



# “Impact of environmental management accounting adoption on sustainability performance: Mediating role of corporate governance”

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# IMPACT OF ENVIRONMENTAL MANAGEMENT ACCOUNTING ADOPTION ON SUSTAINABILITY PERFORMANCE: MEDIATING ROLE OF CORPORATE GOVERNANCE

## Abstract

The study aims to explore the effect of institutional pressures (INP) on environmental management accounting (EMA) and the mediating role of sustainable corporate governance (SCG) on the effects of EMA on sustainability performance. The partial least squares structural equation modeling (PLS-SEM) was applied to test the hypotheses. Data were gathered through a survey of 298 publicly listed companies in Saudi Arabia, using questionnaires distributed to executives, financial managers, accountants, and board members. The results show that INP has a significant positive effect on EMA ( $\beta = 0.295$ ,  $T = 6.062$ ); in turn, EMA has a significant positive effect on environmental ( $\beta = 0.295$ ), social ( $\beta = 0.332$ ), and economic ( $\beta = 0.332$ ) performance. Mediation analysis demonstrates that SCG acts as a significant mediator between INP and EMA ( $\beta = 0.113$ ,  $T = 2.366$ ), and EMA shows significant mediation between INP and environmental ( $\beta = 0.115$ ), social ( $\beta = 0.126$ ), and economic ( $\beta = 0.174$ ) performance. These findings demonstrate that INP has both direct and indirect impacts on sustainability performance through EMA. A robust SCG structure strengthens the linkage between external INP and EMA adoption and provides the linkage with an internal legitimating mechanism. These outcomes bring forward the role of EMA as a mediating variable for materializing the effects of external pressures driven by the legitimacy needs into sustainability performance. The findings add to the body of knowledge of institutional theory by emphasizing the role of concurrent external institutional forces and internal factors that affect corporate sustainability performance.

## Keywords

institutional pressure, environmental management accounting, sustainable corporate governance, sustainability performance

## JEL Classification

M41, Q01, Q56, G39

## INTRODUCTION

Organizations are increasingly facing institutional pressures (INPs) arising from environmental concerns, regulatory mandates, and stakeholder expectations, compelling them to incorporate sustainability practices and seek legitimacy (Al-Qaimari, 2025; Ding & Wang, 2025). This pressure has positioned sustainability at the core of organizational strategies and increased interest in how institutional forces influence performance (Cicchini et al., 2025). These forces shape the creation, adoption, and implementation of internal routines, reporting practices, and governance frameworks that incorporate sustainability considerations into daily operations, allowing organizations to respond effectively to external expectations (Castro-Lopez et al., 2023; Chetanraj et al., 2024). Such internal routines serve as operational links that transform external INPs into actionable sustainability outcomes (Ferretti et al., 2024). Although more is understood about the external isomorphic pressures (coercive, normative, and mimetic), less is known about the process by which these pressures are embed-



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### Conflict of interest statement:

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ded and internalized within organizations through routines to produce environmental, social, and economic outcomes (Chetanraj et al., 2024; Latif et al., 2020). This gap highlights the scientific problem of understanding the internal mechanisms and governance processes that translate external legitimacy motives into measurable sustainability outcomes, particularly in specific contexts such as Saudi Arabia (Alwadani et al., 2023).

In particular, internal routines such as environmental management accounting (EMA) are recognized as key mechanisms for quantifying, managing, reporting, and operationalizing sustainability strategies. However, the influence of INPs on the adoption of routines like EMA, and how such routines facilitate sustainability performance (i.e., environmental, social, and economic), remains underexplored. Considering the potential mediating role of sustainable corporate governance (SCG), investigating how external institutional forces are embedded within organizational routines and how these processes shape sustainability outcomes in the context of Saudi organizations has not been thoroughly examined.

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## 1. LITERATURE REVIEW AND HYPOTHESES

The combination of environmental pressures with stakeholder expectations and regulatory requirements drives organizations to establish sustainable practices in order to maintain legitimacy and meet accountability standards (Al-Qaimari, 2025; Ding & Wang, 2025). Influences such as legislation, norms, and mimetic processes critically shape the organizational structuring of routines and decision-making processes that can either contribute to or detract from sustainability performance on environmental, social, and economic levels. Institutional theory, as a theoretical framework, can elucidate this complex mechanism. It posits that organizations respond to social, legal, and normative pressures within their broader environment that inform their processes, structural constructs, and behavior (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Rules and regulations alongside industry standards, professional codes, cultural norms, and stakeholder expectations create a macro-institutional environment that directs organizational behavior through coercive, normative, and mimetic forces (Mat Yusoh et al., 2023). Organizations experience coercive pressure from formal legal requirements and mandates that enforce specific practices alongside normative pressure from professional standards that push organizations toward responsible behavior, while mimetic pressures lead organizations to adopt successful practices from their peers to manage uncertainty and achieve legitimacy (Chaudhry & Amir, 2020; Meyer & Rowan, 1977). Institutional forces shape organizational decision-making in sustainabili-

ty-related initiatives by integrating external pressures and expectations into their standard operational procedures and governance structures.

Institutional theory in management accounting suggests that firms adopt accounting practices like EMA in response to external pressures to gain legitimacy, meet expectations, and ensure survival. Coercive pressures from laws and regulations, normative pressures from professional standards and stakeholder expectations, and mimetic pressures from successful industry peers all contribute to the adoption of EMA, an internal management accounting routine that aligns with external institutional demands (Kong et al., 2022). These pressures go beyond mere compliance and serve strategic purposes, including reputation building and long-term survival (Scannell & Tawiah, 2024). Organizations adapt external pressures by incorporating them into their internal routines and governance structures, which then shape their decision-making processes and resource distribution methods, along with accounting practices. Management accounting systems such as EMA function as strategic tools that provide organizations with the capacity to respond effectively to external pressures while measuring, managing, and communicating their sustainability performance.

The EMA system is a newly developed and expanding category of management accounting systems that aims to identify, allocate, generate, and use environmental information in both physical and monetary terms (Hasan et al., 2024b; Mat Yusoh et al., 2023). Management accounting systems are conventionally made for profit maxi-

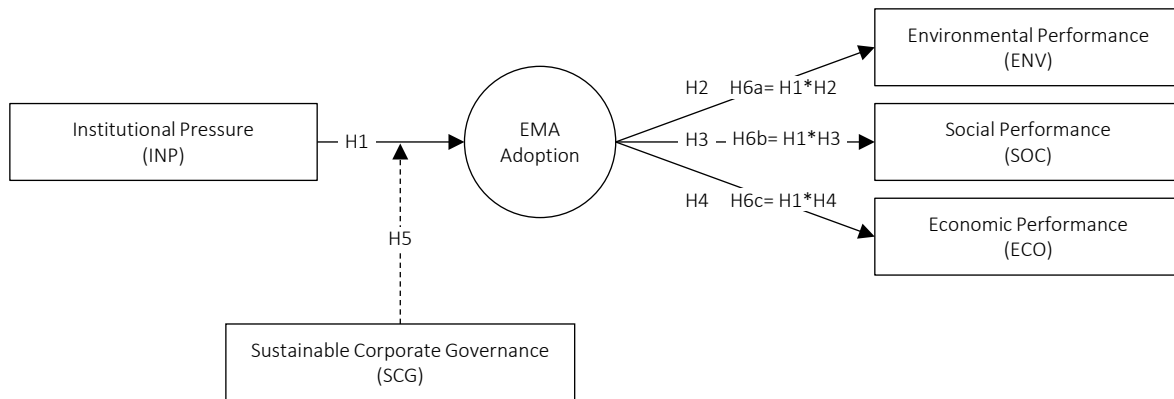
mization, so they are very unlikely to lead companies to make sustainable decisions, as they do not consider environmental costs (Lee et al., 2024). Thus, the EMA system is very capable of supporting efficient, effective, and competitive strategic development by simply identifying, measuring, reporting, and managing environmental information. The EMA system can be categorized into two main types: physical (i.e., water, material, and energy flows, as well as the emissions) and monetary (i.e., costs of the resource consumption and the prevention and remediation of environmental damage) (Alnaim & Metwally, 2024; Barani et al., 2025). Implementation of the EMA system can result in massive cost savings, enhanced organizational performance, and attractiveness. However, its implementation remains under-explored, particularly among publicly listed companies in Saudi Arabia (Asiri et al., 2020; Hamoudah, 2025). Internal mechanisms such as SCG are expected to encourage organizations to align their routines, policies, and culture to sustainability principles and have an increased tendency to maintain EMA systems.

