

THE IMPACT OF ENVIRONMENTAL COSTS DIMENSIONS ON THE FINANCIAL PERFORMANCE OF IRAQI INDUSTRIAL COMPANIES WITH THE ROLE OF ENVIRONMENTAL DISCLOSURE AS A MEDIATOR

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This study aims to examine the impact of environmental costs dimensions on the financial performance of Iraqi industrial companies with the role of environmental disclosure as a mediator. The data was collected from annual reports of 25 selected companies of the Iraqi stock exchange and oil sector from 2014 to 2018. The results show that the average percentage of environmental disclosure in the industrial companies selected in this study was 20.0 % and the mean found was 20.2 %. The results also showed that environmental costs (contingent costs and external social costs) positively influence financial performance, while contingent costs, social costs, hidden costs, and Image & relationship costs show a positive influence on environmental disclosure. The findings revealed that environmental disclosure was positively significant in affecting financial performance. It was found that environmental disclosure fully mediated the relationship between environmental costs (hidden costs and Image & relationship costs) and financial performance. Environmental disclosure partially mediated the relationship between environmental costs (Contingent costs, and social costs) and financial performance. There is no mediation of environmental disclosure for the impact of Conventional costs on financial performance. It was also found that environmental disclosure mediated the impact of environmental costs (Conventional costs, Image & relationship costs, and External social costs) on financial performance. This indicates advantages for companies that produce less moderate environmental disclosure and enables them to gain investors' confidence. This study's implications provide insights into the implementation of the measurement of environmental costs and environmental disclosure in Iraq

Keywords: *environmental costs, financial performance, environmental disclosure, Iraqi industrial companies*

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1. Introduction

The notion of environmental responsibility came to the fore in the 1980s when the world began to notice the depletion of natural resources at an increasing rate due to the fast-paced industrialization growth right after World War II [1]. It has become crucial for businesses to incorporate environmental efforts into their business strategy, with growing knowledge of environmental concerns and the magnitude of costs involved. Organizations are becoming highly aware of the protection and optimal usage of natural resources to maximize comparative advantage [2]. In this aspect, a growing body of literature on environmental responsibility indicates that businesses can achieve sustainable comparative benefits by reducing the negative effect of their activities on the natural environment [3].

In addition, environmental costs may be high, ranging from five to twenty percent of the overall cost of doing business, according to [4]. Because these costs are likely to rise

as pressures for environmental protection measures increase. Disclosure of environmental costs, directly reporting to external shareholders and other stakeholders can improve a business's competitive position. Thus, improving the financial performance of companies [5]. As well as being one of the several words used to define the social and environmental contributions and consequences of business activity, environmental disclosure contributes to enhancing the financial results of industrial and social companies [6, 7].

Environmental disclosure can lead to optimum financial status. That's why studies that are solving the issue regarding the decrease in the financial performance of industrial companies in the Iraqi stock exchange and oil sector through the impact of environmental costs and environmental disclosure on financial performance are of scientific relevance. As well, the role of environmental disclosure in enhancing the reputation and image of industrial companies in front of investors and outside parties.

2. Literature review and problem statement

The notion of environmental responsibility came to the fore in the 1980s when the world began to notice the depletion of natural resources at an increasing rate due to the fast-paced growth of industrialization since World War II. As can be seen from the report of doing business category, the World Bank rated Iraq 165 out of 185 nations. In their 2012 Corruption Perception Index, Transparency International rated Iraq 169 out of 176 [8, 9]. This represents the low output of the businesses in the public sector responsible for delivering different facilities in Iraq [9]. Additionally, it is predicted that the research problem lies in the weakness of the financial performance of Iraqi companies due to the lack of determination and measurement of environmental costs such as contingent costs, potentially hidden costs, conventional costs, image & relationship costs, and social costs in the clear form. According to an applicable accounting system and weaknesses and shortcomings in environmental awareness [10]. Adequate transparency of environmental costs and compliance with corporate environmental laws have a substantial positive impact on financial performance metrics, the outcomes are analyzed in [11, 12].

