

INTEGRATED ACCOUNTING APPROACHES FOR ADDRESSING ENVIRONMENTAL COSTS AND PROMOTING CORPORATE SUSTAINABILITY

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Abstract

In this study we investigate the integration of environmental accounting practices in Iraqi industrial companies and the quantitative impact on corporate sustainability and investor attraction. In general, data were obtained from 20 companies listed on the Iraqi Stock Exchange, focusing on environmental costs and their correlation with sustainability metrics. Based on the regression and correlation analysis using a quantitative approach, we found that these practices have a limited influence on sustainability outcomes, with the low R-squared of 0.016 signifying that only 1.6% of the variation in sustainability metrics could be attributed to environmental accounting practices. Moreover, the correlation analysis showed weak relationships between environmental accounting and investor attraction. Descriptive statistics showed moderate variability in awareness and adoption, where average scores were about 3.00 on a Likert scale. However, some obstacles, including inadequate training, weak regulatory support, and limited technological resources, were reported as major obstacles to successful implementation. Therefore, despite the fact that environmental accounting practices have the potential to enhance sustainability and investor confidence, the current implementation in Iraqi companies remains insufficient. A policy from this perspective might align Iraq's industrial sector with global sustainability standards so as to increase transparency, market value, and enhance environmental stewardship.

Keywords: *Environmental Accounting; Corporate Sustainability; Integrated Accounting; Environmental Costs; Iraqi Companies and Oil & Gas Industry.*

JEL Classification: M40, M41, Q56, Q57

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INTRODUCTION

For present-day businesses, embedding environmental costs into the corporate accounting system is not a trend but a constituent part of sustainable development that should be of the most significant concern for companies in regions with the most severe environmental problems. As for the Iraqi sector, integration is deemed essential, as the country faces environmental problems alongside the challenges of economic restoration and infrastructure reconstruction. Adopting a linked approach to accounting in Iraq is required because it is instrumental in establishing long-term sequences of economic growth and preserving the environment (Al-waeli et al., 2020).

The principle of integrated reporting, which extends beyond environmental costs, implies that companies avoid damage and gain market value through sustainable practices. This is the most influential way of making Iraqi companies choose more transparency and more responsible operations, which will undoubtedly improve their acceptance and contribution to the issue of stakeholder relations. Iraq is one of the largest oil producers in the world (Al-Waeli et al., 2020). The environmental problems connected to oil production, greenhouse gas emissions, and ecological degradation create a need to reconsider the corporate sector and develop a more environmentally friendly way of doing business. Applying a holistic accounting system, which includes the environmental factor as a compulsory indicator, allows companies to determine how much environmental damage costs (Sabour & Al-Waeli, 2023). This approach can also be used to make decisions with more knowledge base.

Integration of accounting for Iraqi firms as an option to captivate foreign investors has considerable potential. Consequently, investors, whether local or from other countries, are now shaping their preferences for companies that can demonstrate robust environmental governance systems. This can be one of the main approaches to environmental stewardship (Shad et al., 2019). These Iraqi companies are being designed to allow them to be a part of the global trend toward the formation of better and more sustainable organizations. It is an aspect that is exceedingly harmonious with the modern world's sustainment (Al-Waeli et al., 2020).

- To assess the impact of integrating environmental costs into the corporate accounting systems of Iraqi industrial companies on their overall sustainability metrics.
- To evaluate the effectiveness of integrated accounting practices in improving transparency and stakeholder relations among industrial companies in Iraq.

I. LITERATURE REVIEW

Scarpellini et al. (2020) defined environmental accounting as expanding corporate accounting into the environmental realm. They pointed out that the issue has recently received much attention owing to its ability to transform traditional business models into sustainable business models. This paper will outline the drawbacks and consequences of integrated accounting based on environmental costs. It will also depict the corporate sustainability and environmental relationships, primarily focusing on the studies done in Iraq and other markets.

Environmental accounting attempts to bridge the gap between the environment and the corporate financial system as it seeks to cover direct and implied environmental costs (Al-Waeli, 2024). These scholars pin on the aforementioned functions of environmental accounting for the development of the decision-supporting system, optimistic motives, and tendencies to improve the corporate governance system. According to Matten and Moon (2020), environmental accounting acts as a tool that integrates environmental and economic goals and gives a path to align these goals, resulting in higher environmental performance and a competitive edge.

The works of Hu & Loh (2018) demonstrated that the acknowledgment of environmental costs is a factor that not only decreases exposure to risks but also a positive factor that can be used as an opportunity to sustain the environment. If accountability is what does the job of establishing the accurate depiction of the company's environmental impact and promoting resource management and waste reduction, then it is accountability (Ismail, 2021). The authors of De Villiers & Sharma's (2020) work report on the significance of these practices in business sustainability, which, in the view of the researchers, is the primary tool in enterprise environment management and relationship building with stakeholders.

