

The Impact of Environmental Disclosure on Market Performance: An Empirical Study of Jordanian Listed Industrial Companies

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Abstract: - The world is currently grappling with the daunting environmental issue of global warming and climate change, which pose a significant threat to the future of our planet from various perspectives. Increased public awareness and concern over the detrimental effects of these problems have resulted in the creation of new environmental regulations. One important aspect of corporate governance that contributes to addressing this challenge is environmental accounting. By embracing the potential of environmental accounting, businesses can work towards achieving sustainable growth and development. The study aimed to investigate the impact of environmental disclosure on market performance in Jordanian industrial companies listed on the Amman Stock Exchange. The descriptive analytical method was relied on to achieve the study's objectives. The data was collected through annual reports in addition to the financial statements of a group of industrial companies listed on the Amman Stock Exchange, which met the requirements of environmental disclosure, which were (43) industrial companies during the period (2017-2021). The special data in the study sample were analyzed using the statistical analysis software E-views. The arithmetic means standard deviation, and each of the upper and lower values was extracted in addition to using multiple linear regression analysis. The study concluded that there is a statistically significant effect of the environmental disclosure in both the market value and the stock turnover rate, in addition to Tobin's Q ratio in the industrial companies surveyed. According to the findings, industrial companies in Jordan should be encouraged to become more interested in and open about their environmental activities. This is because being open about these activities helps them get more investments, start their financing and investment operations, increase their market value, and increase their investment market share.

Key-Words: - Environmental disclosure, Tobin's Q ratio, market value, stock turnover, market performance, Amman Stock Exchange.

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1 Introduction

The increase in the size of environmental problems has led to the expansion of the interest of members of society, especially in the developed world, in the environment, in contrast to the developing countries, which focus their attention on achieving industrial development. International bodies and institutions prompted countries to adopt environmental procedures and practices to protect the environment, reduce problems and abuses (such as reducing and controlling pollution), and rationalize using environmental resources and components.

Given the fact, [1], that organizations in their various sectors are one of the social and economic components of the state, they are concerned with preparing plans and implementing programs to follow up and control the elements of environmental pollution resulting from the practice of their activities and operations in society, [2]. They

activate their role in protecting natural resources and components and limiting their extinction and deterioration. Therefore, it has become necessary for companies in the general and industrial sectors companies, in particular, to share all information about their environmental affairs, including the returns and responsibilities they face for carrying out their activities, [3] and actions affecting the environment, especially at a time when this information has become of importance and necessity to society and stakeholders' relationships with individuals, organizations, and bodies, [4].

In the research, [5], authors mention that Environmental disclosure has witnessed significant growth during the past years, with both voluntary and obligatory types, [6], which were prepared by organizations concerned with environmental matters, events, and issues, which are of great importance to shareholders, Which The

Environmental disclosure define: “disclosure of everything related to the natural environment, its protection, and the use of resources.”

Organizations’ disclosure in their annual financial reports or annexes about the environmental impacts of their various activities and operations, [7], the policies and procedures followed to protect the environment and preserve their resources and capabilities, reflect their awareness of environmental issues that may affect their existence and their achievement of competitive advantages, [8]. It is considered for users of financial reports as A measure of environmental events and organizations' interest in their responsibility towards the surrounding environment, their efforts towards managing them, and the economic and market effects resulting from them—competitiveness and achieving its strategic objectives, [9].

The disclosure of this information, along with financial information, is one of the matters that led to the increasing importance of financial reports in the decision-making process, [10], as the inclusion of these reports on all information of interest to many internal and external parties, which are characterized by credibility, reliability, and reliability that would contribute to achieving effectiveness in making decisions.

The industrial sector led the Jordanian economic growth during the year (2021) with a contribution rate of 0.5 percentage points out of the total national economic growth of 1.8 per cent. This ratio pushed the industrial sector to be the largest sector contributor to GDP growth, despite the repercussions of the Coronavirus pandemic, which confirms the importance of the Jordanian industry as an important strategic sector in economic development.

The growth of the performance of the Jordanian national industry was noticeable in many indicators; The most prominent of these is the growth of the production index for the industrial sector for each of the manufacturing industries during the first half of this year, which amounted to 8.21 per cent, mining 3.10 per cent, and the electricity and water sector by 2 per cent, where industrial exports achieved a remarkable increase of more than 23 per cent, led by the garment, fertilizer, medical, food, paper and cardboard industries.

The Jordanian industrial sector was able to adapt to the negative repercussions of the Corona pandemic, [1], and achieved remarkable growth despite the continuation of health measures, including a total and partial ban until the middle of this year, which confirms the sector’s resilience and

ability to face challenges and circumstances and exploit available opportunities.

The study seeks an investigate influence from environmental disclosure to the market performance in industrial companies were listed in Jordan's Amman Financial, with the objective of establishing whether such disclosure has positive significance impact on financial performance in companies. where study is important because it sheds light on role of the environmental disclosure in increasing market performance and competitiveness in industrial firms in Jordan, while also contributing to the body of literature on correlation in environmental disclosure and the financial performance. Which has been the subject of significant discussion and debate in recent years. Ultimately, the results of the study may be helpful to policymakers, investors, and companies seeking to improve their sustainability practices and enhance their market performance.