According to [13], stakeholder behavior in purchasing or dealing with companies is gradually changing to becoming more sensitive to the social and natural environment. This then leads to the negative perception of companies for not considering environmental issues as part of their business activity. In addition, a drastic change happened to the political-legal system to directly limit environmental degradation. Most global leaders, for example, have made specific pledges to reduce carbon dioxide pollution in a staggered manner. The US has pledged to reduce emissions by 17 % in 2020, 30 % in 2025, 42 % in 2030, and 83 % in 2050 [14]. A large sample of European corporations was analyzed to assess the amount and kind of details disclosed. Annual reports and research from around 110 organizations were examined for the years from 1988 to 1989, based on a checklist of 54 things identified in an earlier study by [15] reviewing the information contained in reports from each nation. According to the findings, most businesses have mentioned some environmental detail in their publications, with German reports having the largest degree of disclosure, followed by Swedish reports [16]. Thus, the main purpose of environmental disclosure as a mediator is to address the poor financial performance of the sample used in this study, which represents ISX and the oil sector companies. In [17], the findings reveal that environmental disclosure has a significant positive effect on mean financial performance. It is proposed that businesses invest in environmental disclosure because it contributes to improved financial performance [18].

As well, the theory of legitimacy is known widely to be utilized to justify environmental disclosure. In [19], it is asserted that legitimacy theory indicates that environmental disclosure is required due to society's pressure and the politics faced by a company concerning environmental performance. Companies are attempting to provide more environmental and financial information to external parties to respond to such pressure. In [20], the predicted legitimacy through the required voluntary disclosure of social and environmental issues and financial performance was investigated. Legitimacy theory speculates that organizations are constantly searching to confirm that they are utilized within certain societies' limits and standards [21].

Environmental costs are generated based on serious talk concerning the accounting of environmental costs and environmental management [22]. Environmental costs have historically been understood as "end-of-pipe" expenditures like post-action charges after production or costs related to wastewater treatment. Environmental management politics only focuses on the "end-of-pipe" costs and technologies that can create short-run revenues. However, such a focal point will be high-priced in the long run as the use of assets in the organization will be neglected.

The classification of environmental costs varies across organizations due to different purposes and business nature contexts. A useful cost categorization that was provided by the US Environmental Protection Agency (EPA) in 1995 is reviewed for this study. They asserted that environmental costs are defined according to how an organization intends to apply the information. Five distinctive dimensions were established according to the US Environmental Protection Agency [23, 24].

In monetary terms, financial performance is an indicator of the policies and activities of a company. It is a general indicator of the overall financial health of a business over a given period and can be used to compare similar companies in the same industry or to compare aggregated industries or sectors [25]. According to [26], financial performance benefits can be managed in the future as corporate performance details, in particular the profitability needed to determine potential changes in economic capital. In this connection, quality data is essential, information useful for forecasting the company's performance ability to produce cash and resources available. In addition, knowledge is often useful in formulating the consideration of the company's effectiveness in the utilization of resources [27].

Corporate environmental disclosure (CED) has been the subject of research and much discussion since the 1980s about the divulgence of information by businesses. Multiple research has investigated the essence and trends of CED including several explanatory factors that influence CED practices [28, 29]. A broad range of studies asserts that environmental disclosure is a significant phenomenon used by businesses to accomplish a variety of purposes [30]. In [31], it is argued that environmental disclosure is not a traditional or habitual concept where it depends from country to country and sector to sector. In addition, it is interpreted by different theoretical structures.

The literature review indicates that many studies related to environmental issues did not address the problem of poor financial performance in the Iraqi industrial sector. So, the researcher used a mediating variable (environmental disclosure) to address poor financial performance in addition to measuring environmental costs according to the EPA, which contributes significantly to rationalizing environmental costs that would improve the financial situation in these companies. This study focuses on establishing whether there is a relationship between environmental costs and financial performance in Iraqi industrial companies with environmental disclosure as a mediator.

3. The aim and objectives of the study

The aim of the study is to determine the effects of environmental disclosure as a mediator on the relationship between environmental costs dimensions and financial performance.

