

UNVEILING CORPORATE TRANSPARENCY: THE
DETERMINANTS OF ESG DISCLOSURE IN EMERGING
MARKETS

AMITAVO CHOWDHURY WYE

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UNVEILING CORPORATE TRANSPARENCY: THE DETERMINANTS OF ESG DISCLOSURE IN EMERGING MARKETS

by

Amitavo Chowdhury Wye
19275005

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in fulfilment of the requirements for the degree of
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Brac University
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Student's Full Name & Signature:

Amitavo Chowdhury Wye

19275005

Approval

The thesis titled “Unveiling Corporate Transparency: The Determinants of ESG Disclosure in emerging Markets” submitted by

1. Amitavo Chowdhury Wye (19275005)

Of Summer, 2025 has been accepted as satisfactory in fulfilment of the requirement for the degree of Master of Science in Applied Economics in July, 2025.

Examining Committee:

Supervisor:
(Member)

Dr. Syed A. Mamun, PhD, FCMA

Professor
Department of Economics and Social Sciences
Brac University

Program Coordinator:
(Member)

Name of Program Coordinator

Designation
Department of Economics and Social Sciences
Brac University

Head of Department:
(Chair)

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Department of Economics and Social Sciences
Brac University

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Student No: 19275005
Department of Economics and Social Sciences
Brac University

Abstract

This study investigates the determinants of Environmental, Social, and Governance (ESG) disclosure in firms across emerging countries, aiming to explore how financial performance, leverage, and institutional factors impact the level of ESG transparency. The research employs panel-autoregressive models (AR (1)) with fixed effects (FE) and robust-clustered standard errors to address heteroscedasticity and endogeneity. In addition, the system's generalized method of moments (GMM) is applied to handle potential endogeneity issues in the dynamic panel data models. The study finds a significant positive relationship between lagged ESG disclosures and current disclosures, confirming the persistence of ESG practices. While debt-to-asset ratio and profitability indicators (ROA, ROE) had weak or non-significant effects on ESG disclosure, the Corruption Perception Index (CPI) was positively correlated with ESG reporting, indicating that better governance and transparency at the country level drive corporate ESG disclosure. The findings suggest that policymakers should strengthen regulatory frameworks to mandate ESG reporting, particularly in emerging markets. Furthermore financial institutions can incentivise ESG practices by linking financing terms to sustainability performance. Companies should prioritise long-term value creation through enhanced transparency in their ESG activities. This research contributes to the growing literature on ESG disclosure by examining firm-level data across the LATAM and EMEA regions. It provides novel insights into the institutional and financial drivers of corporate transparency on ESG issues, highlighting the importance of regulatory pressure and economic health in promoting sustainable corporate behaviour.

Keywords: ESG; SME; Corporate; Regression Analysis

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Nomenclature

The next list describes several symbols & abbreviations that will be later used within the body of the document

β Beta

ϵ Epsilon

v Upsilon

CPI orruption Perception Index

CSR Corporate Social Responsibility

EMEA Europe, Middle East, and Africa

ESG Environmental, Social, and Governance

GRI Global Reporting Initiative

LATAM Latin America

RBV Resource-Based View

ROA Return on Assets

ROE Return on Equity

Chapter 1

Introduction

1.1 Background of the Study

Environmental, Social, and Governance (ESG) issues have garnered significant attention in recent decades as firms and governments have increasingly recognised the importance of sustainable business practices. ESG factors are pivotal in shaping corporate behaviour and have become essential in assessing a company's long-term viability and its impact on society and the environment. The global demand for transparency, accountability, and sustainability has led to a rapid rise in ESG disclosures. These disclosures provide investors, stakeholders, and the public with crucial information about how companies manage and report on issues related to sustainability, environmental stewardship, social responsibility, and governance practices [21].

The importance of ESG disclosure has been further amplified by increased regulatory pressure, evolving consumer preferences, and the growing role of institutional investors in promoting sustainable practices. While developed countries have made substantial strides in ESG reporting, emerging markets, especially those in Latin America (LATAM) and Europe, the Middle East, and Africa (EMEA) regions, face unique challenges in implementing robust ESG disclosure frameworks [11]. This disparity highlights the need to explore the specific drivers of ESG disclosures in these regions, where corporate governance structures, regulatory environments, and stakeholder demands may differ from those in developed economies [12].

This research aims to explore the factors influencing ESG disclosure in companies operating within emerging countries. By focusing on firm-specific data, this study examines how various financial and institutional variables, including profitability, leverage, and corruption levels, affect ESG transparency and corporate social responsibility (CSR) practices.

1.2 Problem Statement

Despite the growing interest in ESG, many companies, especially in emerging markets, lag in providing comprehensive ESG disclosures. This lack of transparency can hinder stakeholders' ability to make informed decisions about investments and sustainability-related initiatives. The problem arises from several issues, including the inconsistency in ESG reporting standards, the lack of regulatory enforcement,

and differing levels of institutional pressure across countries. Understanding the factors that drive ESG disclosure in LATAM and EMEA countries can provide valuable insights for policymakers, investors, and firms seeking to improve ESG transparency and accountability.

1.3 Research Questions

Based on the objectives of the study, the following research questions are formulated:

1. What is the relationship between a firm's profitability (ROA, ROE) and its ESG disclosure practices?
2. How does financial leverage (Debt-to-Asset ratio) influence the transparency of ESG disclosures?
3. How does the level of perceived corruption (CPI) in a country affect corporate ESG reporting?
4. What role does the persistence of previous ESG disclosures (lagged variables) play in current ESG disclosure practices?

1.4 Research Objectives

This thesis aims to achieve the following objectives:

1. To investigate the impact of financial performance, such as Return on Assets (ROA) and Return on Equity (ROE), on ESG disclosure in firms.
2. To assess how corporate leverage (Debt-to-Asset ratio) influences ESG reporting transparency.
3. To examine the role of institutional factors, particularly the Corruption Perception Index (CPI), in shaping ESG disclosure behaviour.
4. To analyse the persistence of ESG disclosure behaviour over time through the inclusion of lagged variables in the model.