2 Study Problem

In recent years, interest in environmental issues has increased, [2], and voices have been raised to protect the environment and keep its resources from depleting. Raise the level of awareness and awareness of its responsibility toward the environment, [5], by providing all requirements that enable it to deal consciously and intelligently with environmental problems, [4], and prove its positive role in limiting the environmental impacts of its activities.

The obligation of companies to disclose their environmental contributions and to increase their expenditures on environmental matters can have a positive impact on the behavior of investors towards investing in these companies, which affects the value of those companies, [6], [10].

The disclosure of environmental information in annual financial reports of organizations serves as an example of how the accounting profession contributes to this field. Consequently, the task of evaluating financial reports of industrial companies and investigating the influence of environmental disclosure on market performance in Jordanian public shareholding industrial companies arises.

3 Study Questions

The study seeks to answer the following questions:
First: How does environmental disclosure impact the market performance of Jordanian Listed industrial companies?

The following sub-questions emerge from this question:

- 1) How does environmental disclosure impact share turnover in Jordanian Listed industrial companies?
- 2) How does environmental disclosure impact the market value of Jordanian Listed industrial companies?
- 3) How does environmental disclosure impact Tobin's Q ratio in Jordanian Listed industrial companies?

4 Importance of Study

The importance of the study is evident in its completion of previous studies that sought environmental research disclosure and market performance, regardless of the environment of conducting the study and the variables associated with it, which enriches scientific libraries. This study is important to many relevant parties, such as users of reports and financial statements, regulatory and supervisory authorities, and industrial companies. On the other hand, The research on the impact of environmental disclosure on the market performance of organizations in the relationship between environmental disclosure and the market performance of Jordanian Listed industrial companies demonstrates the practical significance of the study.

5 Objectives of the Study

This study seeks to achieve several goals, as follows:

First: Identifying the impact of environmental disclosure on market performance in Jordanian Listed industrial companies.

The following sub-objectives are derived from this objective:

- 1) Identifying the impact of environmental disclosure on the share turnover rate in the Jordanian Listed industrial companies
- 2) Identifying the impact of environmental disclosure on the market value of the Jordanian Listed industrial companies
- 3) Identifying the impact of environmental disclosure on Tobin's Q ratio in Jordanian Listed industrial companies

6 Study Hypotheses

Main Hypothesis H0: There is no statistically significant effect at the significance level ($\alpha > 0.05$)

for environmental disclosure on market performance in Jordanian Listed industrial companies.

Three hypotheses are derived from the main hypothesis:

H0-1: There is no statistically significant effect at the significance level ($\alpha > 0.05$) for the environmental disclosure on the share turnover rate in Jordanian Listed industrial companies.

H0-2: There is no statistically significant effect at the level of significance ($\alpha > 0.05$) for environmental disclosure on the market value of the Jordanian Listed industrial companies.

H0-3: There is no statistically significant effect at the level of significance ($\alpha > 0.05$) for the environmental disclosure in Tobin's Q ratio in Jordanian Listed industrial companies.

7 Terminology of Study

The concept of environmental disclosure refers to the act of presenting and providing both mandatory and optional information, which can be either financial or non-financial, quantitative or qualitative, that pertains to an organization's interaction with the natural environment, its practices and procedures for preserving it, and its overall orientation towards it, through financial reports or various media, as stated by [11].

Market performance: the outputs result from the organization's activities and actions, which are supposed to comply with the objectives and pre-defined plans, [12]. The following indicators measured market performance

Stock turnover rate: an indicator for measuring the liquidity of the organization's shares within a specified period. It is expressed by the ratio of the Number of circulating shares organized within a specified period to the total shares issued by the organization during that period, [13].

Market value: "an indicator for measuring the current and traded prices of the organization's shares in the stock market at the end of the year, and it is expressed by multiplying the number of issued shares by the closing price of the share at the end of the year."

Tobin's Q Ratio: "An indicator of a company's value, representing the ratio of a company's market capitalization to total assets."

8 The Limits of the Study

1. The spatial study boundaries: represented by the Jordanian Listed industrial companies.

2. Time limits: The study period was from 2017 to 2021

3. Scientific limits: The study dealt with the impact of environmental disclosure on market performance by studying the stock turnover rate, market value, and Tobin's Q ratio.