To achieve this aim, the following objectives are accomplished:

- to determine the level of environmental disclosure of Iraqi industrial companies;
- to identify the impact of environmental costs dimensions on the financial performance of Iraqi industrial companies;
- to investigate the impact of environmental costs dimensions on the environmental disclosure of Iraqi industrial companies;
- to study the impact of environmental disclosure on the financial performance of Iraqi industrial companies;
- to determine the effects of environmental cost dimensions on financial performance through environmental disclosure.

4. Materials and methods

The object of research is the impact of environmental disclosure as a mediator on the relationship between the dimensions of environmental costs and financial performance.

The following are the hypotheses of the study:

- H₁₋₅. There are major effects of environmental costs dimensions on the financial performance of Iraqi industrial companies;
- H₆₋₁₀. There are major effects of environmental costs dimensions on the environmental disclosure of Iraqi industrial companies;
- H₁₁. The effects of environmental disclosure on the financial performance of Iraqi industrial companies are significant;
- H₁₂. There are several major effects of environmental cost dimensions on financial performance through environmental disclosure.

This research's target populations are ISX and the oil sector in Iraq for the period from 2014 to 2018. The choice of ISX and the oil sector was informed by previous studies that have identified these two sectors as significantly impacting the environment in Iraq [33,23].

Iraq Stock Exchange consists of 125 companies and the oil sector consists of 15. To achieve the research objectives, a quantitative research approach using secondary data for analysis is employed. The total number of companies selected for this study is 25 industrial companies as described in Table 1. The researchers use a purposive sampling method – a non-probability sampling method, which is also known as a judgmental, subjective, or selective method. They also obtained annual reports from these companies on the website or by hand after official permission.

Table 1

Total selected companies as a sample and excluded companies

Statements	Total companies	Remaining companies
Total companies in the Iraqi stock exchange	125	19
Excluded industrial companies	(106)	
Total companies in the oil sector	15	6
Companies that don't have adequate data for the study period from 2015 to 2018	(9)	
Total selected companies as a sample	25	

5. Results of the research look at solving the issue regarding the decrease of financial performance in industrial companies

5.1. Correlation Analysis for the indicators and the outcome variable

As Table 2 shows, there is a negative and weak correlation between Potential hidden costs and Financial Performance ($r=-0.259$, sig.<0.01). In addition, there is a positive but weak correlation between External social costs and Financial Performance ($r=0.17$, sig.<0.05), and there is a positive but weak correlation between Environmental Disclosure and Financial Performance ($r=0.32$, sig.<0.01). However, no correlation was found between Contingent costs and Financial Performance ($r=0.086$, sig.>0.05), and no correlation was found at the 5 % level of significance between Image and relationship costs and Financial Performance ($r=-0.176$, sig.>0.05).

Table 2

Correlation Matrix for the independent variables and the outcome variable

Variables		Financial Performance
Conventional costs	<i>r</i>	113.0
	Sig.	209.0
Potential hidden costs	<i>r</i>	-259.0**
	Sig.	004.0
Contingent costs	<i>r</i>	141.0
	Sig.	116.0
Image and relationship costs	<i>r</i>	-158.0
	Sig.	079.0
External social costs	<i>r</i>	176.0*
	Sig.	049.0
Environmental Disclosure	<i>r</i>	320.0**
	Sig.	000.0

Note: * – correlation is significant at the 0.05 level (2-tailed);
 ** – correlation is significant at the 0.01 level (2-tailed).

Correlation analysis is another critical tool for quantitative research. Correlation analysis is used to measure the strength and direction of the relationship between two variables. The correlation value is denoted by 'r' and usually takes any value from '0' to '1'. As the value gets closer to '1', it becomes stronger and, as it moves away from '1' and closer to '0', it becomes weaker.

5.2. Explanation about data characteristics

As Table 3 shows, up to 25 Iraqi companies were involved in the study. Each company represents 4 % of the sample since 5 observations (one observation for Conventional costs, Potential Hidden Costs, Contingent costs, Image and Relationship Costs, External Social Costs, Environmental Disclosure, and Financial Performance) were taken from each company covering the period from 4102 to 8102. These companies were IBPM, IBSD, IELI, IHLI, IICM, IIDP, IIEW, IITC, IKLV, IMCI, IMIB, IMOS, IRMC, IKHC, IHFI, INCP, IMAP, ITLI, IDC, NGC, SRC, COC, BOC, OEC, and MOC.