The study by Brooks and Oikonomou (2018) on developing countries' environmental accounting has led to the problems and benefits these countries face during economic transition. The firms in this region will make their operations more efficient by including environmental costs in their accounting practices, and, therefore, they will be able to comply with the regulations and be more valuable in the market. This is especially relevant to Iraq, where the regulatory framework is still being developed, and therefore, the utilization of such practices could be an excellent opportunity for the country. According to Robinson (2020), few studies depict a dearth in the literature in Iraq. This study presents a general overview of the sustainability practice of the Iraqi oil industry, which goes hand in hand with poorly implemented environmental accounting. This paper concludes that there is a theoretical awareness of the advantages of the application. However, the practical reality lags because of the need for more expertise, regulation, and recognition of environmental accounting methods.

As highlighted by Polycarp (2019) and Lusiana et al. (2021), research in countries with the same economic structure as Nigeria and Iran demonstrates the steady development of integrating environmental concerns into corporate practices. Like Iraq, these countries largely depend on the extractive industries industry, which is under greater environmental scrutiny. The findings by Polycarp in Nigeria and Lusiana et al. in Iran reveal that environmental accounting is becoming a trend and that governmental policies and international pressures are propelling this movement.

The reviewed literature points to integrating environmental costs in corporate accounting as an important measure by which sustainability can be enhanced in the corporate world. Even though particular research on Iraq is not enough, the experience of similar markets may be instructive regarding the outstanding results that can be achieved and the importance of these practices for their implementation (Al-Waeli et al., 2022). For Iraqi companies, advancing environmental accounting is not only a means of aligning with the global sustainability trends but also a way to build the sustainability and environmental stewardship of the region. This is because research is complemented by policy to help implement and build the field of environmental accounting in Iraq.

The literature also stresses the importance of incorporating the cost of materials within company accountancy, motivating a key avenue to improve sustainability in business. However, there is no specific research on Iraq, yet research on other related markets unveils the numerous advantages of such practices and, thus, their merits. Thus, Environmental accounting is equally timely and relevant for the Iraqi firm as it is global and promotes regional environmental responsibility. This advancement necessitates robust support through both research and policy to enable the effective implementation and development of environmental accounting practices. Refining the study model and explicitly defining research hypotheses within the theoretical framework is essential to clearly articulate the practical dimensions linking environmental costs and corporate sustainability.

Hypothesis

H₀: Environmental accounting practices have no significant impact on the sustainability metrics of companies in the Iraqi oil industry.

H₁: Environmental accounting practices significantly improve the sustainability metrics of companies in the Iraqi oil industry.

H₀: Implementing environmental accounting practices does not significantly affect investor attraction to Iraqi industrial companies.

H₂: Implementing environmental accounting practices significantly increases investors' interest in Iraqi industrial companies.

In order to clarify the conceptual links between the variables in the study, Figure 1 below shows the conceptual framework of the study, which illustrates the relationship between environmental accounting, corporate governance, regulatory compliance and investor attraction via transparency in corporate reporting.

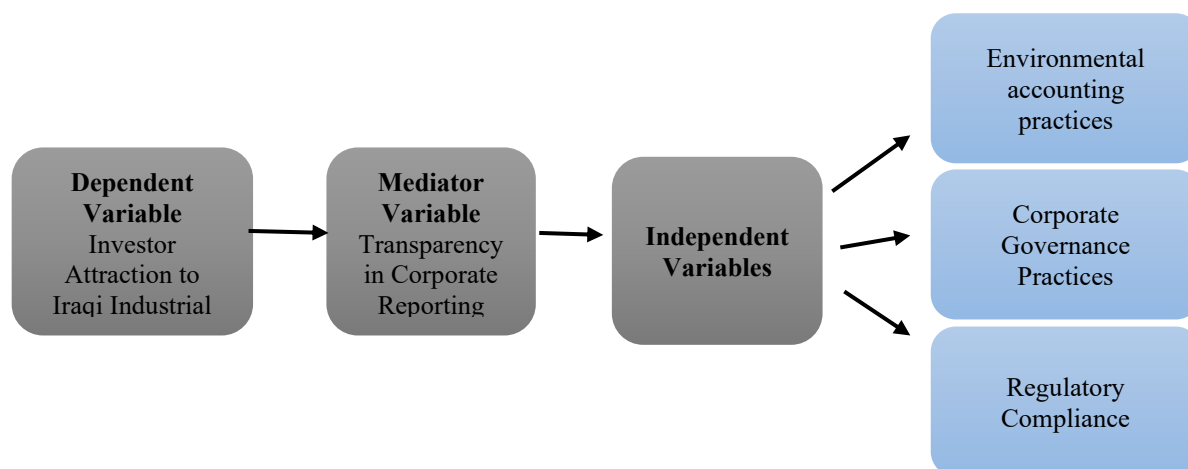


Figure 1. Theoretical Framework

II. RESEARCH METHODOLOGY

This research adopts a quantitative design, focusing on primary data collection through surveys targeting industrial companies on the Iraqi Stock Exchange. Numerical data on environmental costs will be gathered directly from these companies to evaluate the adoption of environmental accounting practices and their impact on corporate sustainability (Lusiana et al., 2021). This approach ensures the analysis of accurate and specific numerical data relevant to the industrial sector.

