Financial
Internet Quarterly

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE SCORES AND EARNINGS MANAGEMENT IN TELECOMMUNICATION COMPANIES: AN INTERNATIONAL PERSPECTIVE

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Abstract

This study investigates the relationship between environmental, social, and governance (ESG) scores and potential tendencies to manipulate the earnings of telecommunication companies. We assumed a negative relationship between ESG scores and earnings management since the companies with higher ESG are more responsible and expected to prevent manipulation. We used ESG scores from Refinitiv as sustainability measures and discretionary accruals as the indicator of earnings management. We constructed models assuming a bilateral relationship between ESG and earnings. The results reveal that companies with higher environmental scores have higher dispersion from normal accruals; this may result for two reasons in our anticipation: they may record more accruals depending on environmental regulations and may use environmental scores to make up their earnings. Social and governance scores have a negative impact on discretionary accruals, which are insignificant. Hence companies with higher social responsiveness and strong governance produce reliable financial information.

Cite this:

Acar G., Coskun A. (2023) Environmental, social, and governance (ESG) scores and earnings management in telecommunication companies: an international perspective. Financial Internet Quarterly 19 (2), pp. 26-35.

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Introduction

This study aims to search for the potential relationship between earnings management (EM) and the environmental, social, and governance (ESG) disclosures of companies in the telecommunication industry on a global scale. Management manipulates earnings for various purposes, eventually distorting financial information's reliability. The reasons for earnings management may differ, such as financial reasons those leading managers to mispresent the accounting information or inefficiency of the internal or external audit quality. Earnings management always occurs because of human behaviors (Yamen et al., 2022). Therefore, companies with higher ESG are expected to prevent manipulation as they have stronger responsibility towards the stakeholders, society, and the environment. We took discretionary accruals as the indicator of earnings management for companies. In the literature, some studies investigated whether socially and environmentally responsible firms behave differently from other firms in their financial reporting and whether their financial information is more reliable (Kim et al., 2012; Prior et al., 2008). Some studies analyzed whether the quantity and quality of sustainability disclosures are associated with earnings quality (Rezaee & Tuo, 2019; Sun et al., 2010).

We selected telecommunication companies since the telecommunication (T-com) sector is a fast-growing and competitive industry. They are firmly attached to environmental issues because they are subject to regulations by local and international authorities. Moreover, public relations and social responsibility practices play an important role in building their corporate identities since T-com companies have close relations with their customers (Jasni et al., 2019).

This study contributes to the literature in various ways. To begin with, it is the earliest work that analyzes the relationship between earnings management and ESG scores in the telecommunication sector, as per our knowledge. Furthermore, it takes a global point of view, including companies from different regions and countries.

Literature Review

In the earnings management literature, accruals are considered the key element because it is assumed that managers can manipulate earnings with accruals more easily than with cash earnings (Acar & Yilmaz, 2020). Discretionary accruals are the difference between reported accruals of the company at a given period and estimated accruals that are expected in the ordinary course of the given performance and position of the company. Reported accruals are derived as the difference between operating income and operating

activity cash flow. Earnings management studies bear considerable contradiction in predicting accruals (Acar & Coskun, 2020). Jones Model (Jones, 1991), Modified Jones Model (Dechow et al., 1995), and Performance Adjusted Model (Kothari et al., 2005) are the most widely used models which focus on total accruals. For estimated accruals, this study used the Performance Adjusted Modified Jones Model (Kothari et al., 2005).

In this study, ESG scores of telecommunication companies are employed to measure sustainability scores. Today, several ESG indexes measure the level of the sustainability reporting of the companies to satisfy the needs of sustainable investors and other stakeholders. This study used Refinitiv environmental, social, and governance - ESG scores. The environmental pillar measures companies' impact on natural systems, including complete ecosystems. The social pillar measures companies' capacity to generate trust and loyalty with their workforce, customers, and society. The corporate governance pillar measures companies' systems and processes, which ensure that board members and executives act in the best interests of their long-term shareholders (Refinitiv, 2022). In the literature, researchers such as Rezaee and Tuo (2019), Gray et al. (2019), Oh et al. (2020), and Huang (2022) used ESG disclosures as a measure of sustainability.