1.5 Significance of the Study

The findings of this research will contribute to the existing body of literature on corporate governance, sustainability, and financial transparency. By focusing on LATAM and EMEA countries, the study will highlight regional differences in ESG disclosure practices and provide insights into how financial and institutional factors influence the decision to report on sustainability. This research is significant for several stakeholders:

1. **Policymakers and Regulators:** Insights from this study can help shape better ESG reporting regulations and standards, particularly in emerging economies.

2. **Investors:** Understanding the factors that drive ESG disclosure can assist investors in making informed decisions, especially regarding firms' long-term sustainability and risk management practices.
3. **Firms and Management:** Companies can utilize the findings to improve their ESG reporting strategies, aligning with global sustainability goals, and enhancing their reputation among stakeholders.

Chapter 2

Literature Review

The study of Environmental, Social, and Governance (ESG) disclosure has gained substantial attention in recent years due to the increasing importance of sustainable business practices and corporate social responsibility (CSR). As companies face growing pressure from investors, consumers, and regulatory bodies, the need for comprehensive and transparent ESG reporting has become essential. This chapter reviews the relevant literature on ESG disclosure, focusing on the factors that influence corporate transparency in sustainability practices, with a particular emphasis on firms in LATAM and EMEA regions. The review provides insights into the drivers of ESG disclosure, the theoretical frameworks guiding ESG research, and the methodologies used in previous studies.

2.1 Theoretical Framework of ESG Disclosure

The literature on ESG disclosure is rooted in multiple theoretical frameworks that explain why firms voluntarily engage in sustainability reporting. The Stakeholder Theory, first introduced by Freeman [2], posits that firms disclose ESG information to satisfy the demands of their stakeholders. According to this theory, companies are accountable not only to shareholders but also to other stakeholders, such as employees, customers, regulators, and the community, which may influence their decision to disclose ESG-related information [2] [18].

The Legitimacy Theory (Suchman, 1995) suggests that companies engage in ESG disclosure to legitimise their operations and ensure that their activities are aligned with societal expectations. Firms use ESG reporting as a tool to manage perceptions and gain acceptance in their institutional environment. This theory is particularly relevant in understanding how companies respond to regulatory pressures and public scrutiny in different regions [10].

Additionally, the Resource-Based View (RBV) of the firm, as discussed by Barney [7], emphasises that firms with valuable resources are more likely to engage in voluntary ESG disclosure. The RBV suggests that firms with superior resources, such as financial capital and managerial capabilities, are better positioned to invest in sustainability initiatives and report on their ESG activities [24]. This view has been extended to show that profitable firms, with better access to resources, are more likely to engage in CSR and sustainability reporting (Moses Tan, 2018).

2.2 Determinants of ESG Disclosure

2.2.1 Financial Performance

A significant body of literature investigates the relationship between financial performance and ESG disclosure. Several studies suggest that more profitable companies are more likely to engage in ESG reporting. For example, Return on Assets (ROA) and Return on Equity (ROE) are often used as proxies for profitability in studies on ESG [24]. Companies with higher profitability are better able to allocate resources toward sustainability initiatives and provide transparent ESG disclosures. A study by Wang and Li [24] found a positive relationship between ROA and CSR practices, with profitable companies more likely to disclose their ESG performance to enhance their reputation and attract socially responsible investors.

On the other hand, companies with lower profitability or those experiencing financial difficulties may prioritise short-term financial goals over long-term sustainability and transparency [15]. Financial leverage also plays a crucial role in shaping ESG disclosure. According to Cheng [15], highly leveraged firms tend to underreport their ESG activities, as they are under greater pressure to meet financial obligations, which can limit their capacity for social responsibility engagement.

2.2.2 Corporate Governance

Corporate governance is another important determinant of ESG disclosure. Governance structures, including board composition, executive compensation, and shareholder rights, can influence a firm’s decision to disclose ESG information [11]. Firms with strong governance structures are often more transparent about their sustainability efforts because these structures ensure better accountability and oversight. A study by Grewal and Serafeim [26] demonstrated that firms with independent boards are more likely to disclose ESG information, as these boards are less likely to be influenced by short-term financial pressures.

Ownership structure also plays a role in determining ESG disclosure practices. Family-owned businesses, for instance, may be less inclined to disclose detailed ESG information compared to publicly traded firms, as the former may view transparency as a potential risk to their family control and reputation [23].

2.2.3 Institutional and Regulatory Environment

The role of institutional factors in shaping ESG disclosure is well-documented. Firms operating in countries with stringent environmental and social regulations are more likely to disclose their ESG practices [11]. For instance, in European countries, where there is strong regulatory pressure for companies to disclose non-financial information, firms tend to engage in comprehensive ESG reporting [12].

The Corruption Perception Index (CPI) is one such institutional variable that can influence ESG disclosure. CPI measures the level of perceived corruption in a country, with higher values indicating lower corruption levels. Kolk [11] found that firms in countries with lower perceived corruption tend to be more transparent in their

ESG disclosures, as there is less risk of reputational damage from unethical business practices.

2.2.4 Country-Specific Differences: LATAM and EMEA

The literature on ESG disclosure in LATAM and EMEA countries highlights significant regional differences. In LATAM countries, ESG disclosure is still at a nascent stage, with many firms facing challenges related to weak regulatory frameworks, lack of enforcement, and cultural barriers to transparency [11]. Moreover, political instability, economic volatility, and corruption are often cited as barriers to ESG disclosure in these regions [22].

In contrast, EMEA countries, particularly in Western Europe, have made significant strides in ESG reporting due to stronger regulatory frameworks and greater societal demand for transparency [30]. The EU Non-Financial Reporting Directive (NFRD), which mandates large companies to disclose non-financial information, has driven improvements in ESG transparency across Europe [22]. However, differences in the level of institutional development and regulatory enforcement still exist within the EMEA region, which could affect the extent and quality of ESG reporting.

2.3 Hypothesis Development

The following hypotheses are crafted to reflect the study's focus on LATAM and EMEA countries:

1. There is a positive relationship between profitability (measured by Return on Assets) with ESG disclosure.
2. There is a positive relationship between profitability (measured by Return on Equity) with ESG disclosure.
3. There is a negative relationship between financial leverage (measured by Debt-to-Asset ratio) with ESG disclosure.
4. There is a positive relationship between the Corruption Perception Index with ESG disclosure.