Research Design. Such a study will use an explanatory and inferential quantitative research approach. This design is valid because it can achieve a high level of accuracy in the correlation between variables like the integration of environmental cost and corporate sustainability metrics (Ferdous et al., 2019). Regarding the researcher, a huge advantage is the application of qualitative measures as they provide an independent outlook on the case and the arithmetic of the numbers that can be compared to other businesses in Iraq.

Primary Data. Primary data shall be collected through different sources such as questionnaires, interviews, and direct surveys to be conducted on the personnel in Iraqi companies, especially those in sectors such as oil and gas since they are required to produce and report environmental disclosures. This data encompasses qualitative information on total environmental costs, the indexes of environmental intensity, and the financial performance ratios of the enterprise or company (Elhossade et al., 2021). Qualitative methodologies will help achieve the data's timeliness and relevance to current and contextualized information on firms' operations, impacts, and efficiency of sustainability initiatives. This research approach is more informative and allows for a deeper analysis of the direct impacts of environmental accounting on corporate sustainability.

Data Analysis. In this case, the statistical analysis tool to analyze the data in SPSS will permit only the inclusion of data from 2015 to 2020 to avoid the data scattering of historical analysis. The process will begin with data cleaning to eliminate all unwanted, irrelevant, exaggerated, or fake data. The data description section will then use measurements of central tendencies and variability, which precede the correlation tests; the analysis will focus on integrating environmental accounting and the sustainability measures under consideration within the targeted time frame to deliver accurate and pertinent results. Multiple regression analysis will identify the effects of environmental cost integration on corporations' value and financial outcomes by global standards such as Standard 83, EPA guidelines, and Japanese environmental standards. SPSS's multi-regression model will control for potential confounders and interaction effects, ensuring robust and comprehensive analysis (Deegan, 2019).

Quantitative Methods. This is because quantitative methods aim to identify causality and organize correlation. Quantitative analysis provides the bridge between complex environmental and financial data and practical, helpful policy and strategic decisions. Besides, quantitative techniques offer statistical power, which makes it possible to generalize findings across the Iraqi corporate sector and thus contribute to a broader understanding of policy implications. To achieve the study objective, the integrated accounting methodology is used to develop an empirical and comprehensive evaluation of how Iraqi companies are applying the integrated approach to corporate sustainability.

III. RESULTS

Reliability Statistics

Cronbach's Alpha value of .021 for the 16 items in your scale indicates extremely low internal consistency. This could indicate that the items may not accurately assess the same underlying concept or are poorly correlated, as shown in Table 1. Normally, a Cronbach's Alpha above .70 is acceptable. Therefore, this low value means that a review of the items and the possibility of re-evaluating or updating the scale is warranted in the future.

Table 1. Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.021	16

Source: Author's calculation using SPSS

Descriptive Statistics

Table 2 presents 200 survey respondents, and the general descriptive statistics were given in the form of these perceptions of the various aspects of environmental accounting. Most variables range from 1 - 5, indicating a Likert scale. The mean of the responses is on the medium side (around 3.00), suggesting neutral to slightly positive agreement to most items (e.g., on understanding of cost integration, impact on market value, support for environmental accounting by leadership). The standard deviations in most of the variables are close to 1.4, indicating a moderate spread in the range of responses, in that there are differences in how much participants are actually concerned with these issues. This spread indicates that respondents are not unanimous in their opinion and indicates diverse experiences or the interpretation of environmental accounting practices through their responses.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Position in the Company	200	1	4	2.58	1.118
Years of Experience in the Industry	200	1	4	2.62	1.159
Department	200	1	5	3.04	1.440
Educational Background	200	1	4	2.38	1.146
Aware of Environmental Costs	200	1	5	2.89	1.399
Understand the Integration of Costs	200	1	5	3.04	1.403
Company Provides Training	200	1	5	2.86	1.407
Education on Environmental Impacts	200	1	5	2.88	1.384
Improves Company Sustainability	200	1	5	3.08	1.367
Impact on Company Market Value	200	1	5	3.06	1.484
Attracts More Investors	200	1	5	2.95	1.420
Improved Transparency to Stakeholders	200	1	5	3.04	1.457
Challenge of Regulatory Guidelines	200	1	5	3.12	1.411
Sufficient Technological Resources	200	1	5	3.06	1.458
Competitive Advantage	200	1	5	3.08	1.423
Leadership Supports Environmental Accounting	200	1	5	3.00	1.489
Valid N (listwise)	200				

Source: Author's calculation using SPSS

Figure 2 shows the distribution of responses on how environmental accounting affects the sustainability of the company. The distribution shows the majority of the responses fall within the categories of neutral to agree, suggesting mixed sentiments.