SCG functions as a fundamental internal process that incorporates sustainability into organizational practices, leadership principles, stakeholder relations, and accountability measures (Al-Shaer et al., 2021; López et al., 2025; Quttainah et al., 2025; Yoshida, 2025). Well-established governance structures, such as board composition, sustainability committees, sustainability reporting and assurance, and others, serve as moderators that can facilitate the absorption and response to external INPs, translating them into internalized and culturally embedded sustainability practices (Atalay et al., 2025; Doni et al., 2021; Liao et al., 2015; Peters & Romi, 2013). Research shows that board characteristics, including size and diversity, directly impact environmental practices (Almaqtari et al., 2023; Musa et al., 2025). Changes in environmental governance mechanisms, on the other hand, can enhance companies' capabilities for sustainability performance. Internal governance mechanisms, such as sustainability committees, can function as key resources in monitoring and supporting environmental practices, having a direct impact on the company's sustainability performance (Agrawal et al., 2022; Soussi et al., 2025). These internal routines and governance

structures serve as vital mediators that translate external INPs into effective sustainability practices and performance.

Research demonstrates that the implementation of EMA has a consistently positive influence on environmental performance, leading to enhanced transparency, trust, and reporting of sustainability performance (Mat Yusoh et al., 2023; Voskopoulou et al., 2025; Xia et al., 2025). EMA implementation, by improving the quality of disclosure and carbon management, reducing cost, and facilitating long-term eco-efficiency and sustainable development, improves organizational performance (Hasan et al., 2024a; Xia et al., 2025). These improved capabilities empower organizations to assess and manage environmental impacts while minimizing negative effects and maximizing resource efficiency, which generates scarce and unique assets that establish a competitive advantage (Asiedu et al., 2025; Majeed et al., 2025).

The adoption of EMA can also be associated with social performance, which, in turn, might contribute to organizational sustainability. Social performance reflects an organization's impact on society, stakeholders, and communities affected by its activities, contributing to health, well-being, ethical practices, and social responsibility (Rasit et al., 2019). It is also an important measure to ensure a positive societal impact and the development of sustainable relationships with an organization and its stakeholders. Social business activities include voluntary efforts that improve the quality of life, such as philanthropic work (Rasit et al., 2019). Key indicators include health and safety incidents, ethical practices, and economic welfare (Beske et al., 2015). Despite its significance, research linking environmental management practices to social performance remains limited (Alnaim & Metwally, 2024; Chetanraj et al., 2024). The EMA system is found to improve the internal decision-making process, stakeholder relations and activities, recruitment, and retention (Rasit et al., 2019). Additionally, Michelon et al. (2013) survey showed that 90% of customers will never deal with a company without a corporate social responsibility plan. The costs of social elements might be essential for their considerations, so neglecting them means having an imperfect measure of performance and organizational success.



**Figure 1.** Research model

Economic performance, which indicates the shift in a company’s financial condition resulting from managerial decision-making, is also impacted by EMA adoption (Chetanraj et al., 2024; Shan et al., 2024). The increased environmental awareness of senior executives and managers adopting the EMA system can assist in reducing high operating costs and optimizing resource efficiency (Conde et al., 2019; Liem & Hien, 2024; Mat Yusoh et al., 2023). The system helps organizations identify, understand, and manage environmental costs, thereby minimizing expenses for raw materials, waste, and disposal. This cost-conscious approach encourages more financially sound decisions and sustainable growth (Chaudhry & Amir, 2020; Latifah & Soewarno, 2023; Rosário et al., 2024). Research demonstrates that manufacturing enterprises experience improved economic performance through EMA system implementation, which is further amplified when they provide clear environmental disclosures (Nuleg et al., 2021; Mat Yusoh et al., 2023). Thus, the EMA system proves to be an essential instrument for financial competitive advantage.

The aforementioned studies have confirmed that EMA adoption leads to better environmental, social, and economic outcomes, as it provides better measures and supports environmental management and sustainability reporting. However, very little is known about the mechanisms through which INPs result in desired or undesired outcomes, including a potential mediating role of EMA or the moderating role of internal governance on the relationship between INPs and performance.

The research aims to contribute to the EMA and sustainability literature by testing whether EMA mediates the relationship between INPs and sustainability performance, and whether SCG moderates this relationship. While both EMA and corporate governance have been extensively studied in past research, their examination in a combined institutional model has been relatively limited. Thus, Figure 1 presents a model in which INPs lead to EMA adoption, which, in turn, results in better performance in different areas, with governance moderating this effect. Based on previous research, the following hypotheses are derived:

- H1: INP positively affects EMA adoption.*
- H2: EMA adoption positively affects the company’s environmental performance (ENV).*
- H3: EMA adoption positively affects the company’s social performance (SOC).*
- H4: EMA adoption positively affects the company’s economic performance (ECO).*
- H5: SCG positively moderates the association between INP and EMA adoption.*
- H6a: EMA adoption positively mediates the relationship between INP and ENV.*
- H6b: EMA adoption positively mediates the relationship between INP and SCO.*
- H6c: EMA adoption positively mediates the relationship between INS and ECO.*

## 2. METHOD

This paper uses a quantitative method to test the hypotheses. The survey questionnaire was distributed to respondents from 112 randomly chosen listed companies from different sectors and industries in Saudi Arabia. Responses were obtained from authorized representatives within the organizations, including senior executive managers, financial managers, accountants, and board members, who are qualified to provide official perspectives on the company's practices regarding institutional pressure (INP), environmental management accounting (EMA), sustainable corporate governance (SCG), and sustainability governance. All respondents are members of the company's senior management or governing body, with responsibilities related to the scope of the study, thus sharing a common perspective on the relevant issues. Respondent roles include senior executives responsible for strategic planning and decision-making; financial managers managing financial planning, analysis, and reporting; accountants, involved in recording and analyzing financial transactions; and board members, overseeing organizational governance and strategic direction. These roles reflect varying levels of responsibility and influence within the organization, enabling respondents holding official positions to represent the organization's formal stance.

Table 1 offers a clear overview of the industry sectors represented in the sample, highlighting the diversity and distribution of companies included in the study, and clarifying the composition of the sample in terms of respondent positions and roles. It demonstrates how well the sample reflects the overall population in terms of sector representation and respondent roles, supporting the validity of the study.