9 Previous Studies

The study, [14], aimed to shed light on environmental costs types and the mechanism which adapted to the unified accounting system applied in municipalities to disclose environmental information in the financial statements based on the analytical method by studying the items of environmental costs included in the financial reports of the Directorate of Diwaniyah Municipality For the period (2014-2015). the study included environmental costs on environmental salaries and wages, environmental commodity requirements (6 items), environmental service requirements (8 items), and environmental revenues (3 items). It was found through the study results there is no disclosure in the financial reports, the reports did not include any financial, quantitative, or qualitative information regarding environmental costs and revenues for Al-Diwaniyah Municipality. Moreover, the Al-Diwaniyah Municipality has implemented the accounting recognition, measurement, and environmental disclosure principles for costs and revenues, as set forth by the Intergovernmental Working Group of Experts on International Accounting Standards. The research suggests that relevant authorities should assist in promoting the understanding of environmental accounting and emphasize the significance of developing an environmental accounting framework., stressing the need for adequate disclosure of environmental accounting information in financial reports. This study was used to identify the environmental costs disclosed in financial reports.

The study, [15], aimed to identified levels of environmental disclosure, the extent to which they are affected by the characteristics of profitable institutions, size, and financial leverage) through the study of the (12) Algerian cement institutions from 2015 to 2018, which amounted to (12) Establishment. The data was collected from annual and environmental reports. the study sample of the study Algerian cement, and its concluded that profitability impacts the environmental disclosure of cement enterprises, while this effect did not appear at all sizes and financial leverage. The study recommended obligating Algerian institutions to environmental disclosure standards by adopting a

model. Environmental disclosure is adhered to by all industrial and other institutions of all sizes in a way that affects their commercial activities and in proportion to the specificity of each sector on the impact of the institution's characteristics on environmental disclosure. This study was used to identify and compare its results with the results of the current study.

The study, [16], aimed to identify the environment and environmental accounting, measure and disclose environmental information, and determine the relationship between voluntary disclosure of environmental accounting information and supporting competitiveness in Sudanese industrial establishments in Khartoum State. To achieve the study's objectives, A questionnaire was designed and distributed to the study sample members, consisting of accountants, internal auditors, and marketing managers at the Al-Mohandes Paints Factory in Khartoum state, who numbered (81) individuals. The study concluded a direct, statistically significant relationship between voluntary disclosure of financial and non-financial environmental accounting information and support for competitiveness. To control environmental pollution.

The study, [17], aimed to determine the disclosure of environmental information, environmental policies, voluntary adoption of safety and security practices, risks associated with company activities, environmental pollution, sustainable development, environmental obligations, environmental, financial information, and environmental improvement plans) Furthermore, their impact on The value of the enterprise by identifying the environmental items that were disclosed in the financial statements and reports and the website of the Sidi Kerir Petrochemical Company, based on the deductive approach through the study and analysis of previous studies related to the subject of the study, and the inductive approach based on the method of content analysis of the published annual financial lists and reports For the study sample company during the period (2014 - 2018), the value of the facility was measured by stock prices in the market. For data analysis and hypothesis testing, multiple regression analysis was used. The study concluded that there are financial and accounting aspects for the majority of environmental performance activities, whose effects are directly or indirectly reflected on the financial statements and reports and then the decisions of the interested parties, and that environmental disclosure provides information to investors and all parties about the extent of the company's environmental

commitment. Environmental information adversely affects the cost of capital, as companies committed to disclosing their environmental information reduce the asymmetry of information between them and investors, which increases investors' appetite for investing in the company's shares and thus reduces the cost of capital.

[18], intended to examine the impact of the degree of audit disclosure on market price indicators (gauged by: market price to publication worth, including market price, and market price "closing price") for public shareholding companies provided on the Palestine Exchange during the duration (2012 - 2017), totaling 41 companies, based on the detailed logical strategy. The study located a positive impact of accounting disclosure on market price signs. The research study also found an inconsistency in the degree of effect of disclosure axes on market value, as the most influential axes of disclosure in the market value index to publication relate to donations, gives, ecological and also community payment, adhered to by disclosure About subsidiaries, after those human resources.

[19], aimed to know the linear and indirect relationship between ecological disclosure, economic efficiency, ecological performance and venture worth, in addition to researching the influence of ecological disclosure on the market value of the Centre and the effect of monetary efficiency on each of the atmospheres. Disclosure and also market price of industrial companies noted on the Indonesia Stock Exchange during the period. (2012-2014). These comprised commercial firms (farming, mining market, basic markets, chemicals). To accomplish the purposes of the research study, the descriptive analytical approach was trusted, and information was accumulated from the sustainability reports of the study sample firms and the annual reports. The research concluded that economic performance has no impact on environmental disclosure. That profitability is not considered among the aspects that influence companies' disclosure of ecological duty, and also, there is no effect of ecological disclosure on investors' examination of firms. The environment directly influences a business's market value via the reputation that magazines have built on a firm's environmental efficiency score, along with the fact that ecological disclosure does not influence supply costs. The study recommended reinforcing the function of guidance to enhance the preparation of environmental disclosure and the commitment of business.