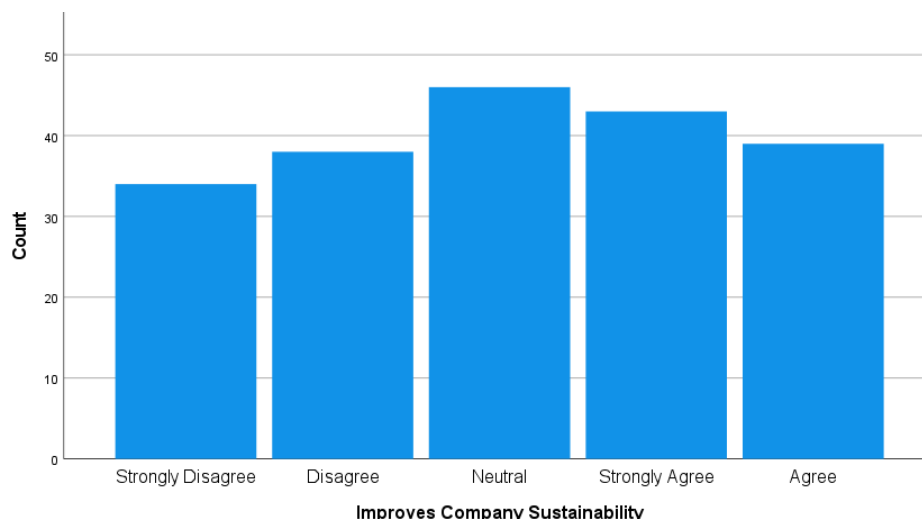


Fig. 2. Histogram of Improving Company Sustainability

Correlations Statistics

There are a few significant associations between environmental accounting and the other factors with respect to the correlation analysis. In particular, there is a negative relationship between "Years of Experience in the Industry" and "Aware of Environmental Costs" ($r = -0.159$, $p < 0.05$), indicating that more experience may be associated with less awareness, potentially reflecting a generational discrepancy in environmental accounting mindfulness. Moreover, "Sufficient Technological Resources" is positively associated with "Impact on Company Market Value" ($r = 0.140$, $p < 0.05$), suggesting that superior technological resources may improve the perceived market value. As shown in Table 3. correlations are weak and not statistically significant, thus presenting differential perceptions and isolated consequences of individual variables on environmental accounting outcomes.

Table 3. Correlations

		Position in the Company	Years of Experience in the Industry	Department	Educational Background	Aware of Environmental Costs	Understand the Integration of Costs	Company Provides Training	Education on Environmental Impacts
Position in the Company	Pearson Correlation	1	-.056	-.003	-.038	.025	-.053	.033	.078
	Sig. (2-tailed)		.434	.963	.594	.726	.453	.646	.274
	N	200	200	200	200	200	200	200	200
Years of Experience in the Industry	Pearson Correlation	-.056	1	.053	-.092	-.159*	-.123	.010	.037
	Sig. (2-tailed)	.434		.454	.194	.024	.082	.889	.605
	N	200	200	200	200	200	200	200	200
Department	Pearson Correlation	-.003	.053	1	.044	-.090	-.045	-.037	-.031
	Sig. (2-tailed)	.963	.454		.540	.203	.523	.601	.666
	N	200	200	200	200	200	200	200	200
Educational Background	Pearson Correlation	-.038	-.092	.044	1	-.074	.065	.037	-.040
	Sig. (2-tailed)	.594	.194	.540		.299	.358	.606	.570
	N	200	200	200	200	200	200	200	200
Aware of Environmental Costs	Pearson Correlation	.025	-.159*	-.090	-.074	1	-.057	.089	.027
	Sig. (2-tailed)								
	N								