To ensure the credibility and authenticity of the data, responses were aligned with the companies' documented policies and public disclosures, including annual reports, sustainability reports, regulatory filings, and public statements. The data collection process involved direct communication through official channels such as company email addresses, and responses were validated through follow-up correspondence to confirm their official nature, thereby reflecting the organization's true

positions rather than personal opinions. This approach ensures that the findings are based on reliable, authoritative sources, providing a solid foundation for the study's conclusions.

Saudi companies serve as the test subjects for the developed model because they operate within a specific regulatory system while representing a diverse economic landscape with sustainability priorities that reflect cultural values alongside efforts to diversify the economy. This approach also helps to ensure the accuracy of data on institutional pressures, EMA adoption, and sustainable performance measures.

Due to challenges in forming a fully representative sample, the paper used a convenience sample due to constraints related to time, costs, and accessibility of respondents. A non-probability sampling technique is often preferred for large populations (Cepeda & Monteiro, 2020; Monteiro et al., 2021). As for sample size, according to the rule of thumb for factor analysis and regression  $n \geq 50 + 8k$  (Hair et al., 2010), where  $k$  is the number of independent variables, the minimum number of observations in the study was computed. In the current research, the minimum required sample size to achieve sufficient statistical power based on the minimum number of independent variables was  $n \geq 50 + (8 \times 4) = 82$ , which is acceptable for both EFA and regression. Sample size is categorized as excellent at 1,000, extremely good at 500, good at 201–300, adequate at 101–200, and weak at  $< 50$  (Comrey & Lee, 1992). The final sample size was targeted at 500 to ensure conservative analyses. The survey was electronically administered from February to June 2025. A total of 298 responses were received that met the criteria for analysis.

The data collection method was a web-based survey using Google Forms. The questionnaire consisted of two parts. Part 1 included demographics, and Part 2 contained questions that evaluate the main dimensions of the proposed model using the respective scales (Appendix A). Responses were based on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." Questions were asked and answered anonymously to avoid any bias. To ensure that the responses accurately reflect the company's official policies and practices, respondents were instructed in the questionnaire's

cover letter to answer based on their knowledge of the company's stance, rather than their personal opinions or perceptions. This approach is consistent with the aim of gathering data that captures the INP' impact on EMA, as well as the mediating role of SCG on sustainability performance, from an official perspective. Respondents were informed that their responses would be anonymous and used solely for the purposes of the study.

The questionnaire was pretested by two business managers and two academics, and minor changes were subsequently implemented. The email containing the study information, requesting informed consent (to ensure participants understood that participation was voluntary and they could withdraw at any time), along with the link to the questionnaire, was sent to all participants in February 2025. Along with the initial email, two reminder emails were also sent. Key respondents were contacted by phone to confirm they received the emails and to encourage them to complete the survey. The data were cleaned and analyzed using SPSS. This left 298 complete responses to use for analysis. This yielded a response rate of 59.6%, an acceptable figure for a web-based survey (Zikmund et al., 2013).

Measurement items were based on established scales. INP was assessed with seven items from Gunarathne et al. (2021). SCG was assessed with six items from El-Kassar and Singh (2019) and Thomsen (2023). EMA adoption was measured with seven items from Gunarathne et al. (2021). ENV used four items from Deb et al. (2023). SOC and ECO were evaluated with five items each from Hadi and Baskaran (2021). Appendix A provides details of these scales.

Reflective indicators are used for the measurement of the constructs, and PLS-SEM is used for the statistical analysis of the data. PLS-SEM is a technique that does not impose strict assumptions, handles small sample sizes effectively, is well-suited for cases where limited data are collected, and is capable of estimating the direct and indirect effects in complex models, and allows the use of non-normally distributed data. Diagnostic tests are run before assessing the structural model to minimize the impact of the common method bias (CMB) and to verify the reliability, validity, and fit of the model. Reliability is assessed using Cronbach's alpha (CA) and composite reliability (CR). Discriminant and convergent validity are evaluated using the average variance extracted (AVE) of the latent variables to ensure that the unrelated constructs are not associated. The model's performance is measured by the coefficient of determination ( $R^2$ ) and the effect size ( $F^2$ ).

The respondents' demographic profile is presented in Table 2. The profile shows that males (69.1%) outnumber females (30.1%) in the survey. Most respondents work in large companies (61.4%), while others work in medium-sized firms (38.6%). In terms of sector affiliation, 54% are from the material sector, 16.1% from the food and beverage sector, 11.7% from the capital goods sector, and 18.1% from other sectors. Regarding experience, the majority of respondents have 6–10 years of work experience (64.8%), 17.1% have 0–5 years of experience, and the remaining respondents have 11–15 years (13.1%) and 15 or more years (2%). Most survey participants are aged between 33 and 44 years (49.7%), followed by those aged 24–32 years (27.5%), 45–54 years (15.1%), and over 54 years

**Table 1.** Sector distribution and respondent roles in the study population

Sector	No. of Companies	Percentage (%)	Senior Executive Managers*	Financial Managers	Board Members	Accountants	Total Sample
Energy	6	5.36	3	4	1	1	9
Material	42	37.50	41	42	2	76	161
Capital goods	14	12.50	13	14	1	7	35
Transportation	9	8.04	3	8	0	2	13
Food and beverage	20	17.85	11	16	2	19	48
Pharma and biotech	3	2.68	1	3	1	2	7
Utilities	6	5.36	2	5	1	2	10
Real estate investment trusts	12	10.71	4	10	0	1	15
Total	112	100.00	78	102	8	110	298

Note: \* Senior Executive Managers: CEO, MD, and GM.

**Table 2.** Demographic information

Item	Answers	Freq.	%
Gender	Male	206	69.1
	Female	92	30.1
Entity size	Large-sized companies	183	61.4
	Medium-sized enterprises	115	38.6
Sector	Material	161	54.0
	Food and beverage	48	16.1
	Capital goods	35	11.7
	Other	54	18.1
Education	Diploma	34	11.4
	Bachelor	218	73.2
	Master	37	12.4
	Ph.D.	9	3.0
Sustainability Training	Trained	93	31.2
	Non-trained	205	68.8
Experience	0–5 years	51	17.1
	6–10 years	193	64.8
	11–15 years	39	13.1
	Above 15 years	6	2.0
Age	24–32	82	27.5
	33–44	148	49.7
	45–54	45	15.1
	Above 54	23	7.7
Position	Senior executives	78	26.2
	Financial managers	102	34.2
	Board members	8	2.7
	Accountants	110	36.9

(7.7%). Most respondents held a bachelor's degree (73.2%), followed by a diploma (11.4%), a master's degree (12.4%), and a Ph.D. (3%). The primary roles of participants are accountants (36.9%) and financial managers (34.2%), followed by senior executives (26.2%) and board members (2.7%). The majority of the respondents (68.8%) have not received training on sustainability issues, while 31.2% have.

### 3. RESULTS

Based on data collected through a sampling survey, the study addressed common method bias (CMB) in survey studies by using multiple informants for each item (Kock, 2015). CMB is most often caused by common sources of social desirability and the consistency motif. To minimize CMB in self-reports, procedural methods were used, which included explaining the concepts clearly, randomizing measurement items, protecting the anonym-

ity of the respondents, and conducting statistical checks. All VIFs are less than 5.0, meaning that multicollinearity and, consequently, CMB is not a concern.

The study employs PLS-SEM modeling to test the construct validity of INP, SCG, EMA, ENV, SOC, and ECO, as well as test the proposed hypotheses. Initially, the study assesses the reliability, convergent validity, and discriminant validity of the four constructs. Reliability indicates the degree to which the measure is consistent. As Hair et al. (2010) suggests, indicators with factor loadings greater than 0.5 have an acceptable level of reliability. As shown in Table 3, all indicators range from 0.727 to 0.901, which are above the cut-off values. In addition, Table 4 reveals that the values of CA and CR for each construct range from 0.866 to 0.945 and from 0.896 to 0.965, respectively, which are all above the value of 0.70 recommended by Hair et al. (2010). This implies that all the scales demonstrate satisfactory reliability.