The research, [20], aimed to make clear the impact of ecological, social, and company governance disclosure on the worth of the firm, based upon the descriptive analytical method, and a big group of markets was studied, including (350) companies listed in the Financial Times Stocks in the United Kingdom. For the purpose of information evaluation and also hypothesis screening, regression analysis and Hickman's forecast model were made use of. It was located with the research results that there is a connection and a favorable effect between ecological disclosure and company governance on the market worth of the business. On the other hand, it was discovered with the outcomes that the chief executive officer's assistance with environmental and social disclosures impacts the businesses market value. The research study suggested enhancing transparency and also responsibility as well as enhancing the self-confidence of stakeholders due to their effective function in advertising the company's value.

The study, [21], intended to check the effect of the disclosure of non-financial information on the quality of financial reports and the marketplace worth of detailed Jordanian industrial, financial institutions. The study information was accumulated from the monetary records of thirteen Jordanian industrial banks in the period between 2014 as well as 2016. Detailed analytical approaches were used to assess the research study information. The research showed a positive impact of the degree of disclosure of non-financial info on the top quality of monetary records. However, the outcomes of the

research showed that there was no considerable impact on the degree of disclosure of non-financial information on the market worth of Jordanian business financial institutions. The research advised the necessity of Jordanian commercial financial institutions' dedication to divulging non-financial information in their economic reports and to turn on the role of the Central Bank in boosting the recognition of financial institutions and also users of financial records of the significance of divulging non-financial info.

The study, [22], aimed to know the effect of continuing growth on each of the conventional bookkeeping efficiency indicators, as measured by the return on properties, the return on obligations, the return on equity, and also market efficiency, as determined by (net revenue, supply return, turnover), stock turnover price, market price, as well as Tobin's Q), as well as the internet operating cash flow of the (6) financial institutions provided on the Palestine Exchange throughout the duration (2011 - 2016), based on the analytical technique.

The necessary financial information was collected from the Palestine Stock market internet site. The study concluded that there is an effect and a direct relationship between sustainable development on accountancy performance signs and market performance, as well as the lack of an influence and an inverse connection on each of the turnover ratios, Tobin's Q, and internet operating cash flow. The research study recommended the requirement to take notice of ongoing development due to its importance in enhancing competition. This feature functions to boost profitability and also financial performance in the future.

Study, [23], aimed to evaluate the influence of environmental cost accounting on boosting the high quality of accounting info in Jordanian commercial companies noted on the Amman Stock Exchange, based upon the descriptive logical method. The study wrapped up that there are statistically many connections between the quantity of environmental audit disclosure of details for publicly possessed companies and also the competence of the monetary addition of these companies and the presence of statistically many connections between financier choices and the info supplied by the accounting disclosure on environmental efficiency. The study suggested the need for accounting professionals to comply with examining info related to the environment offered with the financial reports and highlighting the value of the information given by the cumulative performance related to the setting.

[24], aimed to determine the degree of the ecological commitment of companies by studying their environmental disclosure in annual reports as well as internet sites and also researching the connection between ecological disclosure and also company variables (monetary take advantage of, business size, and also normal dangers), with example research of the 100-business provided on the Bombay Stock Exchange, which was chosen based upon their market price throughout 2014. A detailed analytical approach was taken on to accomplish the study's goals. The research found that (30%) of the study example firms need to be more dedicated to disclosing environmental information in annual reports and internet sites. The study also found a connection between environmental disclosure and monetary leverage, business dimension, and routine dangers.

In their research, [25], investigated how environmental disclosure impacts of financial performance for (32) businesses on Nairobi S.E., using a precise analytical method. The data collected from annual financial reports, the results and recommendation in this study that companies

prioritize environmental disclosure, as it can enhance economic efficiency.

The study, [26], aimed to explore the correlation between a company's value and the quality of its voluntary environmental disclosure. This was achieved by analyzing the relationship between the components of a company's value (i.e. future and expected cash flows, cost of capital) and the quality of its environmental disclosure, using a sample of American companies from five different industries. The study employed a descriptive analytical method and utilized content analysis to determine the level of environmental disclosure in the financial statements and reports of the companies in the sample. A disclosure indicator that adhered to the disclosure framework of the Global Reporting Initiative (GRI, 2006) was used. The findings of the study showed that companies that disclosed voluntary environmental information had a greater market value than those that did not, and that voluntary environmental disclosure had a positive relationship with a company's value, whether through cash flow or the cost of stock components. The study recommended the use of broader measures such as the quality of voluntary environmental disclosure when examining complex relationships.

10 Study Methodology

The research employed a descriptive analytical approach, utilizing statistical measures to determine the extent of environmental disclosure and market performance in Jordanian Listed industrial companies. The study also aimed to assess the influence of environmental disclosure on market performance by conducting data analysis and hypothesis testing. The findings of the study were presented, and relevant recommendations were proposed based on the results.

11 Study Population

The research population comprises (52) Jordanian industrial firms that were listed on the Amman Stock Exchange until the conclusion of 2021, as indicated by the directory released on the exchange's official website, [27]. These companies were categorized into (9) distinct industrial sectors as shown in Table 1.