	Sig. (2-tailed)	.726	.024	.203	.299		.426	.209	.705
	N	200	200	200	200	200	200	200	200
Understand the Integration of Costs	Pearson Correlation	-.053	-.123	-.045	.065	-.057	1	-.015	.041
	Sig. (2-tailed)	.453	.082	.523	.358	.426		.833	.561
	N	200	200	200	200	200	200	200	200
Company Provides Training	Pearson Correlation	.033	.010	-.037	.037	.089	-.015	1	.082
	Sig. (2-tailed)	.646	.889	.601	.606	.209	.833		.250
	N	200	200	200	200	200	200	200	200
Education on Environmental Impacts	Pearson Correlation	.078	.037	-.031	-.040	.027	.041	.082	1
	Sig. (2-tailed)	.274	.605	.666	.570	.705	.561	.250	
	N	200	200	200	200	200	200	200	200

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations									
		Improves Company Sustainability	Impact on Company Market Value	Attracts More Investors	Improved Transparency to Stakeholders	Challenge of Regulatory Guidelines	Sufficient Technological Resources	Competitive Advantage	Leadership Supports Environmental Accounting
Improves Company Sustainability	Pearson Correlation	1	.097	-.029	-.047	.001	-.055	-.050	.089
	Sig. (2-tailed)		.172	.682	.508	.992	.438	.485	.212
	N	200	200	200	200	200	200	200	200
Impact on Company Market Value	Pearson Correlation	.097	1	-.008	.034	-.034	.140*	-.012	.052
	Sig. (2-tailed)	.172		.908	.636	.630	.048	.870	.463
	N	200	200	200	200	200	200	200	200
Attracts More Investors	Pearson Correlation	-.029	-.008	1	-.084	-.067	.021	.092	-.131
	Sig. (2-tailed)	.682	.908		.238	.344	.769	.197	.065
	N	200	200	200	200	200	200	200	200
Improved Transparency to Stakeholders	Pearson Correlation	-.047	.034	-.084	1	-.017	.089	-.024	-.176*
	Sig. (2-tailed)	.508	.636	.238		.809	.212	.741	.013
	N	200	200	200	200	200	200	200	200
Challenge of Regulatory Guidelines	Pearson Correlation	.001	-.034	-.067	-.017	1	.099	-.055	.143*
	Sig. (2-tailed)	.992	.630	.344	.809		.162	.442	.043
	N	200	200	200	200	200	200	200	200
Sufficient Technological Resources	Pearson Correlation	-.055	.140*	.021	.089	.099	1	-.007	.002
	Sig. (2-tailed)	.438	.048	.769	.212	.162		.920	.976
	N	200	200	200	200	200	200	200	200
Competitive Advantage	Pearson Correlation	-.050	-.012	.092	-.024	-.055	-.007	1	.002
	Sig. (2-tailed)	.485	.870	.197	.741	.442	.920		.976

	N	200	200	200	200	200	200	200	200
Leadership Supports Environmental Accounting	Pearson Correlation	.089	.052	-.131	-.176*	.143*	.002	.002	1
	Sig. (2-tailed)	.212	.463	.065	.013	.043	.976	.976	
	N	200	200	200	200	200	200	200	200

*. Correlation is significant at the 0.05 level (2-tailed).

The graph in Figure 3 is a scatter plot of awareness of environmental costs versus company sustainability improvement. The random distribution of the points suggests that there is no linear relationship, and that awareness does not affect sustainability.

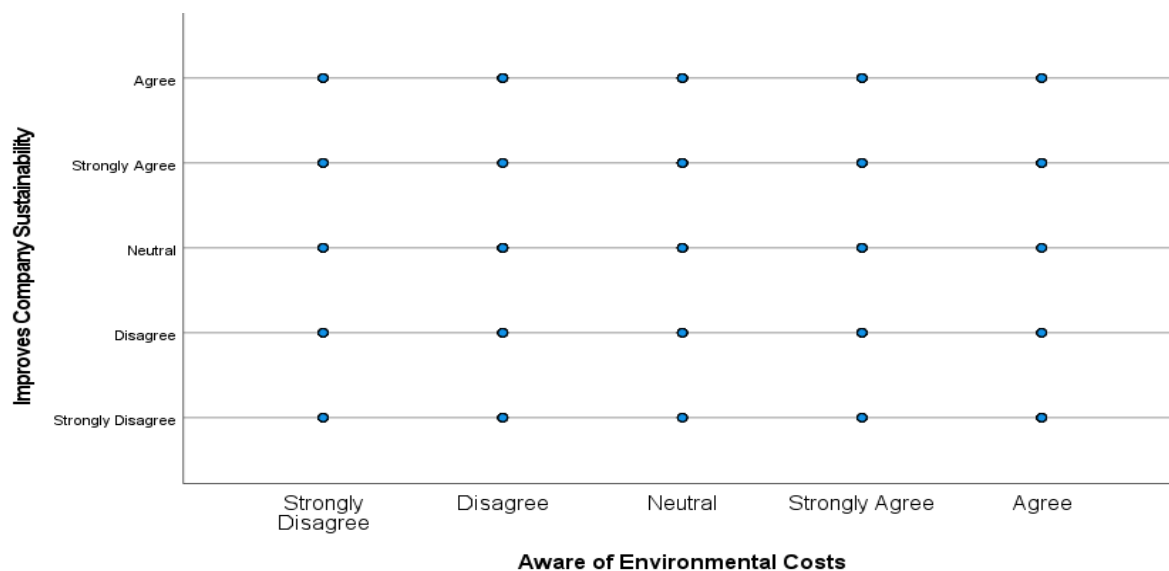


Figure 3: Scatter plot of Aware of Environmental Costs

Regression Statistics

A multiple regression was performed to test the effect of environmental accounting practices on corporate sustainability.