**Table 3.** Outer loadings and VIF

Constructs	Items	Outer Loadings	VIF
Institutional Pressure (INP)	INP1	0.744	2.763
	INP2	0.882	3.782
	INP3	0.803	2.935
	INP4	0.785	2.842
	INP5	0.865	3.411
	INP6	0.868	3.413
	INP7	0.856	3.307
Environmental Management Accounting (EMA)	EMA1	0.768	2.847
	EMA2	0.727	2.808
	EMA3	0.865	3.410
	EMA4	0.887	3.738
	EMA5	0.874	3.748
	EMA6	0.743	2.616
	EMA7	0.764	2.867
Sustainable Corporate Governance (SCG)	SCG1	0.859	3.402
	SCG2	0.89	3.622
	SCG3	0.812	2.987
	SCG4	0.839	3.336
	SCG5	0.901	3.766
	SCG6	0.782	2.923
Environmental Performance (ENV)	ENV1	0.871	3.597
	ENV2	0.816	2.988
	ENV3	0.787	2.863
	ENV4	0.892	3.764
Social Performance (SOC)	SOC1	0.866	3.688
	SOC2	0.889	3.908
	SOC3	0.748	2.601
	SOC4	0.857	3.399
	SOC5	0.779	2.745
Economic Performance (ECO)	ECO1	0.792	2.814
	ECO2	0.881	3.896
	ECO3	0.79	2.807
	ECO4	0.833	3.228
	ECO5	0.873	3.441

The construct validity in PLS-SEM is established by performing two tests: convergent validity and discriminant validity. Convergent validity shows the degree of correlation between multiple measures of the same construct. As a result, the following criteria for convergent validity are used: factor loadings are above 0.5, AVE is at least 0.5, and CR is greater than 0.6 to 0.7 (Hair et al., 2010). As seen in Table 4, all six factors had an AVE value above 0.5. As a result, convergent validity is established. In the PLS path model, discriminant validity shows that a reflective construct has stronger connections with its own indicators than with any other construct (Hair et al., 2022). The divergent validity of all latent variables in the model was assessed through the criteria proposed by Fornell and Larcker (1981). Table 4 indicates that the squared AVE for each construct exceeds the correlation between each corresponding pair of constructs. Additionally, Henseler et al. (2015) also use a multitrait-multimethod matrix to assess discriminant validity. This matrix shows the heterotrait-monotrait ratio of correlations (HTMT). As shown in Table 4, the HTMT values of all pairs of constructs are below 0.90, as suggested by Henseler et al. (2015). Hence, the discriminant validity of the constructs is established. Table 5 presents the descriptive statistics and correlation coefficients of the variables.

When assessing the model, a set of essential metrics provides practical information about the

**Table 4.** Reliability and validity of constructs and indicators

Constructs	α	CR	AVE	HTMT Ratio				
				INP	SCG	ENV	SCO	ECO
INP	0.912	0.942	0.620	–	–	–	–	–
SCG	0.866	0.896	0.520	0.292	–	–	–	–
ENV	0.923	0.956	0.690	0.314	0.228	–	–	–
SOC	0.945	0.936	0.783	0.217	0.274	0.316	–	–
ECO	0.941	0.936	0.783	0.259	0.255	0.309	0.237	–
EMA	0.937	0.965	0.789	0.301	0.243	0.273	0.212	0.227

**Table 5.** Descriptive statistics and correlations

Constructs	Mean	SD	INP	SCG	EMA	ENV	SOC	ECO
INP	3.86	0.74	0.852	–	–	–	–	–
SCG	3.65	0.81	0.512*	0.887	–	–	–	–
EMA	3.77	0.94	0.523*	0.665*	0.863	–	–	–
ENV	3.23	0.79	0.643*	0.605*	0.411*	0.840	–	–
SOC	3.76	0.83	0.451*	0.587*	0.576*	0.551*	0.773	–
ECO	3.84	0.76	0.455*	0.354*	0.621*	0.596*	0.423*	0.882

Note: \*Correlation is significant at the 0.05 level (2-tailed), SD: standard deviation.

overall explanatory power and adequacy of the model. The  $R^2$  range of 30% to 34% indicates considerable explanatory power, as the exogenous constructs explain between 30% and 34% of the variance in the endogenous constructs (see Table 6). Even though the benchmark for  $R^2$  does not exist, such a range surpasses the value of 0.10, which has been recommended to establish an acceptable level of variance in a dependent variable (Falk & Miller, 1992). In order to determine the extent to which independent variables produce small, medium, or substantial effects, with no universal standard in place, the paper compares the value of  $F^2$  to the values of 0.02, 0.15, and 0.35 provided by Hair et al. (2014). Therefore, any value of  $F^2$  that is greater than 0.1 can usually be considered as a sizeable effect. The model achieves  $F^2$  values from 0.101 to 0.126, which are considered medium to high effects.

Table 6 reports the results of hypothesis testing that demonstrate the relationships and the mediating effects in the structural model (Figure 2). The obtained results are consistent with the proposed relationships in the model. The results show that the INP–EMA relationship (H1) is significant, with coefficients of 0.295 and the  $T$ -statistics of 6.062. The results also show that EMA–ENV (H2), EMA–SOC (H3), and EMA–ECO (H4) relationships are statistically significant, with coefficients of 0.295, 0.332, and 0.332, and  $T$ -statistics of 6.062, 6.313, and 6.568, respectively. These results can be interpreted that INP is a valid antecedent that motivates the organizations to adopt environmental management practices that result in improved performance across various dimensions.

On the mediating effects, H5 suggests that SCG partially mediates the relationship between INP and EMA. The results for the indirect relationship between INP and EMA via SCG (H5) are statistically significant (coefficient = 0.113,  $T$ -statistic = 2.366). This finding indicates that the mediating effect of SCG is significant. Further, the results show that EMA has a significant mediating effect on INP and ENV performance relationship (H6a, coefficient = 0.115,  $T$ -statistic = 2.254), INP and SOC relationship (H6b, coefficient = 0.126,  $T$ -statistic = 2.2283), and INP and ECO performance relationship (H6c, coefficient = 0.174,  $T$ -statistic = 2.319). These mediating effects further support the direct effects. Specifically, INP has a significant indirect effect on the environmental, social, and economic performance, where these effects are all mediated through EMA. These indirect effects via EMA are all significant ( $p < 0.05$ ), indicating that EMA is a significant mediator in the process of INP affecting improved performance.

In general, these results support the theoretical framework proposed in this study, that is, that INP has a direct and indirect effect on sustainability performance, mediated by the role of EMA.