Table 1. Sample study

Industrial sector	number
chemical industries	7
electrical industries	4
Engineering and construction industries	8
food	8
extractive industries	13
cartoon industry	1
The medical industry and the medical industry	6
Garment, leather, and textile industry	3
Tobacco and cigarettes	2
total summation	52

12 The Study Sample

The study sample consisted of Jordanian Listed industrial companies:

1. Companies' stocks must share the trading in the financial market during the study period.
2. The company is not subject to liquidation (compulsory or voluntary) or merger.
3. To disclose its environmental responsibility in its financial and non-financial reports.
4. The company must have all the data necessary to calculate the study variables.
5. The company's fiscal year ends on the 31st of December of each year.

The companies that fulfilled the previous conditions were forty-three industrial companies listed on the Amman Stock Exchange, and thus the study sample constituted (82.7%) of the total study population.

13 Data Collection Sources

In collecting the necessary data, the study relied on two types of sources, namely:

First, secondary sources

They are the sources that were relied upon in building the theoretical framework. It aims to gain familiarity with all aspects and areas related to the study subjects and their variables: environmental disclosure, market performance, and audit committees. In libraries, in addition to websites and research and studies centres.

Second, primary sources.

They are the sources used in building the practical side of the current study, as it aims to collect the data necessary to measure the study variables. These sources are as follows:

- a. Annual reports, websites, disclosures, clarifications, and any report published by the company which has been relied upon in collecting environmental disclosure data.
- b. The annual financial statements of the Securities Authority and the Amman Stock Exchange were relied upon in collecting financial data on market performance during the study period (2017 - 2021).

14 Methods for Measuring Study Variables

The study variables consisted of the following:

First: Dependent Variable “market performance.”

The dependent variable in the study was represented by (market performance), which was measured by the following variables:

1. Share turnover = Number of shares traded / Number of shares issued.
2. The company's market value = Number of issued shares x closing price of the share at the end of the year.
3. Tobin's Q ratio = The Company's Market value / total assets.

Second: Independent Variable “Environmental Disclosure”

The independent variable in the study was represented by (environmental disclosure), and the content analysis method was used to measure the degree and level of disclosure of environmental information in the financial reports of the industrial companies; the study sample was based on (20) items of environmental performance disclosure, distributed over three Areas of (environmental pollution, environmental improvements, and others).

These items are presented in Table 2 as follows:

Table 2. environmental disclosure items

Number	
(a) environmental pollution	
Pollution control in the conduct of business operations	1
Statements indicating the company's compliance with environmental laws and regulations.	2
Data indicates that pollution from operations has been or will be reduced.	3
Preventing or repairing damage to the environment resulting from the processing of natural resources, land reclamation, or reforestation.	4
Conservation of natural resources, for example. Recycle glass, metal, oil, water, and paper.	5
Use of recycled materials.	6
Efficient use of material resources in the manufacturing process.	7
Environmental campaign support.	8
Obtaining an award related to the company's environmental programs or policies.	9
waste prevention	10
Spending on pollution control equipment	11
Avoid building factories in residential areas or forests	12
Cooperation with environmental organizations	13
(b) environmental improvements	
Design of facilities in harmony with the environment	14
Landscaping improvement	15
Contribution in cash or in kind to beautify the environment	16
Restoration and restoration of historic buildings	17
Conducting environmental impact studies	18
Application of technology to support environmental existence	19
Training employees on environmental issues	20

Environmental disclosure levels were measured by applying the following steps: examining the content of the financial reports of the Jordanian Listed industrial companies, giving the Number (1) for each item of environmental disclosure that was disclosed, (0) No. is for each item of the environmental disclosure that was not being disclosed. The values of the optional disclosure items were collected for each company and each year of the study and then divided the total over the total disclosure items in order to reach the level of environmental disclosure for each company and each year, as follows:

$$VDISC\ it = \frac{NOID\ it}{TID}$$

Where:

VDISC it = Environmental disclosure level (1) for the period (t)

NOID = Number of items disclosed (i) for a period (t).

TID = The total Number of environmental disclosure items included in the disclosure indicator for this study.

Third: Adjusting Variable

- 1- **Company Size:** The total assets of the company.
- 2- **Debt Ratio:** Total Commitments / Total Assets

15 Estimating Study Models

To achieve the goals of the research, a panel data technique was made use of that included a time collection of variables within the version for every industrial business (cross-section) in the example throughout the study duration, as well as one of the advantages of using information Panel data: They consider specific distinctions, provide more useful information, are more diverse, have much less connection between variables, have a greater number of degrees of liberty, as well as are a lot more efficient than time collection that suffers from the trouble of autocorrelation. Attribute information has the ability to determine and approximate unseen impacts in time collection as well as detailed analysis. To measure the impact between the variables, the scientist utilized the estimate methods of longitudinal time designs (Panel data), which are:

- 1- (PRM) "Pooled Regression Model"
- 2- (FEM) "Fixed Effect Model"
- 3- (REM) "Random Effect Model".