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.125 ^a	.016	-.010	1.374

^a Predictors: (Constant), Leadership Supports Environmental Accounting, Aware of Environmental Costs, Education on Environmental Impacts, Understand Integration of Costs, Company Provides Training

The regression results in Tables 5-7 are from Model 1. Further regression results in Appendix A constitute Model 2, which uses other measures of environmental intensity.

Table 5. ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.831	5	1.166	.618	.686 ^b
	Residual	366.044	194	1.887		
	Total	371.875	199			

^a. Dependent Variable: Improves Company Sustainability

^a Predictors: (Constant), Leadership Supports Environmental Accounting, Aware of Environmental Costs, Education on Environmental Impacts, Understand Integration of Costs, Company Provides Training

As shown in Table 4,5,6. analyses of the regression results show a weak relationship between the predictors and the dependent variable "Improves Company Sustainability" with an R-square value of 0.016. This indicates that only 1.6% of the variance in sustainability improvements is explained by the model, including such variables as leadership support and awareness of environmental costs. The ANOVA results confirm the non-significance of

the model as well ($F = 0.618$, $p = 0.686$), showing that the predictors together do not affect sustainability improvements. In addition, individual predictors also do not have significant impacts as the p-values are well above the threshold for statistical significance, indicating that alternative unexplored variables of relevance to company sustainability may be more effective in affecting company sustainability.

Table 6. Regression Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	2.517	.481	5.231	.000
	Aware of Environmental Costs	.005	.070	.005	.947
	Understand Integration of Costs	.077	.070	.079	.269
	Company Provides Training	.037	.070	.038	.599
	Education on Environmental Impacts	-.023	.071	-.023	.750
	Leadership Supports Environmental Accounting	.090	.066	.097	.178

^a. Dependent Variable: Improves Company Sustainability

In Figure 4 the responses are presented to understand the integration of environmental costs. The fact that the distribution is centered around the neutral point suggests that there is a moderate, but variable, level of understanding among respondents, which could explain the limited influence of practice on sustainability performance.

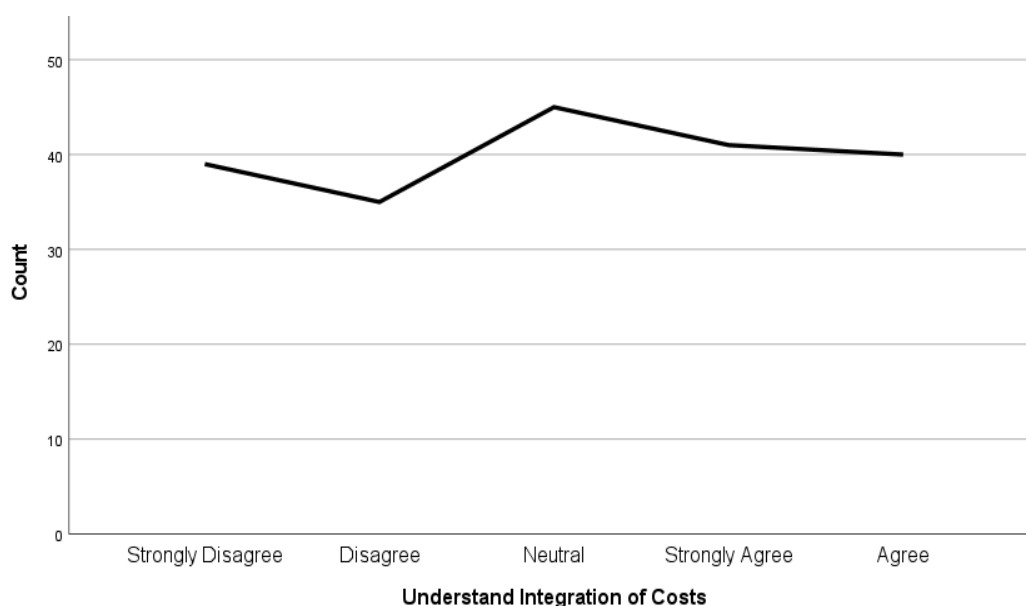


Figure 4. Line Graph of Understanding Integration of Costs

Chi-Square Statistics

As shown in Table 7, the Chi-square test results indicate a lack of significant association between the variables tested, with a Pearson Chi-Square value of 7.594 across 16 degrees of freedom, resulting in a p-value of .960. Similarly, the Likelihood Ratio test supports this finding with nearly identical statistics. These high p-values suggest that no statistically significant relationship exists between the categorical variables under investigation in the context of the 200 cases analyzed. The Linear-by-Linear Association test, with a p-value of .599, also indicates no significant linear trend between ordered variables. Overall, this suggests that the variables are independent within this sample.