Four respondent groups were surveyed within each organization. It was acknowledged that these positions entail different levels of responsibility and power. The study also assumed that each group might have different perceptions of the institutional pressures exerted on their organization and varying levels of organizational factors based on their roles and responsibilities. To determine if there were any differences, analyses were con-

**Table 6.** Hypotheses testing results

Hypotheses	Relationship	Coefficient	T-statistics	P value	$R^2$	$F^2$	Hypothesis Testing
<b>Direct Effects</b>							
H1	INP → EMA	0.283	7.053	0.000	0.325	0.126	supported
H2	EMA → ENV	0.334	6.422	0.000	0.301	0.101	supported
H3	EMA → SOC	0.275	5.385	0.000	0.338	0.121	supported
H4	EMA → ECO	0.258	4.768	0.000	0.298	0.114	supported
<b>Mediating Effects</b>							
H5	INP → SCG → EMA	0.113	2.366	0.000			supported
H6a	INP → EMA → ENV	0.115	2.254	0.012			supported
H6b	INP → EMA → SOC	0.126	2.228	0.001			supported
H6c	INP → EMA → ECO	0.174	2.319	0.000			supported

Note: INP: Institutional Pressure, EMA: Environmental Management Accounting, SCG: Sustainable Corporate Governance, ENV: Environmental Performance, SOC: Social Performance, and ECO: Economic Performance.

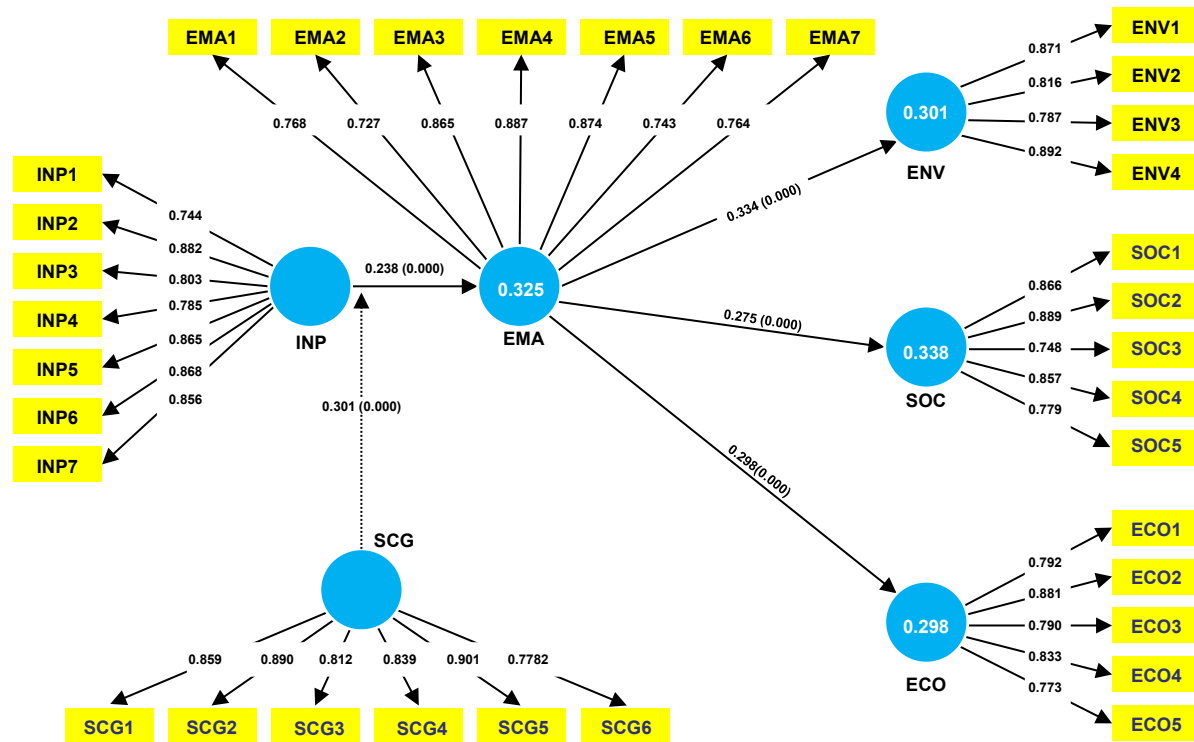


Figure 2. Structural model result

ducted separately for each respondent group. The means (Likert scale scores) showed little variation between groups, but one-way ANOVAs were performed for each variable to assess whether these differences were statistically significant. Table 7 presents the results of these tests.

The results indicate that there are significant differences among the four groups' perceptions of the INP and SCG variables ( $F = 4.50, p = 0.004$ , and  $F = 4.20, p = 0.005$ , respectively). This implies that board members may view these two variables differently from senior executives, financial managers, and accountants. This difference could be attributed to board members having a strategic or governance lens. As for the other variables, the

research findings do not indicate any statistically significant differences between groups' perception of EMA, ENV, SOC, and ECO, as evidenced by their low  $F$ -values and high  $p$ -values, suggesting uniform perceptions across all roles.

#### 4. DISCUSSION

This study explores the relationship between institutional pressure (INP) (coercive, normative, and mimetic) pressures and the adoption of internal routines, specifically environmental management accounting (EMA), and investigates how sustainable corporate governance (SCG) moderates this relationship and subsequently influences organi-

Table 7. ANOVA test: Perception differences across respondent groups

Variables	Senior Executives	Financial Managers	Accountants	Board Members	F-value	p-value	Perception Difference
N	78	102	110	8	-	-	-
INP	3.80	3.78	3.76	4.10	4.50	0.004	significant
SCG	3.67	3.62	3.59	3.72	4.20	0.005	significant
EMA	3.75	3.73	3.72	3.76	0.60	0.62	non-significant
ENV	3.24	3.19	3.20	3.27	0.50	0.69	non-significant
SOC	3.77	3.73	3.74	3.79	0.80	0.50	non-significant
ECO	3.87	3.79	3.82	3.86	0.70	0.55	non-significant

zational sustainability performance. The data collected from Saudi public-listed companies' financial managers, accountants, and other key stakeholders enabled this study to evaluate the assumptions regarding the relationships among these variables. The findings of this study have many useful implications on how SCG and INP impact EMA adoption, and ultimately, sustainability performance (environmental, social, and economic). The findings in light of the institutional theory perspective provide an indication of the mechanisms through which organizational practices are aligned with the expectations and pressures of institutions to reach sustainability performance.

The SEM results show a positive impact of INP on EMA adoption. This implies that external institutional forces, such as regulatory pressures, social expectations, and industry norms, compel organizations to integrate environmental factors into their accounting practices. The significant positive effect of coercive, normative, and mimetic pressures is in line with institutional theory, which posits that organizations conform to norms and rules to acquire legitimacy and resources. Therefore, H1 is accepted and is consistent with prior research and theoretical underpinnings (Chaudhry & Amir, 2020; Gunarathne et al., 2021; Mat Yusoh et al., 2023).

The results provide support for H2, H3, and H4, as EMA adoption is associated with better sustainability performance. EMA adoption has positive effects on environmental ( $\beta = 0.295$ ), social ( $\beta = 0.332$ ), and economic ( $\beta = 0.332$ ) performance, which can be interpreted as a greater degree of EMA adoption being beneficial for an organization's ability to measure, manage, and communicate its sustainability practices. Organizations that implement EMA practices find themselves conforming to institutional demands for transparency and accountability in sustainability reporting, which results in improved performance. This study's results are similar to those of other studies (Alwadani et al., 2023; Mat Yusoh et al., 2023; Voskopoulou et al., 2025; Xia et al., 2025; Zandi & Lee, 2019).