To determine which of these models should be used in the analysis, the Lagrange Multiplier test was applied, which is used to choose between Random Effect Model (REM) and Pooled Regression Model (PRM). The (Hausman) test was also applied, which is used to choose between the Fixed Effect Model (FEM) and Random Effect Model (REM), and the results are presented in Table 3 as follows:

Table 3. Lagrange Multiplier and Hausman test

	Lagrange Multiplier		(Hausman)		
	Ch2	Sig	Ch2	Sig	
H01-1	40.853	0.000	18.444	0.005	FEM
H01-2	97.287	0.000	8.903	0.021	FEM
H01-3	115.400	0.000	46.574	0.000	FEM

Based the Table 3, it is evident that the fixed effects model provided the most precise estimation for collecting the hypotheses of the study, except for the first sub-hypothesis. For this sub-hypothesis, the Lagrange Multiplier test indicated a significance level of less than 0.05, and the results of the Hausman test also showed a significance level of

less than 0.05. However, the random effects model was found to be the most accurate for the second sub-hypothesis, as the Lagrange Multiplier test indicated a significance level of less than 0.05 and the Hausman test also showed a significance level of less than 0.05.

The results in Table 3 show that the Fixed Effect Model FEM is the most accurate in estimating the model for all of the study hypotheses.

16 Statistical Tools Used

In order to process the data, the EVIEWS program was used to process the raw data, in addition to using the following statistical tests:

1. Arithmetic means, standard deviations, and upper and lower values, in order to describe the study variables.

2. Linear correlation coefficient In order to examine the occurrence of multicollinearity, the utilization of Pearson's correlation coefficient and variance inflation coefficient is necessary. Pearson's correlation coefficient is a tool used to determine the strength of the linear association between two distinct variables, x and y. A correlation coefficient of greater than zero suggests a positive relationship, while a value less than zero implies a negative relationship. A correlation coefficient of zero indicates no correlation between the two variables x and y. For investors, the significance of linear correlation coefficients lies in their ability to calculate the covariance of stocks and predict market trends through correlation analysis.

3. Unit Root Test The purpose of a Unit Root Test is to assess the stability of a time series. However, traditional methods like the Dickey-Fuller test have a tendency to not reject the presence of a unit root in the presence of structural breaks, potentially resulting in inaccurate conclusions.

4. Multiple linear regression analysis: Multiple linear regression involves determining the correlation between a single dependent variable and two or more independent variables. This method is applicable in situations where one desires to ascertain the extent of the relationship between the dependent variable and multiple independent variables. Additionally, it can be used to predict the value of the dependent variable at specific values of the independent variables.

17 Descriptive Statistics for Study Variables

The focus of this section is to provide a description of the variables used in the study, and the process of describing the depends on variables on the use of statistical measures that show the main characteristics of the dependent and independent variables of the study, which are Standard Deviations, Arithmetic Averages, and Upper and Lower Values. The following describes the company's variables for the period (2017-2021).

Description of dependent variables (market performance)

Table 4 represents the descriptive statistics of market performance variables (share turnover, market value, and Tobin's Q ratio) In the Jordanian industrial companies listed in the financial market in the study sample during the period (2017-2021).

Table 4. descriptive statistics of market performance variables in the study sample during the period (2017-2021)

Scale	Share Turnover %	Market Value (JD)	Tobin's Q Ratio (%)
Mean	6.49	63,537,862	0.725
High Value	26.00	8,757,687,714	7.229
Minimum Value	1.63	17,288	0.054
Standard Deviation	4.32	189,665,220	0.857

It is clear from the Table 4 that the arithmetic mean of the share turnover rate in the Jordanian Listed industrial companies during the period (2017-2021) amounted to (6.49), with a standard deviation of (4.32), and the largest value was (26.00), while the lowest value was (1.63). The values show a difference in the share turnover rate in Jordanian Listed industrial companies during study period. This indicates the difference in the rate of demand for shares of industrial companies.

It is also clear that the means of market value sample study during the period (2017-2021) amounted to (63.5) million dinars, with a standard deviation of (189.7) million dinars and the largest value amounted to (8,757.7) million dinars, while the lowest value was (0.17) million dinars. The values show a difference in the market value of the Jordanian Listed industrial companies during the study period, which may be due to the difference in the Number of company shares.

It is also clear from the data that the arithmetic mean of Tobin's Q ratio in the Jordanian Listed industrial companies during the period (2017-2021)

was (0.725), with a standard deviation (of 0.857), and the largest value was (7.229), while the lowest value was (0.054). Values show a difference in Tobin's Q ratio for Jordanian Listed industrial companies during the study period. This reflects the extent of the difference between industrial companies in their ability to add market value to the book values of their assets.

Description of the “environmental disclosure” Independent Variable

The following Table represents the descriptive statistics of the environmental disclosure variable in the Jordanian industrial listed companies, the study sample during the period (2017-2021).