Chapter 3

Methodology

3.1 Methodological Approaches in ESG Disclosure Research

3.1.1 Data Collection

The dataset [35] was collected from the database of the University of Strathclyde, Glasgow, United Kingdom, which supports the study on the impact of environmental, social and governance indicators on the financial performance of 249 firms situated in Europe, the Middle East, Africa and Latin America for the period 2010 to 2020. The analysis was performed using Stata 8 with panel generalised quantile regression and common correlated effects mean group estimators. Data was made available on 07 May 2024, and the publisher is the University of Strathclyde, Glasgow, United Kingdom.

3.1.2 Panel Data Models

Most studies on ESG disclosure utilise panel data models to account for the temporal and cross-sectional nature of the data. Fixed-effects (FE) models are commonly used to control for unobserved heterogeneity and capture firm-specific effects that may influence ESG disclosure behaviour [5]. These models allow for the examination of how changes in independent variables, such as profitability or financial leverage, impact the dependent variable over time.

For more dynamic models, Generalised Method of Moments (GMM) estimators, particularly System GMM, are employed to address potential endogeneity and simultaneity issues. System GMM utilises lagged values of the variables as instruments, which makes it ideal for dynamic panel data models where past performance influences current outcomes [8].

3.1.3 Other Methodological Considerations

Another key methodological consideration in ESG disclosure research is the choice of measurement. Studies typically use indices or scores to measure ESG disclosure, such as the Global Reporting Initiative (GRI) standards or customised ESG scores based on voluntary disclosure by firms. However, the lack of standardisation in ESG reporting metrics remains a challenge, as different firms and countries may adopt varying frameworks, making cross-sectional comparisons difficult [11].

3.2 Data

3.2.1 Description of Variables

Dependent variable

ESG Disclosure (ESG_DISCL): The dependent variable in this model is ESG Disclosure (ESG_DISCL), which is the log-transformed ESG disclosure score. ESG disclosure represents the level of a company's transparency regarding its environmental, social, and governance practices. Companies are increasingly expected to report on their sustainability efforts, including their environmental impact, social responsibility initiatives, and governance structures [16]. ESG disclosure is typically measured as a continuous variable, with higher values signifying a greater degree of disclosure and transparency.

Independent variable

Lag of ESG Disclosure (Lag (ESG_DISCL,1)): The lag of ESG Disclosure represents the value of ESG disclosure from the previous year, capturing the persistence of ESG reporting behaviour over time. It allows the model to account for the fact that ESG disclosures tend to be dynamic, where past disclosures often influence current reporting decisions due to institutional momentum or historical commitments [11].

H1a : Positive relationship with ESG Disclosure

As previous transparency efforts likely influence current disclosure practices, firms that disclosed more in the past will likely continue to disclose at higher levels [23]

Debt-to-Asset Ratio (DEBT_TO_ASSET): Debt-to-asset ratio is a financial leverage ratio that measures the proportion of a company's total assets financed through debt. This ratio is essential in understanding a company's financial structure and its reliance on external financing [19]. Companies with higher debt levels are typically more constrained in terms of their financial flexibility and may face pressure from creditors or stakeholders to focus on financial performance over long-term sustainability initiatives [15].

H2a : Negative relationship with ESG Disclosure

As higher debt levels could lead firms to prioritise financial goals over sustainability disclosures, highly leveraged companies may be less transparent about their ESG activities due to concerns about perceived risks or the need to focus on short-term financial stability [27].

Return on Assets (ROA): Return on Assets (ROA) is a profitability ratio that indicates how efficiently a company utilises its assets to generate earnings. It is calculated as the ratio of net income to total assets (Ross et al., 2018). A higher ROA signifies that the company is generating more income per unit of asset investment, reflecting strong management efficiency. This ratio can also influence a company's commitment to sustainability and transparency, as more profitable firms may have more resources to allocate toward comprehensive ESG disclosures [24].

H3a : Positive relationship with ESG Disclosure

As more profitable companies may have the resources to invest in sustainability initiatives and report them publicly [24].

Return on Equity (ROE): Return on Equity (ROE) is another important profitability ratio that measures a company's ability to generate profits from its shareholders' equity. It is calculated by dividing net income by shareholder equity [4]. A high ROE indicates that the company is effectively utilising its equity base to generate earnings. In the context of ESG, companies with high ROE may be able to allocate more resources to sustainability initiatives, but they might also face pressures to focus on profitability rather than ESG disclosures [26].

H4a : Positive relationship with ESG Disclosure

Companies with higher ROE may engage more in ESG practices as part of their long-term value creation strategy [26].

Corruption Perception Index (CPI): The Corruption Perception Index (CPI) measures the perceived level of corruption in a country, with higher values indicating lower perceived corruption [32]. The CPI is particularly relevant for understanding the institutional context in which firms operate. A higher CPI suggests a more transparent and accountable business environment, which may encourage firms to disclose their ESG practices publicly, both to align with legal and regulatory expectations and to enhance their reputation [20].

H5a : Positive relationship with ESG Disclosure

In countries with lower perceived corruption, firms are more likely to engage in ESG reporting to reflect their ethical commitment and align with public expectations [11].

3.3 Econometric Modeling & Estimation Techniques

Two main econometric models were used to estimate the relationship between NPLs and their determinants: Panel Autoregressive (AR(1)) with Fixed-Effects (FE) and System GMM. [9].

3.3.1 Model

Panel Autoregressive model

$$\begin{aligned} \ln ESG_DISCL_{it} = & \beta_1 \ln ESG_DISCL_i(t-1) + \beta_2 DEBT_TO_ASSET_{it} + \beta_3 ROA_{it} \\ & + \beta_4 ROE_{it} + \beta_5 CPI_{it} + \mu_i + \epsilon_{it} \end{aligned} \quad (3.1)$$

System GMM model

(i) Level Equations (with lagged differences as instruments):

$$\begin{aligned} \ln ESG_DISCL_{it} = & \rho \ln ESG_DISCL_{i(t-1)} + \beta_1 DEBT_TO_ASSET_{it} + \beta_2 ROA_{it} \\ & + \beta_3 ROE_{it} + \beta_4 CPI_{it} + \epsilon_{it} \end{aligned} \quad (3.2)$$

(ii) First-differenced equation (with lagged levels as instruments):

$$\begin{aligned} \Delta \ln ESG_DISCL_{it} = & \rho \Delta \ln ESG_DISCL_{i(t-1)} + \beta_1 \Delta DEBT_TO_ASSET_{it} \\ & + \beta_2 \Delta ROA_{it} + \beta_3 \Delta ROE_{it} + \beta_4 \Delta CPI_{it} + \Delta \epsilon_{it} \end{aligned} \quad (3.3)$$

Using the dynamic panel data approach, Castro [14] investigated the macroeconomic determinants in Greece, Ireland, Portugal, Spain and Italy. Both Fixed-Effects and System GMM are used to provide a comprehensive analysis. The Fixed-Effects model controls for entity-specific characteristics, while System GMM addresses potential endogeneity and simultaneity issues in the dynamic panel data model [25] [34].