Companies follow several paths to achieve their sustainability-related goals and publicly disclose the results of their initiatives in CSR reports and give disclosure in annual financial reports to inform their stakeholders either voluntarily or under regulations imposed by stock exchanges or other authorities (Petera et al., 2019). Environmental, social, and governance (ESG) and corporate social responsibility reporting (CSR) have become widely discussed topics in academia and practice. ESG and CSR are also emerging concepts in the telecommunication sector. Many studies on CSR/ESG reporting in the T-com sector have been conducted using a qualitative content analysis technique. For example, Hossain et al. (2015) studied the CSR disclosures of the four mobile T-com companies in Bangladesh. Sharma and Sinha (2017) analyzed the CSR reports of four T-com leader companies, and Shin and Zicari (2018) investigated the CSR reports of four T-com companies in Brazil and South Korea using qualitative content analysis. Abukari and Abdul-Hamid (2018) analyzed CSR reporting in the T-com sector in Ghana, using websites as a disclosure medium from five thematic perspectives: environment, human resource, product and customer, community, and ethical aspects. Giannarakis et al. (2011) studied the stand-alone corporate social responsibility (CSR) reports of five T-com companies in Greece, and their characteristics are categorized by four main dimensions: type of communication, con-

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text, indicators, and distinctions. Abdul-Hamid and Atan (2011) examined the relationship between the level of CSR disclosure and the nature of company ownership (local, government, and foreign) in the three Malaysian T-com companies. Sutherland (2016) reviewed the existing literature on reporting CSR in the T-com sector. Ahmed (2016) investigated the strategic importance of CSR in a Sudan T-com company. Jasni et al. (2019) investigated the patterns of ESG disclosures in the T-com industry in Malaysia and the approaches to the implementation of ESG practices. Khorin and Krikunov (2021) analyzed the impact of ESG risk factors on the value of 57 of the world's largest T-com companies. Abriyani and Wiryono (2012) investigated the impact of corporate governance and financial performance on CSR disclosure in six Indonesian T-com companies. Jasni et al. (2019) conducted an ESG disclosure pattern analysis of the T-com industry and an ESG grid for comparison analysis between T-com companies.

Some of the previous studies on the relationship between CSR or ESG and earnings management are on the country level, such as in France (Ajina et al., 2019; Amar & Chakroun, 2018), Italy (Grimaldi et al., 2020), Korea (Yoon et al., 2019; Oh et al., 2020), Germany (Velte, 2019), the UK (Almahrog et al., 2018; Sun et al., 2010), Spain (Gras-Gil et al., 2016), Japan (Gu et al., 2017), China (Sial et al., 2019) Indonesia (Suyono & Al Farooque, 2018), the US (Heltzer, 2011), Saudi Arabia (Habbash & Haddad, 2019), and South Africa (Jordaan et al., 2018). Even though there are a few studies on the relationship between CSR or ESG and earnings management on the international level (Jouber, 2019; Martínez-Ferrero et al., 2016; Alsaadi et al., 2013; Chih et al., 2008; Nguyen, 2022), none of these studies were focused on one industry, except for the banking sector (Setiawan et al., 2019; García-Sánchez & García-Meca, 2017).

In the literature, a few studies investigated earnings management in the T-com sector, but the relationship between earnings management and the ESG scores in T-com companies has not been investigated yet. Kumari & Pattanayak (2014) analyzed and compared the earnings management practices carried out by the six T-com and six software companies in India between 2007 and 2012. They used the DeAngelo (1986) Model to estimate the discretionary accruals. Lee et al. (2008) investigated whether acquiring U.S. T-com firms managed their earnings by means of discretionary accruals prior to the announcement of stock-for-stock takeovers from 1990 to 2006. They chose Jones Model (Jones, 1991). Oktavia and Norita (2016) analyzed the effects of earnings management and financial ratios on the stock returns of the six T-com companies on the Indonesian Stock Exchange. They utilized a Modified Jones Model to estimate earnings management between 2010 and 2014.

Data & Methodology

We develop a research model based on the literature to measure the relationship between earnings management and Environmental, Social, and Governance disclosure in the telecommunication sector. We assume a negative relationship between ESG scores and earnings management because companies with higher ESG scores tend to portray more accurate financial reports, enhancing reporting quality. We used data from companies in the telecommunication sector all over the world. Telecommunication companies are firmly attached to social and environmental issues, which would take them within the focus of researchers regarding ESG scores.

Our dataset has companies from many countries with various regions, cultures, economic systems, and development levels. To control these differences, we use macroeconomic indicators, development indices, and other variables that reflect the differences among countries. We also assume a bilateral relationship between ESG and EM; therefore, we construct panel data models concerning this relationship to generate accurate and unbiased results.