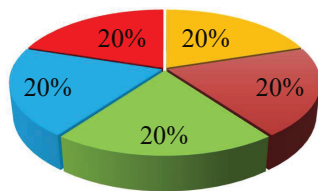
It is clear from Table 3 that the observations taken were distributed equally across the years. Each year

represents 20 % ($n=25$) of the total percentage, as shown in Fig. 1.

Table 3

Sample description – years

Years	n	Percent
2014	25	20.0 %
2015	25	20.0 %
2016	25	20.0 %
2017	25	20.0 %
2018	25	20.0 %
Total	125	100 %



■ 2014 ■ 2015 ■ 2016 ■ 2017 ■ 2018

Fig. 1. Sample description – years

The total population represents 25 companies selected. Since the data taken is over a 5-year period for 25 companies, the unit of analysis is 125 observations (25 companies*5 years). The observations are distributed equally at 20 % for each year, as shown in Fig. 1.

5. 3. Comparing the overall means for the scales under study

As Table 4 shows, External social costs scored the highest overall mean (23.6 %) with a Standard deviation of 7.6 %, followed by Conventional costs (Mean=210 %, SD=7.2 %), while Contingent costs scored the lowest mean 15.8 % with a Standard deviation of 5.2 %. For the mediated indicator, the overall mean was 20.2 % with a Standard deviation of 6.1 %, while for the outcome variable (i.e. Dependent variable), the overall mean was 17 % with a Standard deviation of 7.3 %, as shown in Fig. 2.

Table 4

Overall Descriptive Statistics For the Indicators Under Study

Indicators	N	Min	Max	Mean	Std. Deviation
Conventional costs	125	5.0 %	35.0 %	21.0 %	0.072
Potential hidden costs	125	7.0 %	35.0 %	20.9 %	0.068
Contingent costs	125	6.0 %	35.0 %	15.8 %	0.052
Image and relationship costs	125	2.0 %	40.0 %	18.5 %	0.071
External social costs	125	7.0 %	44.0 %	23.8 %	0.076
Environmental Disclosure	125	2.0 %	50.0 %	20.2 %	0.061
Financial Performance	125	2.0 %	45.0 %	17.0 %	0.073

Note: Std. Dev – standard deviation, Min – minimum, Max – maximum.

Comparing the Overall Means for variables

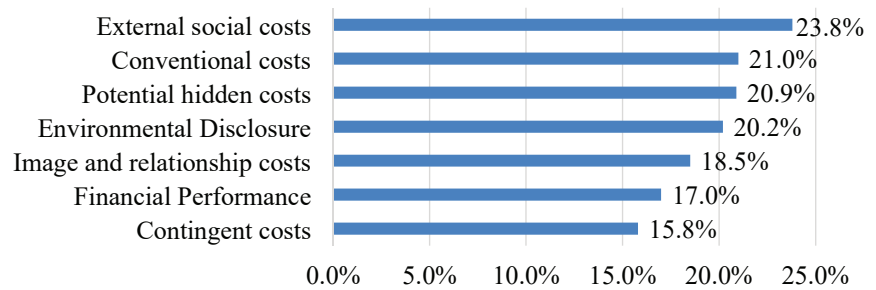


Fig. 2. Comparing the overall means for the scales under study

Fig. 2 shows the variables of the study and the mean of each variable for different years, where each bar shows a certain percentage of the general mean. External social costs achieved the highest overall mean of 23.6 % with a standard deviation of 7.6 %, followed by conventional costs mean=210 %, SD=7.2 %, while conditional costs achieved the lowest mean of 15.8 % with a standard deviation of 5.2 %. For the mediated indicator, the overall mean was 20.2 % with a standard deviation of 6.1 %, while for the outcome variable (i.e. the dependent variable), the overall mean was 17 % with a standard deviation of 7.3 %.