The findings also show that SCG fully moderates the INP–EMA adoption link, as proposed in hypothesis H5. The mediating effect of SCG

was found to be significant. Organizations with well-developed and sustainability-oriented governance structures have the potential to successfully transform the expectations associated with external INPs into actual internal practices, such as EMA. Internal institutional arrangements, which include clear sustainability policies, supportive leadership, stakeholder involvement, and accountability mechanisms, play a key role in strengthening the relationship between external pressures and the adoption of sustainability-related practices. When organizations have strong governance systems that prioritize sustainability, they are more likely to be open and responsive to institutional expectations. Thus, EMA adoption is more likely to become part of organizational standard operating procedures, thereby facilitating not only compliance but also proactive adoption of sustainability measures to gain legitimacy and competitiveness. This finding aligns with institutional theory, which emphasizes the importance of internal structures in achieving external legitimacy. In this context, internal governance mechanisms act as the pathway through which the influence of external INPs is internalized and enacted. Organizations that actively develop and reinforce sustainability-oriented internal governance are more likely to respond effectively to external INPs and drive more effective adoption of EMA (Alwadani et al., 2023; López et al., 2025; Musa et al., 2025; Soussi et al., 2025).

The results in support of H6a, H6b, and H6c reveal the mediating role of EMA between INP and sustainability performance. In particular, EMA acts as a bridge between external forces and actual improvements in environmental, social, and economic outcomes. In the lens of institutional theory, the integration of EMA as an intermediary process is not unique. Organizations are constantly seeking legitimacy and reputation by conforming to external expectations. External pressures drive organizations to be more sustainable. In response to these pressures, organizations create internal routines that institutionalize sustainability practices. EMA functions as an organizational management practice that systematically tracks and reports environmental performance indicators and benefits, while analyzing costs. EMA represents an institutionalized routine since it becomes an essential part of organizational processes and

decision-making, which involve knowledge and information management. It converts the need for legitimacy from external sources (regulations, society, industry standards) into internal actions. EMA demonstrates its commitment to sustainability through environmental impact measurement and by evaluating costs and considering environmental factors in its strategic decisions. EMA, as a mediator linking INP and performance, validates its role in translating legitimacy-seeking motives into tangible outcomes. Multiple studies aligned with these results have empirically examined and confirmed EMA as a mediating factor between INP and environmental effectiveness and sustainable performance (Chaudhry & Amir, 2020; Kong et al., 2022; Latifah & Soewarno, 2023; Mat Yusoh et al., 2023; Voskopoulou et al., 2025; Xia et al., 2025).

The implications of the findings support the institutional theory postulation that organizations adopt practices, such as EMA, to meet external expectations and mandates in order to acquire or retain legitimacy. The presence of mediating and moderating effects of SCG highlights the important roles played by organizations' internal governance in the processes of institutional influences. The study's findings have the practical implication that it is important for organizations to focus on ensuring that they have effective governance structures in place to be able to respond to existing institutional influences, and this can assist them in enhancing their sustainability (greenness) performance. Organizations interested in enhancing

sustainability performance need to align their internal governance, in this case the SCG, with the external INPs to reinforce such institutional influences. Practitioners and decision-makers should focus on establishing effective SCG for organizations as this has a higher potential to have a positive outcome on their EMA practice, which also means their sustainability performance. Policy-makers and industry regulators should continue to set standards and communicate them to organizations through various institutional mechanisms to help organizations adopt sustainability as part of their everyday activities and decisions for better environmental, social, and economic performance.

The diverse roles and perspectives of senior executives, financial managers, board members, and key accountants can lead to differing views on the relevance and consequences of organizational decisions and policies. Senior executives might perceive INPs differently from financial managers and board members. As senior executives focus more on strategic decision-making, they may look at external pressures as opportunities to gain competitive advantages, resulting in EMA adoption and sustainability. Board members who perceive legitimacy may look at internal controls, while others may perceive otherwise. Recognizing and addressing these divergent perceptions can help tailor strategies that align stakeholder views, thereby enhancing decision-making effectiveness and the implementation of sustainable policies in diverse organizational settings.

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## CONCLUSION

This study examined the relationship between institutional pressures and the adoption of environmental management accounting, and how sustainable corporate governance moderates and mediates this relationship concerning organizational sustainability. The results show that external pressures promote environmental management accounting, which improves environmental, social, and economic performance. Sustainable governance strengthens the link between institutional pressures and environmental management accounting and mediates their impact on sustainability. Organizations with strong governance and higher environmental standards that proactively adopt environmental management accounting are more receptive to external pressures and are more likely to pursue sustainability efforts, leading to better performance and success.

The study has limitations that future research may address. Selection bias may have affected the results and their generalizability, as respondents came from many different backgrounds and thus had different roles and perceptions. Future studies may want to focus on one stakeholder group. Questions can

also be tailored to fit different stakeholder groups and their role. Because this is a cross-sectional study, causality and temporal change cannot be examined. Future research may use longitudinal methods to examine and understand these aspects. Sustainability may be influenced by other external factors such as technology advancement, international standards, and stakeholder engagement, and internal practices such as internal learning, leadership, and resource availability, which future studies could explore.

## AUTHOR CONTRIBUTIONS

Conceptualization: Sulaiman Alsughayer.  
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 Formal analysis: Sulaiman Alsughayer.  
 Funding acquisition: Sulaiman Alsughayer.  
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## REFERENCES

1. Agrawal, A., Brandhorst, S., Jain, M., Liao, C., Pradhan, N., & Solomon, D. (2022). From environmental governance to governance for sustainability. *One Earth*, 5(6), 615-621. <https://doi.org/10.1016/j.oneear.2022.05.014>
2. Almaqtari, F. A., Elsheikh, T., Al-Hattami, H. M., & Mishra, N. (2023). The impact of board characteristics on environmentally friendly production: A cross country study in Asia and Europe. *Journal of Cleaner Production*, 392, Article 136257. <https://doi.org/10.1016/j.jclepro.2023.136257>
3. Alnaim, M., & Metwally, A. (2024). Institutional pressures and environmental management accounting adoption: Do environmental strategy matter? *Sustainability*, 16, Article 3020. <https://doi.org/10.3390/su16073020>
4. Al-Qaimari, G. (2025). Strategic alignment of academic programs with national vision and global standards. In *Strategic Planning for Higher Education Institutions* (pp. 243-262). Cham: Palgrave Macmillan. [https://doi.org/10.1007/978-3-032-04788-5\\_13](https://doi.org/10.1007/978-3-032-04788-5_13)
5. Al-Shaer, H., Albitar, K., & Hus-sainey, K. (2021). Creating sustainability reports that matter: an investigation of factors behind the narratives. *Journal of Applied Accounting Research*, 23(3), 738-763. <https://doi.org/10.1108/JAAR-05-2021-0136>
6. Alwadani, N., Al-Shaer, H., & Albitar, K. (2023). The impact of internal governance mechanisms on environmental performance of Saudi firms. *International Journal of Accounting and Information Management*, 32(1), 40-57. <https://doi.org/10.1108/IJAAM-04-2023-0084>
7. Asiedu, E., Alhassan, S., Majeed, M., & Malcalm, E. (2025). Green dynamic capability and sustainability performance: the roles of green innovation and green sustainability of manufacturing firms. *Discover Sustainability*, 6(1), Article 961. <https://doi.org/10.1007/s43621-025-01445-w>
8. Asiri, N., Khan, T., & Kend, M. (2020). Environmental management accounting in the Middle East and North Africa region: Significance of resource slack and coercive isomorphism. *Journal of Cleaner Production*, 267, Article 121870. <https://doi.org/10.1016/j.jclepro.2020.121870>
9. Atalay, M. O., Altin, M., & Al Ani, M. K. (2025). From diversity to sustainability: How board meeting frequency, financial performance and foreign members enhance the board gender diversity – ESG performance link. *Borsa Istanbul Review*, 25(3), 552-567. <https://doi.org/10.1016/j.bir.2025.02.007>
10. Barani, O., Ahmed, A. D., Joshi, M., & Asiaei, K. (2025). How environmental management accounting drives performance: A meta-analysis considering national EMA maturity. *Journal of Accounting Literature*, 47(5), 416-443. <https://doi.org/10.1108/JAL-01-2025-0033>
11. Beske, P., Johnson, M., & Schaltegger, S. (2015). 20 years