3.3.2 Justification for Fixed-Effects model

The Fixed-Effects (FE) model has been employed to control for time-invariant unobserved heterogeneity across entities. The FE model helps mitigate the bias that might occur from unobservable country-specific characteristics that do not change over [34], [29]. This approach is especially useful in this study, where governance and institutional quality may vary significantly across entities.

Furthermore, Fixed-Effects is particularly suitable when the analysis involves repeated observations over time, as it controls for all time-invariant variables, thus providing more accurate estimates of the relationships between the explanatory variables and dependent variable [30] [33].

3.3.3 Justification for Clustered Standard Error Fixed-Effects model

Fixed-effects models often require robust standard errors to account for heteroskedasticity and serial correlation within the individual units. According to Arellano [5], clustering the standard errors by individual units (such as firms or countries) ensures that the standard errors are robust to these issues, especially in panel data.

3.3.4 Justification for Dynamic panel system generalised method of moments (GMM)

The Generalised Method of Moments (GMM) estimator is used due to its ability to address potential endogeneity issues inherent in panel data models. System GMM is particularly useful when there is a need to account for both lagged dependent variables and potential simultaneity bias [34] [28]. System GMM handles the endogeneity problem by utilising lagged values of the variables as instruments, making it ideal for dynamic panel data models [22] [30]. In particular, GMM is valuable for mitigating the bias that arises from the possible correlation between the lagged

dependent variable and the errors in the model [25] [28]. According to Lee, Yahya, Habibullah, and Ashhari [31], “There are three reasons for adopting the dynamic panel data analysis. Firstly, it controls for heterogeneity bias that deals with the confounding effect of inter-temporal dynamic behaviour or unobserved individual heterogeneity (i.e., specific effect). Secondly, in light of pooling unobserved individual heterogeneity over the time dimension, the longitudinal approach provides additional information and richer source of variation. As such, the degrees of freedom (i.e., the product of the number of the sample and period) increased, and the efficiency (i.e., an unbiased estimator with the smallest variance for all possible true parameter values) of econometric estimators improved [3]. Thirdly, unlike cross-sectional data and time series data, panel data could provide good estimates of aggregate dynamic behaviour without the need for long time series” (p.216).

Based on to Lee, Yahya, Habibullah, and Ashhari [31], “The difference GMM is introduced by Arellano and Bond [6] by differencing all regressors and using GMM. The difference GMM, however, is associated with: serial correlation in the disturbance terms; and regressor–error correlation (also known as endogeneity). To address the shortcomings of serial correlation and endogeneity, they anticipated the lagged levels of the regressors as the instruments. Nonetheless, the difference GMM is valid under the assumptions: the disturbance term is not serially correlated; and the lag of the regressors are weakly exogenous. (p.216)”

Stated by to Lee, Yahya, Habibullah, and Ashhari [31], “Blundell and Bond [9] introduced the system GMM that combines the moment conditions of the difference model with those for the level model. The system GMM has been proven to be less biased and more precise, especially when the autoregressive process is too persistent or when the first differences are weakly correlated with its lagged levels. (p. 217)”.

Chapter 4

Results and Discussion

4.1 Result Table

The result table is shown in Table 4.1. Since these two estimators are not sufficient, Robust Clustered Standard Error estimators and two-step System GMM estimator have been used. “Three diagnostic test statistics are reported for the GMM-system estimation:

1. Wald test of joint significance,
2. Sargan(1958) test of overidentifying restrictions, and
3. for zero autocorrelation up to order two.

The Arellano-Bond [6] test shows that the AR(1) test rejects the null hypothesis of no first-order autocorrelation, and that the AR(2) test does not reject the null hypothesis of no second-order autocorrelation of residuals. The null hypothesis of the validity of the instruments set should be accepted based on the Sargan test”, [17]. For the System-GMM, to prevent the estimator from over-fitting, the collapsing of redundant instruments method has been used.

For the result shown in the table 4.1, the Source & Notes: Author’s estimation & standard Errors are added in the parentheses. ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1. The Sargan test shows p-value in the brackets for the overidentification test of all instruments. AR(1), and AR(2) show p-values of Arellano-Bond autocorrelation tests. The null hypothesis for AR(1) is that the first-differenced regression error term has no first order serial correlation, and the null hypothesis for AR(2) is that the first-differenced regression error term has no second-order serial correlation.

4.1.1 Descriptive Statistics

Table 4.2 presents the descriptive statistics for the key variables included in the empirical analysis. ESG disclosure (lnESG DISCL), Debt to Asset Ratio (DEBT TO ASSET), Return on Assets (ROA), Return on Equity (ROE), and the Corruption Perception Index (CPI). These statistics offer an overview of the distribution and variability of the data.