5. 4. Regression and collinearity analysis

Table 5 indicated that the 6 predictors (i.e. the independent variables along with the mediator) explained about 20.1 % of the variance in Financial Performance, while the value of Adjusted R Square indicated that the significant predictors of all predictors’ sets explained about 16.8 % of the variance in Financial Performance. However, the multiple linear correlation coefficient was 0.45, which indicates a positive and moderate correlation between the predictors and Financial Performance. Multiple linear regressions with collinearity analysis have been performed. The results are presented below.

Table 5

Model Summary

R	R Square	Adjusted R Square	Std. error of the Estimate
0.45	0.201	0.168	0.067

Predictors: (Constant), Mediator_Environmental Disclosure, potential hidden costs, external social costs, contingent costs, image and relationship costs.

Table 6 indicates that the regression model predicts the dependent variable significantly well, as shown in the “Regression” row. This indicates the statistical significance of the regression model that was run. Here, $p=0.000$, which is less than 0.01, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

The coefficients in Table 7 provide us with the necessary information to predict Financial Performance from the predictors, as well as determine whether the predictors contribute statistically significantly to the model (by looking at the “Sig.” column). Furthermore, we can use the values in the “B” column under the “Unstandardized Coefficients” column, as shown above. Standardized Beta Coefficients showed that Potential hidden costs have a negative effect on Financial Performance $\beta=-0.238$, $P\text{-value}<0.05$, while

Table 7

Environmental Disclosure has a positive effect on Financial Performance $\beta=0.246$, $P\text{-value}<0.05$. However, at a 10 % level of significance, External social costs have a positive effect on Financial Performance $\beta=0.191$, $P\text{-value}<0.10$.

Nevertheless, the hypothesized relationship between the dependent variable and Contingent costs and Image and relationship costs was not found to be statistically significant ($P\text{-value}>0.05$), as shown in Table 7. On the other hand, Tolerance is associated with each independent variable and ranges from 0 to 1. The Excluded variable from the model was Conventional costs since Tolerance was 0.000. Concerning the Test Results for Multicollinearity (FIV) and based on the Coefficients Output – collinearity Statistics, we can observe that all values of VIF were less than 10, meaning that the VIF value obtained is between 1 to 10. It can be concluded that there are no multicollinearity symptoms.

Coefficients of the regression model

Indicators	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	0.108	0.081	–	1.34	0.183	–	–
Potential hidden costs	–0.257	0.107	–0.238	–2.40	0.018	0.679	1.47
Contingent costs	0.161	0.166	0.114	0.973	0.333	0.492	2.03
Image and relationship costs	–0.074	0.126	–0.072	–0.60	0.555	0.455	2.20
External social costs	0.184	0.105	0.191	1.76	0.081	0.572	1.75
Environmental Disclosure	0.296	0.118	0.246	2.51	0.013	0.696	1.44

Excluded Variables: conventional costs (tolerance=0.000).

