jajawi, I., & Al-Khafaji, E. (2020). Measuring the commitment of Iraqi companies to reporting on sustainability based on ESG/ISX/S and P indicators and GRI Standards: An empirical research in a sample of Iraqi Joint Stock companies listed on the Iraq Stock Exchange. *Arab Journal of Management, 40*(1), 143–172. https://doi.org/10.21608/aja.2020.76528

Al-Karasneh, H., & Bataineh, A. (2018). Does corporate governance reduce agency costs in the Jordanian industrial companies. *International Review of Management and Business Research, 7*(2), 615–625. https://doi.org/10.30543/7-2(2018)-29

Al-Matarneh, A. (2019). 'Athar al'iifsah ean muashirat alaistidamat fi al'ada' almalii lisharikat altaedin walsinaeat alastikhrajiat almusahamat aleamat al'urduniya [The impact of disclosure of sustainability indicators on the financial performance of Jordanian public shareholding companies for mining and extractive industries. *Journal of Al-Quds Open University for Administrative and Economic Research, 4*(11), 1–18. https://doi.org/10.5281/zenodo.3339083

Al-Obaidi, K. O. A. (2021). The relationship of accounting disclosure of environmental performance to the quality of sustainability reports. *Tikrit Journal of Administrative and Economic Sciences, 17*(54), 1–19. https://doi.org/10.25130/tjaes.17.54.2.1

AL-Shwiyat, Z. M., ALRjoub, A. M. S., & Bshayreh, M. M. (2013). The impact of social responsibility on the financial performance for Jordanian companies. *European Journal of Business and Management, 5*(30), 123–133. https://www.researchgate.net/publication/311086164_The_impact_of_Social_Responsibility_on_the_Financial_Performance_for_Jordanian_Companies_Case_Study_-_Service_Sector

Al-Taher, A., Al-Masri, T., & Saleh, N. (2011). Al'iifsah almuhasabiu ean al'ada' albiyiyi fi alsharikat al'ahliat lil'iismant bilibia: Aistitlaeia dirasa [Accounting disclosure of environmental performance in the national cement company in Libya: An exploratory study]. *Damascus University Journal for Economic and Legal Sciences, 27*(1), 441–459. https://search.mandumah.com/Record/98301

Amin, O. A. H., & Mhedin, B. A. (2022). The role of green accounting in improving the level of environmental performance in industrial companies: A field study on a sample of academics and specialists in industrial companies in Sulaymaniyah Governorate/Iraq. *The Scientific Journal of Cihan University–Sulaimaniya, 6*(1), 406–429. https://doi.org/10.25098/6.1.21

Balla, S. (2024). Sustainability as a market niche for internationalization of a born global SME: The case of a Central Eastern European firm strategy. *Corporate & Business Strategy Review, 5*(4), 31–42. https://doi.org/10.22495/cbsrv5i4art3

Baqer, J, & Matar, K. (2021). Using Global Adult Initiative (GRI) Standards and ESG indicators in reporting sustainability in the local environment; an applied study in a sample of banks. In *Proceedings of the Conference of the College of Administration and Economics*, Al-Mustansiriya University. https://uomustansiriyah.edu.iq/media/attachments/10/10_2021_06_29!10_24_15_PM.pdf

Bataineh, A., Al-Karasneh, H., & Aldaibat, B. (2018). The extent of disclosure for corporate social responsibility in the financial reports of Jordanian pharmaceutical companies. *International Journal of Financial Research, 9*(4), 88–96. https://doi.org/10.5430/ijfr.v9n4p88

Bataineh, A., Al-Karasneh, H., Al-Omari, E., & Hayajneh, O. (2019). The extent of Jordanian pharmaceutical companies commitment to implement environmental accounting disclosure requirements. *International Journal of Business and Management Invention, 8*(9), 88–95. https://ijbmi.org/papers/Vol(8)9/Series-3/J0809038895.pdf

Debnath, P., Das, K., Bhuyan, A. K., Saikia, B., Das, S., Kanoo, R., Saha, A., & Debi, H. (2024). Corporate sustainability reporting practices in the banking sector: A governance implication. *Journal of Governance & Regulation, 13*(4), 167–177. https://doi.org/10.22495/jgrv13i4art16

Dincer, B., Keskin, A. İ., & Dincer, C. (2023). Nexus between sustainability reporting and firm performance: Considering industry groups, accounting, and market measures. *Sustainability, 15*(7), Article 5849. https://doi.org/10.3390/su15075849