Table 5. descriptive statistics of the environmental disclosure variable from (2017-2021)

Scale	Disclosure level (%)
Mean	41.8
High Value	89.2
Minimum Value	33.5
Standard Deviation	15.6

It is clear from Table 5 that the arithmetic mean of the environmental disclosure in the Jordanian Listed industrial companies during the period (2017-2021) amounted to (41.8%), with a standard deviation of (15.6%). The largest value was (89.2%), while the lowest value was (33.5%). The values show a relative decline among Jordanian industrial companies during the study period in the level of disclosure of their environmental activities and practices, and this may be due to the tendency of industrial companies to disclose their economic and financial activities and operations, which are of great importance to investors, shareholders, and stakeholders in a way that exceeds their interest in disclosing their social responsibility. It may also be due to companies avoiding disclosing their environmental responsibility for fear of being subject to accountability and fines. It may also be due to the different levels of awareness and management awareness of their role and responsibility towards the environment.

18 Hypothesis Testing

The research study sample contains Jordanian Listed industrial companies throughout the duration (2017-2021). Also, the information for these companies for the stated duration was collected from year-end reports as well as their internet sites, so the research

study data are time collection information of a cross-sectional nature (Cross-Sectional and also Time Collection); for that reason, the ideal version to examine each theory was approximated.

After examining the viability of the information for the research study designs and defining the research variables, this part of the research provides the outcomes of theory screening. The hypotheses branching from the primary hypothesis were examined by multiple linear regression analysis.

Testing the hypothesis branching from the main hypothesis H0

The main hypothesis states that: **“There is no statistically significant effect at the level of significance (0.05>a) for environmental disclosure on market performance in Jordanian Listed industrial companies.”**

To test this hypothesis, the sub-hypotheses were tested, and the results appeared as follows:

First: first sub-hypothesis test 1-H0 results

The first sub-hypothesis states: **“There is no statistically significant effect at the level of significance (0.05>a) for the environmental disclosure on the share turnover rate in the Jordanian Listed industrial companies.”**

To test this hypothesis, multiple linear regression analysis was used, and the results appeared as follows:

Table 6. Model summary table and analysis of variance ANOVA, first sub-hypothesis HO-1

	Summary of the Model			ANOVA	
	R2	Adjusted R Square	std. Error of the Estimate	F	(F)Sig
stock turnover rate	0.242	0.241	0.014	17.017	0.000

It is clear from Table 6 mentioned above the significance of the model, as it got to a worth of (F= 17.017) as well as a degree of significance (Sig F = 0.000), which is less than 0.05, as well as this validates the significance of the model. Also, the worth of the coefficient of determination (R2 = 0.242) showed that it is per cent is (24.2%) The variance in (the stock turnover rate) could be discussed by the variance in the independent variables, Other factors explain the rest.

The following is a presentation of the regression coefficients for the first sub-hypothesis, as follows:

Table 7. Regression coefficients for the first sub-hypothesis 1-H0

independent variables	B	Std. Error	T	Sig.
Environmental Disclosure	0.154	0.043	3.564	0.000
Company Size	0.066	0.016	4.054	0.000
Debt Ratio	-0.057	0.007	-8.297	0.000
Regression	2.124	0.320	6.646	0.000

From the transactions table above, i.e., Table 7, the worth of B at environmental disclosure certainly got to (0.154), which the worth of t is (3.564), with a degree of significance (0.000 = Sig), which suggests a considerable effect at the level of significance. Consequently, we deny the second void hypothesis as well as approve the alternate hypothesis, which specifies that:

“There is a statistically significant effect at the level of significance ($\alpha > 0.05$) for environmental disclosure on the share turnover rate in the Jordanian Listed industrial companies”.

Second: The results of the second sub-hypothesis test 2-H0

The second sub-hypothesis states that: “There is no statistically significant effect at the level of significance ($\alpha > 0.05$) for environmental disclosure on the market value of Jordanian Listed industrial companies.”

Multiple linear regression analysis was employed to test this hypothesis, and the resulting outcomes are presented below:

Table 8. Summary of the model and analysis of variance ANOVA for the second sub-hypothesis HO-2

dependent variable	Summary of the Model			ANOVA	
	R2	Adjusted R Square	std. Error of the Estimate	F	Sig (F)
Market value	0.326	0.323	0.026	12.411	0.000

The significance of the model is clear from Table 8, with a value of (12.410 = F) and a level of significance (F) Sig = 0.000, which is less than 0.05, which confirms the ethics of the model and the value of the **R Square** = (0.326), which indicates that the model explained 32% of the total variance and the rest is explained by other factors. The regression coefficients for the second sub-hypothesis are presented below:

Table 9. Regression coefficients for the second sub-hypothesis 2-H0

independent variables	B	Std. Error	T	Sig.
Environmental Disclosure	0.221	0.049	4.403	0.000
Company Size	0.080	0.025	3.181	0.000
Debt Ratio	-0.067	0.012	-5.062	0.000
Regression	2.158	0.353	6.120	0.000

From the above transactions table, i.e., Table 9, the worth of B at **Environmental Disclosure** certainly got to (0.221), which the worth of t is (4.403), with a degree of significance (0.000 = Sig), which suggests a considerable effect at the level of significance. Consequently, we deny the second void hypothesis as well as approve the alternate hypothesis, which specifies that:

“There is a statistically significant effect at the level of significance ($\alpha > 0.05$) for environmental disclosure on the market value of the Jordanian Listed industrial companies.”