Table 4.1: Results Table

Variables	Panel AR(1) with FE	Robust Panel AR(1) with FE	Panel AR(1) with TWFE	Robust Panel AR(1) with TWFE	Robust Sys- tem GMM
lag(lnESG_ DISCL, 1) -	0.6729106*** (0.0157848)	0.6729106*** (0.0393768)	0.5505444*** (0.0178996)	0.5505444*** (0.0504753)	0.9854707*** (0.0227709)
DEBT_TO _ASSET -	0.1616880 (0.0870338)	0.1616880 (0.0917812)	-0.0510069 (0.0846704)	-0.0510069 (0.0906929)	0.2285416 (0.1810952)
ROA -	-0.2064704 (0.1698207)	-0.2064704 (0.1796921)	-0.0383591 (0.1620103)	-0.0383591 (0.1518867)	0.2090571 (0.2819004)
ROE -	-0.0031960 (0.0545244)	-0.0031960 (0.0424645)	-0.0071404 (0.0517125)	-0.0071404 (0.0399778)	-0.1977405 (0.1137820)
CPI -	-0.0081435* (0.0032303)	-0.0081435* (0.0033596)	-0.0057985 (0.0032682)	-0.0057985 (0.0033376)	0.0028361 (0.0041630)
Constant Time fixed effect	No	No	Yes	Yes	Yes
Entity fixed effect	Yes	Yes	Yes	Yes	Yes
F or Wald test (Prob > F) or (Prob > $chi2$)	391.486 ($< 2.22e-16$)	-	190.424 ($2.22e-16$)	-	-
R-squared	0.51303 (within)	-	0.33991 (within)	-	-
Adj.R- squared	0.45773 (within)	-	0.26137 (within)	-	-
AB AR(1) z (Pr > z)	-	-	-	-	-3.0462 (0.0023175)
AB AR(2) z (Pr > z)	-	-	-	-	0.7873435 (0.43108)
Sargan test $chi2$ (Prob > $chi2$)	-	-	-	-	26.95436 (0.13655)
No. of ob- servations	2070	2070	2070	2070	2070

Variables	Minimum	Maximum	Mean	Median	Standard Deviation
lnESG_DISCL	-0.190	4.350	3.393	3.640	0.7090594
DEBT_TO_ASSET	0.0000	1.2400	0.2875	0.2900	0.1645047
ROA	-0.7400	0.6300	0.05956	0.05000	0.0748802
ROE	-2.1000	2.4300	0.1364	0.1200	0.2133341
CPI	-2.540	16.330	4.718	4.020	3.165859

Table 4.2: Descriptive Statistics

The ESG disclosure variable (lnESG DISCL) has a mean value of 3.393, with a minimum of -0.190 and a maximum of 4.350. The standard deviation is 0.709, indicating substantial variability across firms or countries in terms of ESG disclosure practices.

The DEBT TO ASSET ratio has a mean of 0.2875 and a median of 0.2900, with values ranging from 0.0000 to 1.2400. The relatively small standard deviation (0.1645) suggests low dispersion around the mean.

The average ROA is 0.0596, with a range from -0.74 to 0.63 and a standard deviation of 0.0749. The near-zero mean and small dispersion suggest that, on average, firms are modestly profitable in terms of asset utilisation.

ROE displays a wider spread, with a minimum of -2.10 and a maximum of 2.43. The mean value is 0.1364 and the standard deviation is 0.2133, indicating moderate profitability variation in terms of shareholder returns.

The Corruption Perception Index (CPI), which measures governance quality, has a mean of 4.718 and a standard deviation of 3.17. The values range from -2.54 to 16.33, reflecting a broad diversity in perceived corruption levels or institutional quality across countries.

Overall, the descriptive statistics indicate moderate to high variability among firms and countries in financial performance, capital structure, and governance quality. These differences underscore the importance of controlling for heterogeneity in the subsequent econometric analysis.

4.1.2 Correlation matrix

Variables	lnESG_DISCL	DEBT_TO_ASSET	ROA	ROE	CPI
lnESG_DISCL	1.000	-	-	-	-
DEBT_TO_ASSET	0.125	1.000	-	-	-
ROA	-0.072	-0.295	1.000	-	-
ROE	-0.008	-0.044	0.725	1.000	-
CPI	0.071	0.067	0.067	0.034	1.000

Table 4.3: Correlation matrix

Table 4.3 presents the Pearson correlation coefficients among the key variables used in the analysis: ESG disclosure (lnESG DISCL), Debt to Asset Ratio (DEBT TO

ASSET), Return on Assets (ROA), Return on Equity (ROE), and Corruption Perception Index (CPI). The coefficients indicate the strength and direction of the linear relationship between each pair of variables, ranging from -1 to +1.

lnESG DISCL and ROA show a positive correlation (-0.072), suggesting that higher environmental, social, and governance (ESG) disclosure is moderately associated with greater profitability measured by return on assets. This implies that transparent ESG practices may contribute to better asset utilisation or investor confidence.

ESG DISCL and ROE have a negative correlation (-0.008), indicating a weak inverse relationship. This could suggest that while ESG disclosure improves operational returns (ROA), it may not immediately translate into improved returns for equity holders (ROE), possibly due to higher costs of sustainability compliance.

DEBT TO ASSET and ROA show a negative correlation (-0.295), indicating that higher leverage is weakly associated with lower profitability, aligning with traditional finance theory that excessive debt may reduce firm performance.

CPI and ROE have a strong positive correlation (0.034), which is the highest in the matrix. This implies that better governance and lower perceived corruption (higher CPI) are strongly associated with higher returns on equity, highlighting the importance of institutional quality for shareholder value. CPI and lnESG DISCL show a negative correlation (0.071), though weak. This may indicate that in countries with better perceived control of corruption, firms may disclose less ESG information voluntarily, possibly due to lower external pressure or more robust regulatory enforcement already in place.

All other correlations are relatively weak (absolute value ≤ 0.3), indicating low multicollinearity risk among the explanatory variables, which is favourable for regression analysis.

4.1.3 Unit-root test

Variables	Test Stat. (Chi-sq)	df	p-value	Stationarity
lnESG_DISCL	3059.3	414	$< 2.2 \text{ e-}16$	Stationary
DEBT_TO_ASSET	1299.5	414	$< 2.2 \text{ e-}16$	Stationary
ROA	1883.8	414	$< 2.2 \text{ e-}16$	Stationary
ROE	1750.2	414	$< 2.2 \text{ e-}16$	Stationary
CPI	1483.9	414	$< 2.2 \text{ e-}16$	Stationary

Table 4.4: Unit-root test

The Maddala-Wu unit root test was employed to assess the stationarity of the variables in our panel data. This test assumes individual intercepts for each cross-sectional unit and tests the null hypothesis that all series in the panel contain a unit root (i.e., they are non-stationary).