- of performance measurement in sustainable supply chain management. What has been achieved? *Supply Chain Management*, 20(6), 664-680. <https://doi.org/10.1108/SCM-06-2015-0216>
12. Castro-Lopez, A., Iglesias, V., & Santos-Vijande, M. L. (2023). Organizational capabilities and institutional pressures in the adoption of circular economy. *Journal of Business Research*, 161, Article 113823. <https://doi.org/10.1016/j.jbusres.2023.113823>
  13. Cepeda, C., & Monteiro, A. (2020). The accountant's perception of the usefulness of financial information in decision making – A study in Portugal. *Review of Business Management*, 22(2), 363-380. <https://doi.org/10.7819/rbgn.v22i2.4050>
  14. Chaudhry, N. I., & Amir, M. (2020). From institutional pressure to the sustainable development of firm: Role of environmental management accounting implementation and environmental proactivity. *Business Strategy and the Environment*, 29(8), 3542-3554. <https://doi.org/10.1002/bse.2595>
  15. Chetanraj, D. B., Senthil Kumar, J., Velaga, S. S., & Ramegowda, V. (2024). The role of corporate environmental ethics in shaping environmental management accounting adoption under the institutional theory. *Environmental Economics*, 15(1), 32-45. [https://doi.org/10.21511/ee.15\(1\).2024.03](https://doi.org/10.21511/ee.15(1).2024.03)
  16. Cicchini, D., Lombardi, R., Marasca, S., & Principale, S. (2025). From corporate planning to performance: How institutional forces propel sustainability in European firms. *Social Responsibility Journal*, 22(3), 529-550. <https://doi.org/10.1108/SRJ-12-2024-0860>
  17. Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2<sup>nd</sup> ed.). Lawrence Erlbaum Associates, Inc. <https://doi.org/10.4324/9781315827506>
  18. Conde, J., Lunkes, R., & Rosa, F. (2019). Environmental innovation practices and operational performance. The joint effects of management accounting and control systems and environmental training. *Accounting, Auditing & Accountability Journal*, 32(5), 1325-1357. <https://doi.org/10.1108/AAAJ-01-2018-3327>
  19. Deb, B. C., Rahman, M. M., & Rahman, M. S. (2023). The impact of environmental management accounting on environmental and financial performance: Empirical evidence from Bangladesh. *Journal of Accounting & Organizational Change*, 19(3), 420-446. <https://doi.org/10.1108/JAOC-11-2021-0157>
  20. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), Article 147160. <https://doi.org/10.2307/2095101>
  21. Ding, H., & Wang, Z. (2025). The influence of institutional pressures on environmental, social, and governance responsibility fulfillment: Insights from Chinese listed firms. *Sustainability*, 17, Article 3982. <https://doi.org/10.3390/su17093982>
  22. Doni, F., Corvino, A., & Bianchi Martini, S. (2021). Corporate governance model, stakeholder engagement and social issues evidence from European oil and gas industry. *Social Responsibility Journal*, 18(3), 636-662. <https://doi.org/10.1108/SRJ-08-2020-0336>
  23. El-Kassar, A.-N., & Singh, S. K. (2019). Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices. *Technological Forecasting and Social Change*, 144, 483-498. <https://doi.org/10.1016/j.techfore.2017.12.016>
  24. Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.
  25. Ferretti, P., Gonnella, C., & Martino, P. (2024). Integrating sustainability in management control systems: An exploratory study on Italian banks. *Meditari Accountancy Research*, 32(7), 1-34. <https://doi.org/10.1108/ME-DAR-03-2023-1954>
  26. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.2307/3151312>
  27. Gunarathne, N., Wijayasundara, M., Senaratne, S., Kanchana, P. D. K., & Cooray, T. (2021). Uncovering corporate disclosure for a circular economy: An analysis of sustainability and integrated reporting by Sri Lankan companies. *Sustainable Production and Consumption*, 27, 787-801. <https://doi.org/10.1016/j.spc.2021.02.003>
  28. Hadi, S., & Baskaran, S. (2021). Examining sustainable business performance determinants in Malaysia upstream petroleum industry. *Journal of Cleaner Production*, 294, Article 126231. <https://doi.org/10.1016/j.jclepro.2021.126231>
  29. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7<sup>th</sup> ed.). New York: Pearson.
  30. Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106-121. <https://doi.org/10.1108/EBR-10-2013-0128>
  31. Hair, J. F., Tomas, G., Hult, M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage.
  32. Hamoudah, M. (2025). The impact of environmental management accounting on environmental performance and financial performance: Evidence from Saudi Arabia. *Journal of Cultural Analysis and Social Change*, 10(2), 3020-3034. <https://doi.org/10.64753/jcasc.v10i2.2045>
  33. Hasan, S. A. S., Waghule, S. N., & Hasan, M. B. (2024a). Linking environmental management accounting to environmental performance: The role of top management support and institutional pressures. *Cogent Business & Management*, 11(1), Article 2296700. <https://doi.org/10.1080/23311975.2023.2296700>