5. 5. Path of least squares analysis

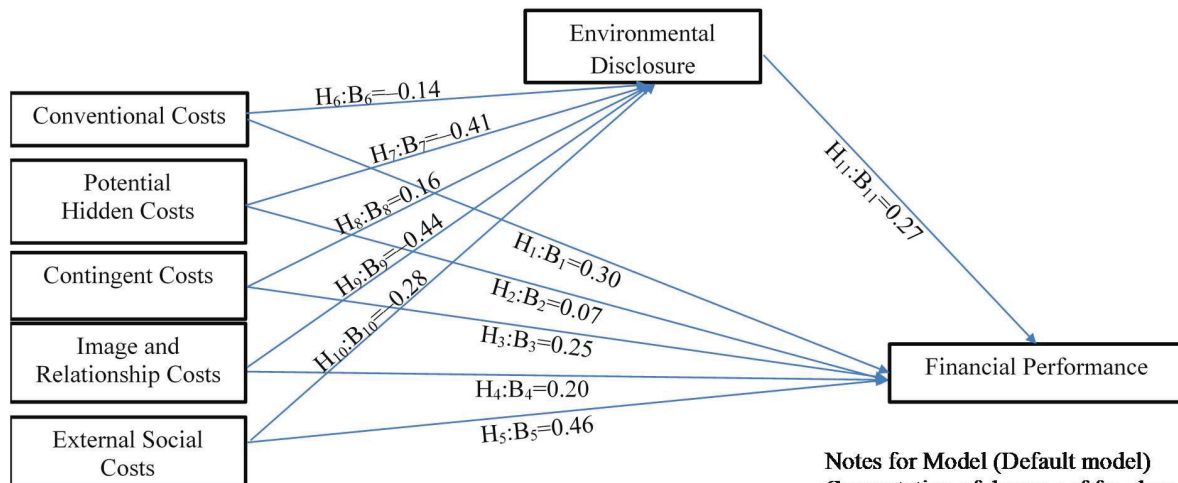
Path of least squares analysis was conducted to test the hypotheses of the research. The researcher used SEM using AMOS 23.0 to examine all the paths of the model through the resultant path coefficients. Fig. 3 presents a graphical representation of the resultant model using AMOS 23.0. The figure illustrates the independent variables (Conventional costs, Potential hidden costs, Contingent costs, Image and relationship costs, External social costs, Environmental Disclosure). The figure also presents the mediating factor, which is Environmental Disclosure along with the dependent variable (i.e. Financial Performance). The numbers of the paths represent the Beta value of each path, which indicates the amount of independent variable influence on the mediated variable and one dependent variable.

Table 6

Results of Analysis of Variance (ANOVA)

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.134	5	0.027	6.002	0.000
Residual	0.533	119	0.004		
Total	0.667	124			

Dependent Variable: financial performance; predictors: (constant), environmental disclosure, potential hidden costs, external social costs, contingent costs, image and relationship costs.



Notes for Model (Default model)
 Computation of degrees of freedom (Default model)
 Number of distinct sample moments = 28
 Number of distinct parameters to be estimated = 18
 Degrees of freedom (28 - 18) = 10
 Result (Default model)
 Minimum was achieved
 Chi-square = 413.41
 Degrees of freedom = 10
 Probabilitv level = 0.000

Fig. 3. Path coefficients of the model using structural equation modeling – Amos

Table 8 shows that External costs and Contingent costs have a positive effect on Financial Performance $\beta=0.46$, $P\text{-value}<0.01$, $\beta=0.25$, $P\text{-value}<0.01$, respectively. However, no statistical effect was found for Image costs, Potential hidden costs, and Conventional costs on Financial Performance $P\text{-value}>0.05$. Expectedly and highly, Environmental Disclosure statistically has a positive effect on Financial Performance $\beta=0.27$, $P\text{-value}<0.05$ as in Table 8.

Table 9 shows relationships between the indicators and the mediated variable (Environmental Disclosure). The results obtained from the analysis indicated that External social costs were negatively related to Environmental Disclosure $\beta=-0.28$, $P\text{-value}<0.05$, Image and relationship nor Potential hidden costs were negatively related to Environmental Disclosure $\beta=-0.43$, $P\text{-value}<0.01$, Contingent costs was positively related to Environmental Disclosure $\beta=0.16$, $P\text{-value}<0.05$, and Potential hidden costs were negatively related to Environmental Disclosure $\beta=-0.41$, $P\text{-value}<0.05$). However, Conventional costs have no statistical effect on Environmental Disclosure $\beta=-0.14$, $P\text{-value}>0.05$. On the other hand, analysis of standardized indirect effects for the indicators on Financial Performance indicated.

Also, Table 10 shows that External costs and Contingent costs have a positive effect on Financial Performance ($\beta=0.39$, $\text{sig.}<0.01$), ($\beta=0.29$, $\text{sig.}<0.01$), respectively. However, no statistical effect was found for Image costs, Potential hidden costs, and Conventional costs on Financial Performance ($\text{sig.}>0.05$). Expectedly and highly, Environmental disclosure statistically has a positive effect on Financial Performance ($\beta=0.27$, $\text{sig.}<0.01$).