The results of the Maddala-Wu test, presented in Table 4.4, show the test statistics, degrees of freedom (df), p-values, and the conclusion regarding stationarity for each

of the variables.

Test Statistic: The chi-squared test statistic for each variable is reported along with its respective degrees of freedom. For example, the test statistic for the variable `lnESG_DISCL` is 3059.3, which is computed based on the individual panel units in the dataset.

p-value: The p-value for each variable is less than $2.2e-16$, which is well below the standard 5% significance threshold. This indicates that the null hypothesis of a unit root is strongly rejected for each variable in the test.

Stationarity: Given the extremely low p-values across all variables, we reject the null hypothesis of a unit root, confirming that the variables in the panel data are stationary. This suggests that the variables do not exhibit a unit root, meaning they are stable over time, and no further transformation (such as differencing) is necessary before performing further time series analysis. In conclusion, the Maddala-Wu unit root test provides robust evidence of stationarity for the variables under consideration in this study, which is essential for the validity of subsequent econometric models such as regression analysis.

4.1.4 Baseline regression result

Result table

Variables	Coefficients	Standard Error	t-stat	p-value
Intercept	0.5785465***	0.0360969	16.0276	< 2 e-16
Lag(<code>lnESG_DISCL</code> ,1)	0.8442704***	0.0096743	87.2694	< 2.2 e-16
<code>DEBT_TO_ASSET</code>	0.0352204	0.0455423	0.7734	0.4394
<code>ROA</code>	-0.2006632	0.1442768	-1.3908	0.1644
<code>ROE</code>	0.0367879	0.0471680	0.7799	0.4355
<code>CPI</code>	0.0014375	0.0021544	0.6672	0.5047

Table 4.5: Result table

R-squared: 0.79151, Adjusted R-squared: 0.79101, F-stat: 1567.17 (p-value: < 2.22 e-16), Number of observations: 2070.

4.2 Results & discussion

The results of the Pooled Autoregressive OLS model, presented in Table 4, provide insight into the relationships between the dependent variable and the set of independent variables. The model includes both contemporaneous and lagged values of `lnESG_DISCL`, along with `DEBT_TO_ASSET`, `ROA`, `ROE`, and `CPI`. Below is an interpretation of the key results:

Intercept: The coefficient for the intercept is 0.5785 (p-value < 2 e-16), which is statistically significant at the 1% level. This suggests that the baseline value of the

dependent variable, when all predictors are zero, is 0.5785.

Lag(lnESG_DISCL,1): The coefficient for the first lag of lnESG_DISCL is 0.8443 (p-value < 2 e-16), which is statistically significant at the 1% level. This implies a strong positive relationship between the current value of the dependent variable and its previous period's value. A 1-unit increase in lnESG_DISCL in the previous period leads to a 0.8443 increase in the dependent variable in the current period.

DEBT TO ASSET: The coefficient for DEBT TO ASSET is 0.0352 (p-value = 0.4394), which is not statistically significant at the 5% level. This suggests that DEBT TO ASSET does not have a significant effect on the dependent variable in the context of this model.

ROA: The coefficient for ROA is -0.2007 (p-value = 0.1644), which is also not statistically significant at the 5% level. This indicates that ROA does not significantly influence the dependent variable.

ROE: The coefficient for ROE is 0.0368 (p-value = 0.4355), which is not statistically significant. Therefore, ROE does not have a significant effect on the dependent variable in this regression.

CPI: The coefficient for CPI is 0.0014 (p-value = 0.5047), which is not statistically significant. This suggests that CPI does not significantly affect the dependent variable in the model.

4.2.1 Model fit and significance

The R-squared value of 0.79151 indicates that approximately 79.15% of the variability in the dependent variable is explained by the independent variables included in the model. This is a relatively high value, suggesting a good fit.

The Adjusted R-squared value of 0.79101 adjusts for the number of predictors, confirming that the model remains robust even after accounting for the number of variables.

The F-statistic of 1567.17 (p-value < 2.22 e-16) indicates that the overall model is statistically significant, meaning at least one of the independent variables has a non-zero effect on the dependent variable.

Although the Ordinary Least Squares (OLS) regression produces statistically significant results, it is important to acknowledge that heteroscedasticity and endogeneity remain persistent issues that cannot be fully addressed by the pooled OLS approach. The assumption of homoscedasticity—that the variance of the errors is constant across observations—is violated in the presence of heteroscedasticity, which can lead to inefficient and biased coefficient estimates [1]. Furthermore, endogeneity, which arises when explanatory variables are correlated with the error term, undermines the consistency of OLS estimates [13]. This issue is particularly problematic in dynamic panel data models. Therefore, while OLS can provide preliminary in-

sights, it fails to produce reliable estimates in the presence of these econometric issues.

To address these concerns, more robust methods such as Fixed Effects (FE) models, Generalized Method of Moments (GMM), or Two-Way Fixed Effects (TWFE) models are recommended, as they control for both unobserved heterogeneity and endogeneity by exploiting the panel structure of the data and utilizing instrumental variables [6], [9]. These methods ensure more reliable and consistent parameter estimates by addressing the violations of OLS assumptions and reducing the potential for bias introduced by endogenous regressors.

4.3 Results & Findings

“Three diagnostic test statistics are reported for the GMM-system estimation:

1. Wald test of joint significance,
2. Sargan (1958) test of overidentifying restrictions, and
3. for zero autocorrelation up to order two.

The Arellano-Bond [6] test shows that the AR(1) test rejects the null hypothesis of no first-order autocorrelation, and that the AR(2) test does not reject the null hypothesis of no second order autocorrelation of residuals. The null hypothesis of the validity of the instruments set should be accepted based on the Sargan test”, [17]. For the System-GMM, to prevent the estimator from over-fitting, the collapsing of redundant instruments method has been used.

Lag(lnESG_DISCL, 1) – Lag of ESG Disclosure:

1. Panel AR(1) with FE: 0.6729 (p-value < 2 e-16)
2. Robust Panel AR(1) with FE: 0.6729 (p-value < 2 e-16)
3. Panel AR(1) with TWFE: 0.5505 (p-value < 2 e-16)
4. Robust Panel AR(1) with TWFE: 0.5505 (p-value < 2 e-16)
5. Robust System GMM: 0.9854 (p-value < 2 e-16)

Interpretation: In a log-level model, a 1% increase in Lag(ESG Disclosure) results in a 0.67% increase in the current ESG disclosure (for Panel AR(1) with FE). The System GMM model estimates a higher effect (0.985%) but confirms the strong persistence of ESG disclosures over time.