The dataset consists of five years (2016-2020) of integrated communication and wireless communication companies worldwide. We used Refinitiv Database to collect company information. Because of lacking data, we eliminated more than 70% of companies. In the end, we worked with 92 companies from 41 countries. A breakdown of the number of these companies and the countries in which they operate is in Table 1.

Table 1: Breakdown of Companies in Countries

Country	Number of companies	Country	Number of companies	Country	Number of companies
Australia	1	Italy	1	Russia	4
Austria	1	Japan	3	Saudi Arabia	1
Belgium	3	Kuwait	1	Singapore	2
Brazil	3	Luxembourg	2	South Africa	4
Canada	5	Malaysia	4	South Korea	3

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Country	Number of companies	Country	Number of companies	Country	Number of companies
Finland	1	Mexico	1	Spain	2
France	2	Morocco	1	Sweden	2
Germany	4	Netherlands	2	Switzerland	1
Greece	1	New Zealand	2	Thailand	2
Hong Kong	3	Norway	1	Turkey	2
Hungary	1	Philippines	2	UAE	2
India	5	Poland	1	UK	3
Indonesia	3	Portugal	2	USA	6
Israel	1	Qatar	1	TOTAL	92

Source: Own elaboration.

We first estimated discretionary accruals using the Performance Adjusted Jones Model developed by Kothari et al. (2005). This model has two crucial contributions to earnings management literature by adding ROA and a constant term to the classical Modified Jones Model (Dechow et al., 1995). The inclusion of ROA would provide more accurate and unbiased results, particularly for companies with outstanding performances. Furthermore, adding a constant term would reduce heteroskedasticity.

The following model is used to estimate accruals (Equation 1). To control country-specific differences, we added the unemployment rate, GDP Growth Rate, and GDP per Capita to the equation.

$$\frac{ACCR_{i,t}}{TA_{i,t}} = \beta_0 + \beta_1 \frac{1}{TA_{i,t-1}} + \beta_2 \frac{\Delta Rev_{i,t} - \Delta Rec_{i,t}}{TA_{i,t-1}} +$$
$$\beta_3 \frac{PPE_{i,t}}{TA_{i,t-1}} + \beta_4 ROA_{i,t} + \alpha_i EI_{j,t} + \varepsilon_{i,t} \qquad (1)$$

Where:
ACCR: Total Accruals
TA: Total Assets
ΔRev: Change in Revenues
ΔRec: Change in Receivables
PPE: Property, Plant & Equipment
ROA: Return on Assets
ε: Disturbance Term
EI: Macroeconomic Indicators
i: Company Identifier
t: Time Identifier
j: Country Identifier

In the next step, the difference between reported accruals and estimated accruals is taken. This is what we call "Abnormal or Discretionary Accruals - (DA)." It is the residual value of each observation for Equation 1.

In the second stage of analysis, the relationship between ESG scores and DA scores of companies is observed. We performed another regression model where DA stands for the dependent variable, and ESG scores along with some control variables, are independent variables.

In addition to macroeconomic indicators, we added country-specific governance scores in which corresponding companies operate. We assume that the political and legal structures of countries have a significant effect on company policies regarding the environment, society, and governance.

The following country-specific governance indicators were used. These data are collected from World Bank data sources (World Bank, 2022). The World Bank has developed a rating system for the following variables, which assigns scores between -2.5 (lowest score) and +2.5 (highest score).

A) Control of Corruption (concor)
B) Voice and Accountability (acct)
C) Political Stability and Absence of Violence/Terrorism (polsta)
D) Government Effectiveness (goveff)
E) Rule of Law (rulola)
F) Regulatory Quality (regqua)

We constructed a dynamic model that assumes a bilateral relationship between the regressand (DA) and some regressors (Env, Soc, Gov). Since the prior literature also points out this issue (Choi et al., 2018; Sial et al., 2018; Velte, 2019), we employed the Generalized Method of Moments (Arellano-Bond Model) and added 1st lag of the dependent variable in our model. The following model is used to estimate the relationship between DA and ESG variables (Equation 2). As in the 1st equation, we added macroeconomic indicators (EI) to this model as well.