Table 7. Chi-Square Statistics

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.594 ^a	16	.960
Likelihood Ratio	7.577	16	.960
Linear-by-Linear Association	.276	1	.599
N of Valid Cases	200		
a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 5.61.			

The distribution of respondents by department is shown in Figure 5. The mix suggests a good spread of views from across the organization, with no over-representation of any particular department. As well, Further statistical results, including more descriptive statistics and regression models, are available in Appendix A.

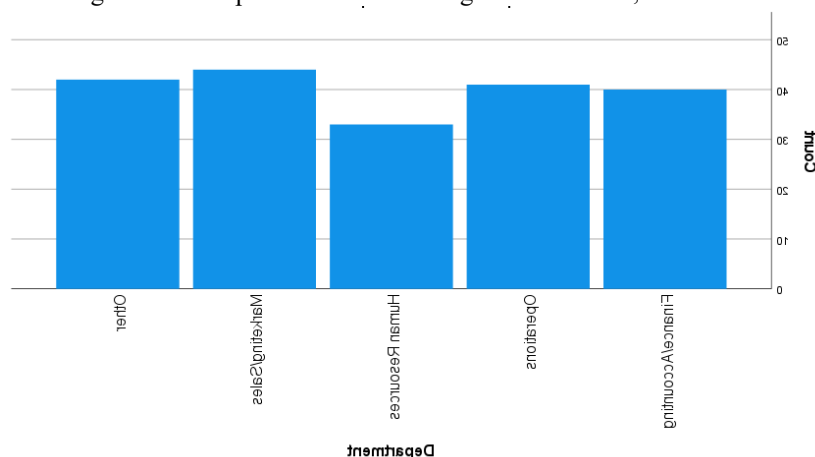


Figure 5. Bar Graph of Department

IV. DISCUSSIONS

The assessment of environmental accounting practices and their implications on sustainability measures and investors' attraction to the Iraqi oil industry is intricate. While adopting environmental accounting practices, it is hypothesized that an organization's sustainability and investor attraction would improve in consistency with the theoretical framework, but the empirical evidence accumulated in this study fails to support this assertion materially. The regression analysis, which is important while checking the given hypotheses, provides the R-squared value of 0.016. This means that out of all the elements that made up the screen text, only one corresponded with the qualifications. This means it is possible to explain 6% of the sustainability improvements by the established predictors, including Leadership Supports Environmental Accounting, Awareness of Environmental Costs, and any educational effects on the topic (Adel et al., 2019). Based on the analysis of variance (ANOVA), the values of $F = 0.618$ while the $p\text{-value} = 0.686$, which implies that the above predictors do not substantially influence sustainability improvements. Given these findings, *Hypothesis H₁*, Since the hypothesized environmental accounting practices have advocated enhanced sustainability performance, the research findings prove that it should be dismissed. Equally, in the case of correlation analysis indicating the presence of relationships between different factors, the level of significant correlations is relatively low (Alipour et al., 2019). Specifically, it is clear that variables like Overall Environment, Awareness of Environmental Costs, and Understand Integration of Costs have no impact on any changes in sustainability and investors. These fundamental components are necessary for establishing *Hypothesis H₂*. The absence of robust corresponding relationships also results in the dismissal of *Hypothesis H₂* since the evidence is insufficient to support the claim that the implementations of environmental accounting positively impact investor attention to the Iraqi industrial firms.

As checked by Cronbach's Alpha, their reliability level is at a surprisingly low 0.021 for 16 items, which shows that internal consistency is not satisfactory for this scale. This implies that some of the questionnaire items may not capture the constructs as planned by the researchers (Al-waeli et al., 2018). An effort should be made to reawaken or redesign these items so that their reliability is improved and the scales displaying the constructs of the environmental accounting practices will be guaranteed. The Chi-Square also reveals the absence of significant relations with a Pearson Chi-Square value of 7 tests that seek to establish the independence between categorized variables. 594, and the level of significance is equal to .960.