Duma, H., içerli, M. Y., Yücenurşen, M., & Apak, i. (2013). Environmental cost management within the sustainable business. *Tojsat, 3*(2), 86–96. https://dergipark.org.tr/en/pub/tojsat/issue/22659/242015

Fahlevi, A. R., Nomba, A. N., Rahmadani, I. P., & Gumilar, A. S. (2023). The effect of firm size, profitability, leverage, and environmental performance on environmental disclosure. *ULIL ALBAB: Jurnal Ilmiah Multidisiplin, 2*(2), 806–817. https://www.ulilalbabinstitute.id/index.php/JIM/article/download/1340/1131/2350

Global Reporting Initiative (GRI). (2013). *G4 sustainability reporting guidelines: Reporting principles and standard disclosures*. https://ifcsia.org/wp-content/uploads/pdf/publications/Global-Reporting-Initiative-G4-Sustainability-Reporting-Guidelines.pdf

Gujarati, D. N. (2004). *Basic econometrics.* (4th ed.). McGraw-Hill.

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production, 59*(5), 5–21. https://doi.org/10.1016/j.jclepro.2013.07.005

Herbohn, K., Walker, J., & Loo, H. Y. M. (2014). Corporate social responsibility: The link between sustainability disclosure and sustainability performance. *Abacus, 50*(4), 422–459. https://doi.org/10.1111/abac.12036

International Federation of Accountants (IFAC). (2009, January 31). *Developments in the financial reporting supply chain — Results from a global study among IFAC Member Bodies.* https://www.ifac.org/knowledge-gateway/audit-assurance/publications/developments-financial-reporting-supply-chain-results-global-study-among-ifac-member-bodies

Mahmood, N. S., Kadhim, S. C., Jabbar, K. A., Hasan, H. F., Sharaf, H. K., & Alwan, A. S. (2024). The influence of financial sustainability of the corporate governance features on the firm's performance. *Corporate Law & Governance Review, 6*(4), 152–161. https://doi.org/10.22495/clgrv6i4p14

Mihai, F., & Aleca, O. E. (2023). Sustainability reporting based on GRI Standards within organizations in Romania. *Electronics, 12*(3), 675–690. https://doi.org/10.3390/electronics12030690

Mohamaad, A. Y. (2025). The role of the Global Financial Reporting Standards (GRI) in enhancing accounting disclosure of sustainability in Iraqi companies. *Journal of Economics and Administrative Sciences, 31*(149), 114–133. https://doi.org/10.33095/tb265m10

Oncioiu, I., Petrescu, A. G., Bilcan, F.-R., Petrescu, M., Popescu, D.-M., & Anghe, E. (2020). Corporate sustainability reporting and financial performance. *Sustainability Journal, 12*(10), Article 4297. https://doi.org/10.3390/su12104297

Park, Y. W., & Shin, H.-H. (2004). Board composition and earnings management in Canada. *Journal of Corporate Finance, 10*(3), 431–457. https://doi.org/10.1016/S0929-1199(03)00025-7

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). John Wiley & Sons.

Shaban, O. S., & Zarnoun, R. S. (2024). Impact of sustainability reporting on financial performance and risks: Evidence from the emerging market. *Risk Governance and Control: Financial Markets & Institutions, 14*(4), 96–109. https://doi.org/10.22495/rgcv14i4p10

Suttipun, M., & Stanton, P. (2012). The differences in corporate environmental disclosures on websites and in annual reports: A case study of companies listed in Thailand. *International Journal of Business and Management, 7*(14), 1–18. https://doi.org/10.5539/ijbm.v7n14p18

Tang, F. Y., & Chan, K. Y. (2010). *Research on sustainability reporting in HK* [Bachelor's thesis, School of Business (BUS)]. HKBU Honours Project Database. https://sys01.lib.hkbu.edu.hk/honours_project/purl.php?did=170&lang=eng

Yehezkiel, R. Y., Astuti, C. D., & Noor, I. N. (2023). GRI standards-based sustainability reporting disclosure practices across countries. *Media Riset Akuntansi, Auditing & Informasi, 23*(2), 241–256. https://doi.org/10.25105/mraai.v23i2.17959

Younis, N. (2021). 'Athar mustawaa wujudat al'iifsah ean taqarir alastidamat ealaa al'ada' almalii lilsharikati: Tatbiqiat ealaa alsharikat alsinaeiat almudrajat bisuq almal alsueudii [The impact of the level and quality of disclosure about sustainability reports on corporate financial performance — An applied study on the industrial companies listed in the Saudi Capital Market]. *Journal of Financial and Business Research, 1*(22), 361–413. https://search.mandumah.com/Record/1113478/Description