6. Discussion of the results of studying the impact of environmental disclosure on the relationship between environmental costs and financial performance

This section concludes the findings of the study, discusses its theoretical and practical and methodology implications, and highlights the study's limitations. In addition, climate-conscious organizations are most likely to receive funding from "green" funders who are exclusively interested in those organizations. Because an organization is accountable to the government for its social and environmental effects, it can achieve multiple benefits for both the company and society. This prompted the researchers to conduct this study and achieve the objectives.

Measuring the level of study variables is the first objective. This study attempts to identify the level of environmental disclosure, whether such items increased from 2014 to 2018, and the mediating effect of environmental disclosure. The descriptive results of this study showed in Table 4 that the level of environmental disclosure in Iraq is rising. It is also denoted that the level of environmental disclosure occasionally decreases but increases in the following year. Therefore, this study found that the level of environmental disclosure in Iraq from 2014 to 2018 is upward and has increased from time to time. So, the results concluded that the average percentage of environmental disclosure in the industrial companies selected in this study was 20.0 % and the mean found was 20.2 %. Since the mean was slightly greater than the median, the distribution of Environmental Disclosure was very slightly skewed to the right. This led

to a decrease in the level of financial performance, and therefore these companies need to develop and address environmental issues and disclose them more.

The second objective findings of (H_1-H_5) are inconsistent with the results of previous studies mostly [43], conducted research on "Environmental Friendly Policies and Their Financial Effects on Company Performance of Selected Oil & Gas Companies in the Niger Delta Region of Nigeria" [35]. The findings of the second research objective are consistent with the results of previous studies. According to Table 5, both donation and environmental potentially hidden costs have a negative relationship ($r=-0.068$ and $r=-0.072$), respectively, with return on assets (ROA) whereas, training, recruitment and canteen expenses (TRC) and the return on assets (ROA) have a positive relationship ($r=0.068$) on Nigerian brewery Plc. Accord-

Table 8 Summary of Standardized Direct Effects using path analysis of AMOS

Variables	External costs	Image&relationship costs	Contingent costs	Potential hidden Costs	Conventional costs	Environmental disclosure
Environmental Disclosure	-0.28* (0.013)	-0.43** (0.005)	0.16* (0.015)	-0.41* (0.013)	-0.14 (0.309)	0.00 (...)
Financial Performance	0.46** (0.002)	0.20 (0.162)	0.25** (0.003)	0.07 (0.497)	0.30 (0.054)	0.27** (0.009)

Note: the number in brackets represents two-tailed significance; ** – the effect is significant at the 0.01 level; * – the effect is significant at the 0.05 level.

Table 9 Summary of Standardized Indirect Effects using path analysis of Amos

Variables	External costs	Image&relationship costs	Contingent costs	Potential hidden costs	Conventional costs	Environmental disclosure
Environmental Disclosure	-0.28* (0.013)	-0.43** (0.005)	0.16* (0.015)	-0.41* (0.013)	-0.14 (0.309)	0.00 (...)
Financial Performance	0.46** (0.002)	0.20 (0.162)	0.25** (0.003)	0.07 (0.497)	0.30 (0.054)	0.27** (0.009)

Note: the number in brackets represents two-tailed significance; ** – the effect is significant at the 0.01 level; * – the effect is significant at the 0.05 level.

Table 10 Summary of Standardized Total Effects using path analysis of Amos

Variables	External costs	Image&relationship costs	Contingent costs	Potential hidden costs	Conventional costs	Environmental disclosure
Environmental Disclosure	-0.28* (0.013)	-0.43** (0.005)	0.16* (0.015)	-0.41* (0.013)	-0.14 (0.309)	0.00 (...)
Financial Performance	0.39** (0.004)	0.08 (0.494)	0.29** (0.005)	-0.04 (0.906)	0.26 (0.101)	0.27** (0.009)

Note: the number in brackets represents two-tailed significance; ** – the effect is significant at the 0.01 level; * – the effect is significant at the 0.05 level.

ing to which the invisible costs are costs that do not show up explicitly in a company's information system, such as the budget, financial accounting, or management accounting, or a journal or other summary document [36].