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$$DA_{i,t} = \theta_0 + \theta_1 Env_{i,t} + \theta_2 Soc_{i,t} + \theta_3 Gov_{i,t} +$$
$$\alpha_i EI_{j,t} + \Omega_1 concor_{j,t} + \Omega_2 goveff_{j,t} + \Omega_3 polsta_{j,t} \quad (2)$$
$$+\Omega_4 regqua_{j,t} + \Omega_5 rulola_{j,t} + \Omega_6 acct_{j,t} + \alpha_i EI_{j,t} + \varepsilon_{i,t}$$

Where:
DA: Discretionary Accruals
Env: Environment Score
Soc: Social Score
Gov: Governance Score
concor: Control of Corruption
goveff: Government Effectiveness
polsta: Political Stability
regqua: Regulatory Quality
rulola: Rule of law
acct: Accountability
EI: Macroeconomic Indicators
ε: Disturbance Term
i: Company Identifier
t: Time Identifier
j: Country Identifier

Results

Descriptive statistics in Table 2 reveal that companies have around 2.8% of ROA for a five-year period. In addition, average accruals are negative, suggesting that the earnings before interest and taxes (EBIT) of the companies are less than their operating cash flows (OCF). We calculated accruals using the cash flow approach by subtracting OCF from EBIT. The main reason behind this difference may be due to the depreciation and amortization expenses since the PPE holds a considerable portion of assets. Consequently, there might be a considerable amount of depreciation expense in the books. The environmental score has an average of 49.6, slightly below 50, whereas the social responsibility score is 57.5, and the governance score is 59.9. These numbers lead us to the fact that companies focus more on society and their managerial effectiveness than environmental issues. The countries, on average, have reached a 1.1% GDP growth in this period with an average of 6.4% unemployment rate. Governance scores of countries show that, on average, countries are in a better spot in government effectiveness (1.02) and regulatory quality (0.95). On the other hand, political stability (0.25) and accountability (0.58) are the weakest points of governance for countries.

Table 2: Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
ΔRev - ΔRec	460	0.00326	0.06800	-0.39660	0.65130
PPE	460	0.42131	0.18506	0.00050	1.67200
ROA	460	0.02821	0.15824	-2.99690	0.37620
Accruals	460	-0.06180	0.04528	-0.23320	0.15820
Env	460	49.64109	23.06390	0.15100	87.50600
Soc	460	57.49016	20.38900	2.12900	97.44400
Gov	460	59.92569	19.07450	6.36400	97.21000
GDP growth	460	0.01129	0.03667	-0.10823	0.08256
Unemployment	460	0.06361	0.05694	0.00090	0.30030
Concor	460	0.83918	0.97612	-0.91058	2.28391
Goveff	460	1.01942	0.72850	-0.44978	2.33530
Polsta	460	0.24999	0.76267	-2.00906	1.61567
Regqua	460	0.95284	0.81160	-0.50282	2.22601
Rulola	460	0.89352	0.87041	-0.79369	2.07944
Acct	460	0.57576	0.86115	-1.72751	1.72509

Source: Own elaboration.

In the estimation of parameters in Equation 1, we used the Random Effects Model (Table 3). In static panel data models, we have primarily three options, namely, fixed effects model, random effects model, and pooled regression. To determine which model is the most suitable for our dataset, we employed some tests. Both the fixed effects model and random effects model supersede the pooled regression model because the test results reveal that there is a pattern in the error term which is systematic. This would eliminate pooled regression as an option. Firstly, we compared the fixed effect model with the pooled model, and we noticed that there is a significant effect of systematic error terms in the dataset. Hence this takes the fixed effects model ahead of pooled regression. Furthermore, we applied the Breusch and Pagan (Lagrangian Multiplier) test to decide between random effect and pooled regression. The results reveal a significant error compo-

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nent term, and we eliminated pooled model against the random effects model. In the last step, we executed the Hausman test between fixed effect and random effect models, and the results suggest there is not a significant entity-specific difference that is constant over time between error terms, and we selected the random effects model. Gujarati (2004) states that for data with a fewer number of periods and higher cross-section units, estimators of the random effects model are more efficient than those of the fixed effects model. Our model has five periods for 92 companies which can be included in the group of datasets Gujarati mentioned.

Table 3: Regression Results of Model 1 – Estimating DA (Random Effects – Robust Std. Error)

	Coefficient	Robust Std. Error	Z	P > Z
Constant***	-0.031620	0.006786	-4.66	0.000
$1 / Ta_{t-1}$	6423382.000000	5571051.000000	1.15	0.249
ΔRev - ΔRec**	-0.049510	0.022937	-2.16	0.031
PPE***	-0.076730	0.012455	-6.16	0.000
ROA	0.000513	0.013344	0.04	0.969
GDP Growth***	0.114660	0.035068	3.27	0.001
Unemployment	-0.004770	0.049875	-0.10	0.924

* Significant 10%, ** Significant 5%, *** Significant 1%, R2 = 0.127, Overall Significance: 138.7***
Source: Own elaboration.