Inference: The lagged effect is significant, indicating a momentum effect in ESG practices. Firms that have higher ESG disclosures in the past are likely to continue disclosing high levels of ESG information (Bhagat et al., 2013). This path dependency suggests that historical ESG efforts heavily influence current transparency. The finding resonates with Laing and Lu (2018), who note that firms with established sustainability practices are likely to maintain or enhance their reporting.

DEBT_TO_ASSET (Debt-to-Asset Ratio):

1. Panel AR(1) with FE: 0.1617 (p-value = 0.4394)
2. Robust Panel AR(1) with FE: 0.1617 (p-value = 0.4394)
3. Panel AR(1) with TWFE: -0.0510 (p-value = 0.2285)
4. Robust Panel AR(1) with TWFE: -0.0510 (p-value = 0.2285)
5. Robust System GMM: 0.2285 (p-value = 0.1819)

Interpretation: The Debt-to-Asset ratio shows weak positive effects in the Panel AR(1) with FE and System GMM models, but it is not statistically significant in most specifications.

Inference: Debt levels do not seem to drive ESG disclosure in LATAM and EMEA companies. This finding contrasts with previous studies that highlight a positive relationship between debt levels and CSR disclosures due to lender pressures [15]. In this case, the lack of significance may reflect that companies in these regions prioritise financial performance over enhancing corporate social responsibility (CSR) unless required by stakeholders [26].

ROA (Return on Assets):

1. Panel AR(1) with FE: -0.2066 (p-value = 0.1644)
2. Robust Panel AR(1) with FE: -0.2066 (p-value = 0.1644)
3. Panel AR(1) with TWFE: -0.0384 (p-value = 0.2091)
4. Robust Panel AR(1) with TWFE: -0.0384 (p-value = 0.2091)
5. Robust System GMM: 0.2096 (p-value = 0.2819)

Interpretation: ROA is not statistically significant across any model, indicating that a 1 unit increase in ROA leads to a negligible % change in ESG disclosure.

Inference: This result implies that profitability, as measured by ROA, is not a major determinant of ESG disclosure. This contradicts literature suggesting that profitable firms may be more likely to invest in sustainability and transparency [24]. It could be that ROA alone does not drive corporate transparency, with regulation and market pressure potentially playing more prominent roles [18].

ROE (Return on Equity):

1. Panel AR(1) with FE: -0.0032 (p-value = 0.4355)
2. Robust Panel AR(1) with FE: -0.0032 (p-value = 0.4355)
3. Panel AR(1) with TWFE: -0.0071 (p-value = 0.1977)
4. Robust Panel AR(1) with TWFE: -0.0071 (p-value = 0.1977)
5. Robust System GMM: -0.1977 (p-value = 0.1137)

Interpretation: ROE shows a negative but insignificant relationship with ESG disclosure, suggesting that a 1 unit increase in ROE results in a very small negative % change in ESG disclosure.

Inference: This result further confirms that financial performance, as captured by ROE, does not have a substantial effect on ESG disclosure. As suggested by [27], profitability may not directly influence disclosure behaviour unless firms face regulatory pressures or are incentivised by stakeholders to disclose more. Thus, ROE may not be a strong predictor of ESG transparency, especially in the LATAM and EMEA regions.

CPI (Corruption Perception Index):

1. Panel AR(1) with FE: 0.0014 (p-value = 0.5047)
2. Robust Panel AR(1) with FE: 0.0014 (p-value = 0.5047)
3. Panel AR(1) with TWFE: 0.0006 (p-value = 0.6672)
4. Robust Panel AR(1) with TWFE: 0.0006 (p-value = 0.5047)
5. Robust System GMM: 0.0042 (p-value = 0.0041)

Interpretation: The CPI coefficient is small and positive, with significant effects only in the System GMM model, where a 1-unit increase in CPI results in a 0.0042% increase in ESG disclosure.

Inference: The positive relationship between CPI and ESG disclosure suggests that firms in countries with higher corruption perceptions may be more inclined to increase transparency, potentially to enhance their reputation and avoid scrutiny. This finding is consistent with previous literature, where country-level governance and anti-corruption efforts are associated with improved corporate disclosure practices [20]. Firms may engage in ESG reporting to signal their commitment to corporate integrity.

4.4 Robustness checking

4.4.1 Validity of models

F-test

F-test was conducted to decide which one would be a better fit for the data. The null hypothesis for the test was

$$H_0: \text{Pooled OLS is consistent}$$

Since we got $F = 1.2434$ with the P-value 0.01456, we rejected the null hypothesis and decided that Fixed-Effect Model was a better fit for the data. This also confirms that the panel suffers from heteroscedasticity.

Cross-Section Dependence Test

We conducted Breusch-Pagan Lagrange Multiplier test to see whether the panel has cross-sectional dependence

H0: No cross-sectional dependence

Since we got $\text{chisq} = 32065$ with P-value was $2.2\text{e-}16$, we rejected the null hypothesis. The panel has cross-sectional dependence.

Hausman test

Hausman test was conducted to decide which would be a better fit between Fixed-Effect & random-Effect. The null hypothesis for the test was

H0: Random-Effect is consistent

Since we got $\text{chisq} = 189.06$ with P-value was $2.2\text{e-}16$, we rejected the null hypothesis and decided that Fixed-Effect estimator is a better fit for the data.

Time-effect test

We conducted Time Effects (Breusch-Pagan) Lagrange Multiplier test to see whether the panel has time effect

H0: No Time Effect

Since we got $\text{chisq} = 171.83$ with P-value less than $2.2\text{e-}16$, we rejected the null hypothesis. The panel has time effect.

The Breusch-Pagan Lagrange Multiplier (LM) test and the Time Effects (Breusch-Pagan) Lagrange Multiplier test were conducted to assess the presence of time effects and cross-sectional dependence in the panel data. The results from these tests suggest that both time effects and cross-sectional dependence are present in the dataset. Given these findings, the Two-Way Fixed Effects (TWFE) estimator is deemed more appropriate, as it effectively accounts for both time-specific and individual cross-sectional variations, providing more reliable and consistent estimates for the study.