34. Hasan, S. A. S., Waghule, S. N., Al Koliby, I. S., Al-Bukhrani, M. A., Al Haifi, M. M., & Hasan, M. B. (2024b). Innovating for sustainability: The role of environmental management accounting in driving environmental performance. *Discover Sustainability*, 5(1), Article 183. <https://doi.org/10.1007/s43621-024-00389-x>
35. Henseler, J., Ringle, C., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43, 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
36. Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (IJeC)*, 11(4), 1-10. <https://doi.org/10.4018/ijec.2015100101>
37. Kong, Y., Javed, F., Sultan, J., Hanif, M. S., & Khan, N. (2022). EMA implementation and corporate environmental firm performance: A comparison of institutional pressures and environmental uncertainty. *Sustainability*, 14(9), Article 5662. <https://doi.org/10.3390/su14095662>
38. Latif, B., Mahmood, Z., Ong, T., Mohd Said, R., & Khan, A. (2020). Coercive, normative and mimetic pressures as drivers of environmental management accounting adoption. *Sustainability*, 12(11), Article 4506. <https://doi.org/10.3390/su12114506>
39. Latifah, S. W., & Soewarno, N. (2023). The environmental accounting strategy and waste management to achieve MSME's sustainability performance. *Cogent Business & Management*, 10(1), Article 2176444. <https://doi.org/10.1080/23311975.2023.2176444>
40. Liao, L., Luo, L., & Tang, Q. (2015). Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *The British Accounting Review*, 47(4), 409-424. <https://doi.org/10.1016/j.bar.2014.01.002>
41. Liem, V. T., & Hien, N. N. (2024). The impact of managers' attitudes towards environmental management accounting and green competitive advantage in Vietnam manufacturers. *Heliyon*, 10(13), Article e33565. <https://doi.org/10.1016/j.heliyon.2024.e33565>
42. López, S., Guerra, I., & Pernas, J. (2025). Sustainable leadership as a governance mechanism in the ESG era: A systematic review of organizational transformation in the hospitality sector. *Merits*, 5(4), Article 22. <https://doi.org/10.3390/merits5040022>
43. Majeed, M., Tijani, A., Ofori, K. S., Abubakari, A., & Ampong, G. O. A. (2025). Impact of strategic orientation on sustainable competitive advantage: The mediating role of organizational capabilities. *Cogent Social Sciences*, 11(1), Article 2457230. <https://doi.org/10.1080/23311886.2025.2457230>
44. Mat Yusoh, N., Tuan Mat, T., & Abdullah, A. (2023). Environmental management accounting system adoption and sustainability performance: Triple bottom line approach. *Management and Accounting Review (MAR)*, 22(1), 229-263. <https://doi.org/10.24191/MAR.V22i01-10>
45. Meyer, J., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340-363. Retrieved from <http://www.jstor.org/stable/2778293>
46. Michelon, G., Boesso, G., & Kumar, P. (2013). Examining the link between strategic corporate social responsibility and company performance: An analysis of the best corporate citizens. *Corporate Social Responsibility and Environmental Management*, 20(2), 81-94. <https://doi.org/10.1002/csr.1278>
47. Monteiro, A. P., Cepêda, C., Silva, A. F., Leite, E., & Camacho, É. (2021). The role of accounting information in decision-making and companies' sustainability development: The Portuguese accountants' perspective. *Entrepreneurship and Sustainability Issues*, 9(1), 486-501. [https://doi.org/10.9770/JESI.2021.9.1\(30\)](https://doi.org/10.9770/JESI.2021.9.1(30))
48. Musa, A., Alqahtani, H., & Ali Alqahtani, H. (2025). The effect of board characteristics on ESG commitment in Saudi Arabia: How diversity, independence, size, and expertise shape corporate sustainability practices. *Sustainability*, 17(12), Article 5552. <https://doi.org/10.3390/su17125552>
49. Nuleg, A., Phoprachak, D., Dampitakse, K., & Ruepiti-viriya, O. (2021). Environmental management accounting and financial competitive advantage affecting corporate sustainability of Thai companies. *International Journal of Accounting, Finance and Education*, 2(1), 20-38. <https://doi.org/10.53378/345959>
50. Peters, G., & Romi, A. (2013). The association between sustainability governance characteristics and the assurance of corporate sustainability reports. *AUDITING: A Journal of Practice & Theory*, 34. <https://doi.org/10.2139/ssrn.2198068>
51. Quttainah, M. A., Pathak, A., & Soni, T. (2025). Configurations of corporate governance mechanisms and sustainable development: A review. *Indian Journal of Corporate Governance*, 18(1), 38-91. <https://doi.org/10.1177/09746862251327829>
52. Rasit, Z., Zakaria, M., Hashim, M., Ramli, A., & Mohamed, M. (2019). Green supply chain management (GSCM) practices for sustainability performance: An empirical evidence of Malaysian SMEs. *International Journal of Financial Research*, 10(3), 371-279. <https://doi.org/10.5430/ijfr.v10n3p371>
53. Rosário, A., Lopes, P., & Rosario, F. (2024). Sustainability and the circular economy business development. *Sustainability*, 16(14), Article 6092. <https://doi.org/10.3390/su16146092>
54. Scannell, S., & Tawiah, V. (2024). A thematic literature review on international public sector accounting standards (IPSAS). *Public Organization Review*, 24, 1053-1075. <https://doi.org/10.1007/s11115-024-00773-1>
55. Shan, X., Song, Y., & Song, P. (2024). How ESG performance impacts corporate financial performance: A DuPont analysis approach. *International Journal*

- of Climate Change Strategies and Management*, 17(2), 1-24. <https://doi.org/10.1108/IJCC-SM-07-2024-0125>
56. Soussi, J., Aljaaidi, K., & Alwadani, N. (2025). Sustainable environmental governance and corporate environmental performance: Empirical evidence from Saudi companies. *Journal of Risk and Financial Management*, 18(11). <https://doi.org/10.3390/jrfm18110616>
57. Thomsen, S. (2023). Sustainable corporate governance. An overview and an assessment. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4459225>
58. Voskopoulou, A., Lois, P., Thrasou, A., & Drogalas, G. (2025). The impact of environmental strategies and accounting practices on corporate environmental performance: Evidence from Greece. *International Journal of Financial Studies*, 13(4). <https://doi.org/10.3390/ijfs13040209>
59. Xia, L., Fatema, N., Rahman, Md. M., & Hossain, A. (2025). Nexus of environmental management accounting, and carbon emission management on environmental, social, and governance performance: Evidence from symmetrical and asymmetrical approach. *Humanities and Social Sciences Communications*, 12(1). <https://doi.org/10.1057/s41599-025-05465-9>
60. Yoshida, S. (2025). The role of corporate governance in shaping sustainable practices and economic outcomes in small- and medium-sized farms. *Sustainability*, 17(17), Article 7810. <https://doi.org/10.3390/su17177810>
61. Zandi, G., & Lee, H. (2019). Factors affecting environmental management accounting and environmental performance: An empirical assessment. *International Journal of Energy Economics and Policy*, 9(6), 342-348. <https://doi.org/10.32479/ijee.8369>
62. Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research method* (9<sup>th</sup> ed.). Mason, OH: South-Western.

## APPENDIX A

**Table A1.** Scale measurement

Conceptual Model Variables and Items	Item Code	Item Description	Adopted from
Institutional pressure	INP1	The practice of environmental regulations, both domestic and international	Gunarathne et al. (2021)
	INP2	Adherence to conservation and resource-saving mandates at the national and regional levels	
	INP3	Pressure from partners, suppliers, and customers to address environmental concerns	
	INP4	Employees' awareness and understanding of environmental issues	
	INP5	Consumers' increasing ecological consciousness	
	INP6	Environmental consciousness among the general public, including non-governmental organizations, groups, and individuals	
	INP7	The importance assigned to environmental policy within the organization's stated goals and objectives	
EMA adoption	EMA 1	Identification of environment-related costs	Gunarathne et al. (2021)
	EMA 2	Estimation of environmental-related contingent liabilities	
	EMA 3	Classification of environment-related costs	
	EMA 4	Introduction or enhancement to environment-related cost management	
	EMA 5	Creation and utilization of environment-related cost accounts	
	EMA 6	Development and application of environment-related key performance Indicators	
	EMA 7	Elaboration of monetary environmental capital budgeting	
Environment performance	ENV1	Compliance with environmental regulations	Deb et al. (2023)
	ENV2	Limitation of the impact on the environment and keeping within compliance	
	ENV3	Prevention and mitigation of environmental crises	
	ENV4	Education of employees and the public about environmental issues	
Social performance	SOC1	Stakeholders' satisfaction with the company's sustainable business practices	Hadi and Baskaran (2021)
	SOC2	Reduction of social and reputation risks to the general public	
	SCO3	Improvement of employee health and safety	
	SCO4	Awareness of the community's needs and rights	
	SCO5	Compliance with any legal requirement	
Economic performance	ECO1	Increases in profitability every year	Hadi and Baskaran (2021)
	ECO2	Increases in return on investments every year	
	ECO3	Increases in sales volume every year	
	ECO4	Increases in productivity	
	ECO5	Increases in shareholder value every year	
Sustainable Corporate Governance	SCG1	Clear and concrete sustainability policies	El-Kassar and Singh (2019), Thomsen (2023)
	SCG2	Budget planning, including the concerns of sustainability investment or procurement	
	SCG3	Integration of sustainability in plans, vision, or mission, and marketing events	
	SCG4	Spending in R&D to make products or services more sustainably friendly	
	SCG5	Having board sustainability committees and sustainability competencies	
	SCG6	Financial reporting covering sustainability reports and carbon disclosure	