The results reveal a significant effect of change in revenues and receivables (ΔRev – ΔRec) as well as PPE on accruals. We also notice that the GDP Growth of countries also has an impact on the accruals of companies. The sign of the variable (ΔRev – ΔRec) is negative, which implies an increase in receivables more than that of revenues will boost accruals. (ΔRev – ΔRec) variable decreases, and accrual increases. Secondly, the sign of PPE is also meaningful because more PPE results in higher depreciation and higher negative accruals; hence the signs of PPE and accruals are expected to be inverse. Finally, among two country-specific indicators, we see a significant positive impact of GDP growth rate on accruals because it is assumed that more GDP means more production and sales, which would inevitably cause an increase in accruals (Table 4).

Table 4: Regression Results of Model 2 – Estimating DA (Dynamic Model with 1 lag difference)

Variables	Coefficient	Std. Error	Z	P > Z
Constant***	0.086637	0.02436	3.56	0.000
DA (Lag1) ***	-0.386610	0.10594	-3.65	0.000
Env**	0.000210	9.69E-05	2.16	0.031
Soc	-0.000140	9.47E-05	-1.52	0.128
Gov	-7.17E-05	6.31E-05	-1.54	0.120
Concor	-0.014530	0.00959	-1.52	0.130
Goveff**	0.017457	0.00772	2.26	0.024
Polsta	-0.000670	0.00455	-0.15	0.883
Regqua	0.004432	0.00801	0.55	0.580
Rulola	0.013712	0.01705	0.80	0.421
Acct**	-0.023770	0.00980	-2.43	0.015
GDP Growth***	-0.160930	0.01524	-10.56	0.000
Unemployment	0.069124	0.08081	0.86	0.392

* Significant 10%, ** Significant 5%, *** Significant 1%, Overall Significance: 205.3***
Source: Own elaboration.

The results reveal a significant positive effect of the environmental score and a negative impact of the social and governance scores of companies on DA, yet social and governance scores lack significance at 10%. Moreover, governance effectiveness is positively associated, whereas accountability is negatively associated with DA. The control of the corruption score is inversely related to DA yet losing significance. Among macroeconomic indicators, the GDP Growth rate has a significant negative effect on discretionary accruals, and unemployment has no impact on DA. Another point attracting attention is that the lagged DA has a significant negative impact on DA. This may result from the efforts of management to cover EM practices of the

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prior year by reversing accounts. It may also be caused by the policy of financial management of companies regarding cash collection patterns over the years.

Conclusion

The telecommunication industry, inherent to its nature, is assumed to pursue continuous innovations. It needs strong governance mechanisms and is subject to more regulations than other sectors, leading them to follow more social and environmental policies. This study aimed to investigate the bilateral relationship between earnings management practices and ESG scores of telecommunication companies on a global scale. We assumed a negative relationship between ESG scores and earnings management in telecommunication companies. We constructed two models; firstly, we estimated discretionary accruals using the performance-adjusted Modified Jones Model developed by Kothari et al. (2005). In the second stage, we examined the bilateral relationship between ESG scores with discretionary accruals gathered from the first model.

The results reveal that companies with higher Environmental Scores have higher dispersion than normal accruals; this may result for two reasons in our anticipation. They may record more accruals depending on environmental regulations. They may use environmental scores to make up their earnings. Social and governance scores do not exhibit a significant effect on DA, though their signs are negative. Another point to mention is the relationship between DA and the governance scores of countries. The effect of "accountability" and "control of corruption" on a country would lead to less DA. On the other hand, governance effectiveness has a positive relation with DA. GDP Growth rate also has a negative impact on DA.

This study contributes to academia, practitioners and policymakers in various ways. The results suggest that the policymakers and regulators should enhance the accountability and transparency of the country to prevent the companies from manipulating the financial statements, reinforcing the reliability of financial information, and supporting sustainability reporting. This study helps practitioners and academics understand the impact of the environmental, social, and governance scores on the earnings quality of the telecommunication sector worldwide.

The main limitation of this study is the lack of ESG data provided by the companies. We targeted a larger population and wanted to include more than five hundred telecommunication companies in the study. Because of the missing data from the companies, we had to narrow the sample size. Furthermore, most companies that have announced the ESG scores were from developed countries or from larger economies; thus, the developing economies have been less represented in the sample.

Further studies may include comparing the telecommunication companies based on whether they announced the ESG scores or not. The impact of ownership structure or board composition of telecommunication companies on the relationship between ESG scores and earnings management could be examined.

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