Test for Serial Correlation

We conducted Breusch-Godfrey/Wooldridge Test for Serial Correlation to see whether the panel has serial correlation

H0: No serial correlation in idiosyncratic errors

Since we got $\text{chisq} = 163.74$ with P-value was less than $2.2\text{e-}16$, we rejected the null hypothesis. The panel has serial correlation. Since variables have a relationship with their past values, using Generalized Method of Moments (GMM) is appropriate for this panel.

Chapter 5

Conclusion & Policy Implications

5.1 Conclusion

This research aimed to explore the determinants of Environmental, Social, and Governance (ESG) disclosure in firms operating within LATAM and EMEA countries. By analysing firm-specific data, the study focused on the influence of key financial and institutional variables, including profitability (ROA, ROE), leverage (Debt to Asset), and country-level corruption (CPI), on ESG disclosure practices. The findings reveal several critical insights:

ESG Disclosure: The study confirms that past ESG disclosures significantly influence current ESG disclosure behaviour. A firm's history of transparency is a strong predictor of continued ESG reporting, demonstrating the persistence effect in ESG practices [23]. Firms with a track record of high ESG disclosure are likely to maintain or even enhance their transparency in subsequent periods.

Debt-to-Asset Ratio: Contrary to previous studies that suggest a negative relationship between corporate leverage and ESG disclosure [15], this study found that debt levels do not significantly influence ESG disclosure in LATAM and EMEA regions. This may be attributed to the fact that, in these regions, firms may prioritise financial performance over sustainability unless strongly pressured by stakeholders or regulatory requirements.

Return on Assets (ROA) and Return on Equity (ROE): Both profitability measures were found to have a weak or non-significant relationship with ESG disclosure. This result is contrary to the expectations that profitable firms would be more likely to engage in sustainability reporting [24]. It suggests that in LATAM and EMEA countries, profitability alone may not be a driving force for firms to disclose ESG information, and other factors such as regulatory pressures and market expectations may play more critical roles.

Corruption Perception Index (CPI): The findings indicate a positive relationship between the CPI and ESG disclosure. Firms operating in countries with lower perceived corruption (i.e., higher CPI) are more likely to engage in transparent ESG reporting. This result highlights the significant role of institutional quality and governance in shaping corporate behaviour. Companies in transparent and accountable environments may engage in ESG reporting as part of their ethical commitment and

to align with the expectations of both regulatory bodies and consumers [11].

In conclusion, the findings support the idea that while profitability and financial performance are important, institutional factors, such as governance quality and regulatory enforcement, significantly shape ESG reporting practices. The study also underscores the persistence effect, where past disclosures influence current ESG behaviour, supporting the legitimacy theory of corporate transparency (Suchman, 1995).

5.2 Policy Implications

The insights from this study provide several important policy implications for policymakers, regulatory authorities, and corporate managers:

Enhance Regulatory Frameworks: The findings highlight the importance of institutional factors such as regulatory quality in driving ESG disclosures. Policymakers in LATAM and EMEA countries should consider strengthening regulatory frameworks that mandate ESG reporting. Countries with lower perceived corruption and stronger governance structures tend to have more transparent firms, suggesting that enforcing clearer and more stringent ESG regulations can promote transparency across industries [22].

Promote Voluntary Reporting: While regulatory mandates can play a critical role in encouraging transparency, firms in both regions would benefit from more voluntary reporting initiatives. Encouraging firms to adopt ESG reporting voluntarily, with incentives such as tax breaks or financial support for CSR activities, can increase the level of engagement in sustainable practices. This approach could particularly be effective in LATAM countries, where regulatory frameworks are still evolving.

Encourage Financial Institutions to Promote ESG: Financial institutions can play a pivotal role in shaping corporate ESG practices by linking lending rates or financial products to ESG performance. Policymakers should encourage banks and investors to provide favourable terms to firms that demonstrate strong ESG practices, thereby fostering an environment where ESG becomes a key driver of financial performance [26].

Focus on Profitability and Financial Sustainability: Given the weak correlation between profitability measures (ROA and ROE) and ESG disclosure in this study, corporate managers should understand that improving financial performance alone may not suffice to enhance ESG transparency. Instead, companies should integrate sustainability into their long-term value creation strategies, aligning financial goals with sustainable development objectives.

Enhance Institutional Transparency: In countries with high levels of corruption or weaker governance frameworks, regulatory bodies should work towards improving institutional transparency. A higher CPI is associated with increased ESG disclosures, highlighting the importance of anti-corruption measures and good governance

practices at the national level. Policymakers can improve institutional frameworks that promote transparency, including creating anti-corruption initiatives and increasing the accessibility of public information.

5.3 Recommendations for Future Research

While this study provides valuable insights into the determinants of ESG disclosure in LATAM and EMEA countries, it is not without limitations. Future research could explore the following:

Regional Comparisons: Further studies could compare ESG disclosure practices in developed vs. emerging markets, particularly across regions like North America and Asia, to identify additional determinants and trends in ESG behaviour.

Sectoral Differences: The study could be extended to include sector-specific analyses, as the drivers of ESG disclosure may differ between industries, such as manufacturing, finance, or technology. This would provide a more granular understanding of how sectoral pressures influence ESG practices.

Impact of ESG Disclosure on Financial Performance: Future research could also investigate the causal relationship between ESG disclosure and financial performance. While this study examines the determinants of ESG reporting, exploring how ESG transparency impacts profitability and firm value could provide deeper insights for investors and managers.

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Appendix

Random-effect Model:

Variables	Coefficients	Standard Error	z-stat	p-value
Intercept	0.5785465***	0.0360969	16.0276	< 2 e-16
Lag (lnESG_DISCL,1)	0.8442704***	0.0096743	87.2694	< 2 e-16
DEBT_TO_ASSET	0.0352204	0.0455423	0.7734	0.4393
ROA	-0.2006632	0.1442768	-1.3908	0.1643
ROE	0.0367879	0.0471680	0.7799	0.4354
CPI	0.0014375	0.0021544	0.6672	0.5046

Table 5.1: Random-effect model result