However, according to Table 7, the findings of (H₆–H₁₀) that represent the third objective, which refers to the cost dimensions such as external social costs, Image and relationship costs, potential hidden costs, contingent costs, and potential hidden costs produce a negative effect on a company's financial performance. Another study's finding of (H₁₁) reveals that environmental disclosure $\beta=0.246$, $P<0.05$ was positive and significant in affecting financial performance, which represents the fourth objective in this study. The results confirmed the meaningful impact of environmental disclosure on financial performance. Past studies had created a mixture of outcomes. Some studies managed to discover a positive connection between the two variables [37–40]. The results showed that a positive relationship existed although the evidence was less strong for the impact of environmental disclosure on subsequent financial performance.

This study showed in Table 7 of the fifth objective that environmental disclosure fully mediated the relationship between the hidden costs ($\beta=0.10$, sig.<0.05), Image & relationship costs ($\beta=-0.12$, $P<0.05$), and financial performance. While, as shown in Table 10, environmental disclosure is partially mediated by the relationship between contingent costs ($\beta=0.04$, $P<0.05$), social costs ($\beta=0.04$, $P<0.05$), and financial performance. The results suggest that a high-sensitive industry towards environments providing more disclosure would boost more investors' confidence. Therefore, the study's outcomes provide insights into associated environmental costs among the sensitive industries that relate to legitimacy conflicts in Iraq. The findings of (H_{21.a}–H_{21.e}) are consistent with previous literature findings, especially in [41]. The outcome showed that greater liquidity encourages management to present more disclosure. Hence, greater disclosure will significantly escalate the company's value. In addition, information disclosure is seen as a means to improve the marketability of shares, promote company image, and decrease capital cost, thus improving financial performance [42]. This hypothesis (H_{21.e}) is consistent with the findings of previous studies. The work [43] discovered a positive connection between protected social and environmental disclosure and financial performance [44].

A couple of key limitations need to be considered. First, these researchers analyzed company annual reports depending on only five years from the Iraq Stock Exchange in 2014 to 2018. Due to the lack of data at the time of data collection, it was not possible to include the years 2018–2019 and all companies in the sample. The current study focuses on quantitative research methodology only. The data collection method may be varied into qualitative methods, such as case studies, observation, and interviews. Therefore, it is possible to take a sample of many companies in different sectors and a time series of more than five years, besides adopting the interview to obtain generalizable results.

7. Conclusions

1. Based on statistical processing, the results indicate that the level of the highest Environmental Disclosure was

21.5 % (SD=8.3 %) observed in 2018, while the lowest level of Environmental Disclosure was 19.3 % (SD=5.2 %) observed in 2017. The overall Environmental Disclosure level value was 20.2 % (SD=6.1 %), showing a low level of Environmental Disclosure over the five years despite the increase in the rate of disclosure in recent years.

2. The findings of the study indicated an insignificant impact of environmental costs dimensions: conventional costs, hidden environmental costs, and image&relationship costs on financial performance. While contingent costs and social costs have a positive impact on financial performance. This study can be considered a modest guideline for managers in the oil sector and the Iraqi stock exchange to improve financial performance. The guide applies to 15 oil companies operating in Iraq as it shares the same context and more than 100 companies in the Iraqi stock exchange.

3. The results of the practical study indicated the direct effect of the independent variable on the mediator. There was a weak impact for Conventional costs on environmental disclosure, whilst other environmental costs dimensions (potential hidden costs, contingent costs, Image and relationship costs, and external social costs) indicate an important positive impact on environmental disclosure because of its great role in enhancing the reputation and image of industrial companies in front of investors and outside parties.

4. There is a significant effect of environmental disclosure on the financial performance of Iraqi industrial companies. Environmental disclosure has a positive effect on the financial performance of Iraqi industrial companies (sig.<0.01). Thus, the fourth research objective has been achieved, while the seventh hypothesis is supported.

5. The results showed that the influence of environmental hidden costs, image&relationship costs, Contingent costs, and social costs on financial performance through mediating is significant. On the other hand, the mediating effect of environmental disclosure in other hypotheses is insignificant (H12b), which indicates that the impact of Conventional costs on financial performance through mediating is insignificant. This may be due to the fact that Conventional costs are costs related to what the company's management tries to cover and are not easily disclosed because they affect the company's reputation.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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