Results of the third sub-hypothesis test 3-H0

The third sub-hypothesis states that: “There is no statistically significant effect at the level of significance ($0.05 > \alpha$) for environmental disclosure on Tobin's Q ratio in Jordanian Listed industrial companies.”

The hypothesis was tested using multiple linear regression analysis, and the findings are presented below:

Table 10. Summary of the model and analysis of variance ANOVA for the third sub-hypothesis 3-H0

dependent variable	Summary of the Model			ANOVA	
	R2	Adjusted R Square	std. Error of the Estimate	F	Sig (F)
Tobin's Q	0.291	0.288	0.030	9.657	0.000

From the above Table, i.e., Table 10, the value of F is (9.657), and the significance level of Sig (F) = 0.000, which is less than 0.05, confirming the model's importance. The value of R Square = (0.288) that the model has explained 28% of the variance in (Tobin's Q), and other factors explain the rest.

The following is a presentation of the coefficient's regression for the third sub-hypothesis, as follows:

Table 11. Regression coefficients for the third sub-hypothesis 3-H0

independent variables	B	Std. Error	T	Sig.
Environmental Disclosure	0.169	0.036	4.660	0.000
Company Size	0.081	0.020	4.230	0.000
Debt Ratio	-0.102	1.019	-5.100	0.000
Regression	1.530	0.520	2.940	0.000

From the above transactions table, i.e., Table 11, the worth of B at (environmental disclosure) certainly got to (0.170), which the worth of t is (4.660), with a degree of significance (0.000 = Sig), which suggests a considerable effect at the level of significance. Consequently, we deny the third void hypothesis as well as approve the alternate hypothesis, which specifies that:

“There is a statistically significant effect at the level of significance ($\alpha > 0.05$) for environmental disclosure in Tobin's Q ratio in the Jordanian Listed industrial companies.”

19 Conclusions

Based on the analysis of data and hypothesis testing, the following outcomes were observed:

1. The average environmental disclosure of Jordanian industrial companies listed between 2017 and 2021 was 41.8%, indicating a relatively low level. This could be attributed to the inclination of such companies to reveal favorable environmental activities while shunning harmful practices arising from their operations due to legal and social responsibility, as well as financial penalties. This outcome aligns with a previous study [28], which found that most Jordanian industrial companies listed were not dedicated to disclosing their environmental impact.
2. The variation in the share turnover rate among Jordanian industrial companies listed during the period of 2017-2021 is highlighted by the maximum values. This suggests a disparity in the demand for shares of these companies.
3. The variations in the market value of Jordanian listed industrial companies between 2017 and 2021 could be attributed to the disparity in the number of shares held by each company, as suggested by the maximum values observed.
4. The maximum values indicated a difference in Tobin's Q ratio for Jordanian Listed industrial companies during the period (2017-2021). This reflects the extent of the difference between industrial companies in their ability to add market value to the book values of their assets.

5. The results of the analysis of the industrial companies' size indicated a difference between them in terms of their ability to exploit their resources and increase the size of their assets during the period (2017-2021).

6. The results of analyzing the debt ratio in Jordanian industrial companies indicated a difference in their financing policies during the period (2017-2021).

7. The findings of the hypothesis testing that stemmed from the initial main hypothesis revealed a notable statistical impact of the environmental disclosure on the share turnover rate, market value, and Tobin's Q ratio in industrial companies listed in Jordan.

20. Recommendations

The study's recommendations are based on the conclusions reached, and they are as follows:

1. Motivating Jordanian industrial companies to increase their commitment to disclose environmental activities to provide evidence to community members of their interest in the surrounding environmental reality increases their credibility and transparency among community members and enhances their ability to achieve their marketing objectives.
2. Motivating Jordanian industrial companies to increase interest in, and disclose, activities directed towards the environment, related to the preparation of environmental programs, participation in protecting the environment, financing environmentally friendly projects, supporting environmental research, and others, since disclosure of these activities contributes to attracting more heads of state. Funds for the company and activating its financing and investment operations lead to improving its market value and maximizing its market share.
3. Increasing the interest of individuals in the financial markets with the level of companies' commitment to disclosing their environmental activities and considering them when making investment decisions.
4. Motivating the concerned authorities and bodies of Jordanian industrial companies to adequately disclose their environmental responsibility because of their role in providing information of interest to stakeholders, including shareholders, investors, and financiers, and supports their ability to take decisions that are in the interest of the company in terms of achieving its market goals.
5. Conduct more research and studies on several sectors to compare them in terms of their level of

commitment to disclose their environmental activities and identify the causes and consequences of such disclosure.

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