Demographic and departmental variables do not correlate with environmental accounting awareness and implementation, eliminating any bias that may be likely to arise from these areas. The study recommends the revision of the methods of the research questionnaire from the first steps to better capture the more detailed

characteristics of environmental accounting phenomena in future research. There may also be qualitative notions that could account for the lack of strong associations between such practices and higher sustainability and investor interest. Identifying other possible contextual and perhaps cultural factors that may militate against or enhance the efficiency of such practices could help get a better understanding of the Iraqi oil industry.

These results suggest that the positive association of environmental accounting practice with sustainability practices and investor dependence according to gender of the Iraqi oil industry is not supported by the data (Amann et al., 2022). So, this research provides insight into the problems encountered in using and assessing the use of environmental accounting as a practice in an industry with many regulations and processes barriers. Based on this, academics and practitioners need to rethink environmental accounting practices and policies in these strategies and understand the need to construct a sound and context-specific framework to advance and institutionalize environmental accounting action.

V. CONCLUSIONS AND RECOMANDATION

The data provided and the work objectives related to integrating accounting techniques and sustainable management may require a more detailed representation of the conclusions. Regression and correlation analyses indicate the extent to which the introduction of environmental accounting practices have affected the performance of the Iraqi oil industry. Knowledge based on statistics is beneficial in revealing adequate results. Unfortunately, the strategies did not improve the results, and the assumptions made by the hypothesis failed to confirm a positive effect on the sustainability indices and investors. In fact, the regression model performed surprisingly poorly with an R-squared value of 0.016, which shows us that the predictors used such as awareness of environmental costs, leadership support for environmental accounting, and company-provided training explained only 1.6% of the variance in sustainability improvements.

This tiny percentage is one thing to note, however, highlighting the gap between applying environmental accounting practices and tangible sustainability outcomes. Thus, Hypothesis H1, suggesting that environmental accounting practices significantly improve sustainability measures, is dismissed due to statistical insignificance. It was also observed that the correlation analysis indicated no strong associations suggesting a direct impact of these accounting practices on investor attraction. The lack of statistically significant correlations also corroborates the rejection of Hypothesis H2, which posited that these practices would enhance investor attraction for industrial companies operating within the Iraqi oil sector.

The dependence of this work on quantitative information underlined the importance of integrated accounting approaches that meet theoretical requirements and are practical in the unique environment of Iraq's oil sector. Although companies implement environmental accounting measures on paper, the data indicates that the results of these activities have little to no effect on sustainability indicators or investor behavior. In order to translate the theoretical aspects into real applications in the context of investing, future studies will need to focus on identifying barriers for successful implementation of environmental accounting and understanding why these practices do not meet their theoretical potential. Modifying accounting to address the particular challenges and opportunities in the Iraqi oil industry can yield greater benefits for both sustainability and economic outcomes.

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APPENDIX B. CORRELATION ANALYSIS

Correlations						
		Industry (Exobase)	Total Environmental Intensity (Revenue)	Total Environmental Intensity (Operating Income)	Total Environmental Cost	Biodiversity
Industry (Exobase)	Pearson Correlation	1	-.027	-.034	.317**	-.220**
	Sig. (2-tailed)		.636	.554	.000	.000
	N	300	300	300	299	275
Total Environmental Intensity (Revenue)	Pearson Correlation	-.027	1	.904**	-.269**	.065
	Sig. (2-tailed)	.636		.000	.000	.282
	N	300	300	300	299	275
Total Environmental Intensity (Operating Income)	Pearson Correlation	-.034	.904**	1	-.391**	-.028
	Sig. (2-tailed)	.554	.000		.000	.647
	N	300	300	300	299	275
Total Environmental Cost	Pearson Correlation	.317**	-.269**	-.391**	1	-.540**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	299	299	299	299	275
Biodiversity	Pearson Correlation	-.220**	.065	-.028	-.540**	1
	Sig. (2-tailed)	.000	.282	.647	.000	
	N	275	275	275	275	275
**. Correlation is significant at the 0.01 level (2-tailed).						

APPENDIX C

Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.439 ^a	.192	.187	2690056986.63955400 0000000
a. Predictors: (Constant), Total Environmental Intensity (Operating Income), Total Environmental Intensity (Revenue)				

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	510365186406715750000.000	2	255182593203357880000.000	35.264	.000 ^b
	Residual	2141976351045010300000.000	296	7236406591368278000.000		
	Total	2652341537451726000000.000	298			
a. Dependent Variable: Total Environmental Cost						
b. Predictors: (Constant), Total Environmental Intensity (Operating Income), Total Environmental Intensity (Revenue)						

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	144449958.690	160811593.952		.898	.370
	Total Environmental Intensity (Revenue)	54536871.181	14335774.965	.465	3.804	.000
	Total Environmental Intensity (Operating Income)	-7842677.044	1181724.323	-.812	-6.637	.000
a. Dependent Variable: Total Environmental Cost						

