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Measuring the Relationship Between Accounting Reporting Quality and ESG Performance in the US Context

Summary

This research investigates the relationship between sustainability and accounting quality, as well as the direction of this relationship. The analysis focuses on the decline in accounting quality related to earnings management and performance scores derived from the ESG (Environmental, Social, and Governance) assessment frameworks.

The final sample includes 126 US companies listed on NASDAQ and NYSE stock exchanges, selected after methodological screening. A detailed and methodological analysis of the accounting and sustainability data of these randomly selected companies from 2018 to 2024 shows a negative relationship using correlation and regression analysis between earnings management and ESG performance for all variables analysed, except for 2023. This negative correlation is statistically significant for each year with a significant correlation, and the R^2 values indicate that the explanatory power of the models is moderate.

Keywords: ESG score, ESG performance, CSR, accounting quality, financial reporting quality (FRQ), earnings management, discretionary accruals, publicly listed companies

JEL-codes: M40, M41, G32

Introduction

Global climate issues, sustainability, and the need for social responsibility will undoubtedly affect our environment, society, and economy in both the short and long term. These areas have gained equal importance among businesses, investors, and other stakeholders alike. Financial and accounting scandals are seen as one of the main drivers that have brought non-financial issues and other business-related matters to the forefront of broader ethical and sustainability-focused investigations of companies. Decision-makers are currently assessing the new ESG-focused strategy and its implementation within company management. Additionally, analyzing the opportunities and risks disclosed in sustainability and non-financial reports is a critical factor in this evaluation (PwC, 2021). Moreover, it is well known that ESG performance has an influence on a company's financial performance, cost of capital, share price and company value, as well as value creation for society (Rezaee and Tuo, 2019; Feng and Wu, 2021). Additionally, companies that voluntarily disclose sustainability reports highlight the effect of corporate culture and operational approach changes on their operations, even if they are not obligated to do so. A key reason for this voluntary disclosure is that management and owners want to share information with external stakeholders. Their goal is to improve the company's image, stand out from competitors, and reduce information asymmetry between the company and its stakeholders (Sofian et al., 2022). However, critics argue that companies may engage in greenwashing to improve external perceptions by appearing to improve their sustainability performance and values, while presenting a false picture of their actual performance. In a number of cases, companies voluntarily engage in ESG reporting with a view to gaining a competitive advantage and expanding their market share. This competitive advantage is often difficult for competitors to replicate or imitate due to several factors. This can be well measured by indicators expressing competitive priorities such as cost, quality, flexibility and time. Given the potential effects of ESG reporting on quality in terms of competitive priority, it is crucial to examine the correlation between ESG performance and accounting quality.

Given this critical role of ESG disclosures and their inherent relationship with transparency and stakeholder decision-making, it becomes crucial to understand the interplay between ESG performance and accounting quality. Investigating this correlation will shed light on whether ESG engagement effectively signals higher integrity in financial reporting or serves as a predictive measure for identifying potentially unethical or manipulative accounting practices. Such understanding not only reinforces the practical importance of ESG criteria but also provides stakeholders, regulators, and investors with insights essential for informed decision-making and effective risk management.

Literature Review

ESG

The term ESG, as recognised presently, was formally published in the UN Global Compact Initiative's 2004 publication „Who Cares Wins" (UN, 2004). This marked the beginning of its widespread use in business as demands for sustainability grew. ESG is an abbreviation for Environmental, Social, and Governance. In essence, ESG constitutes an analytical and evaluative framework that provides stakeholders with information regarding a company's or organisation's environmental, social, and governance issues and risks (Gao et al., 2021). This objective is realised through reports generated and published by the framework's core areas and additional sub-pillars. To

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ensure accurate benchmarking, reports must adhere to consistent guidelines and specific rules recommended by the standard system of the assessed enterprise or organisation (Wan et al., 2023).

ESG scores or ratings are issued by third-party providers to the company or organization being assessed and analyzed, as well as to the general public, based on reports produced under the chosen framework. Well-known ESG rating organizations today include Morgan Stanley Capital International, Sustainalytics, ISS ESG, Thomson Reuters, Bloomberg and Standard & Poor's Global. Establishing a comprehensive framework for comparing ESG scores and ratings is challenging because external rating agencies use distinct indicators and methodologies, often leading to significant variations in assessments. This diversity could be tackled through potential standardisation, leading to a simplification of decision-making for investors and a boost in transparency (Billio et al., 2021).

The framework's detailed data is crucial for both investor and shareholder decision-making, driving a growing demand for comprehensive ESG performance reporting to more accurately illustrate its development and progression over time (Ed-Dafali et al., 2025). The emergence of non-financial reporting improves stakeholders' investment efficiency (Allman and Won, 2022), thus increasing the role of information demand, creating new quality expectations and mitigating the harmful and costly effects of information asymmetry. The role of auditing in ESG-based reporting is pivotal, as it enhances the growth potential and relevance of such reports. The fundamental objective of auditing is to ascertain that the report accurately represents the data and reflects the prevailing circumstances. The inclusion of false or inaccurate information in such reports has the potential to compromise their quality and reliability.

Accounting quality

In any economy, reliable accounting information is essential to maintain market stability and ensure the accuracy of financial data, while removing factors that may reduce the quality of this information. This information is disseminated to economic agents through annual and financial reports, assisting them in decision-making regarding economic operators. The annual reports are the culmination of various processes. Accounting regulations delineate the reporting and accounting responsibilities of entities subject to legislation and standards (Bansal, 2024). In addition, they specify accounting principles, fundamental rules, and requirements for disclosure and auditing. Accounting report results from a combination of several processes. The preparation of annual financial reports is based on data from the fiscal year and the prior period. The ensuing audit serves to verify and disclose data included in the reports, thus presenting a reliable and impartial overview for users seeking information.

Figure 1 illustrates the intricate nature of this process, wherein actors utilise various hardware and software to execute their tasks while also employing skills they have acquired. As a result, it can be deduced that the accounting reports are indeed a byproduct of these processes. The externalisation of this set of data occurs during the disclosure procedure.

There is a new emerging demand for quality accounting, financial and other information from governments, companies, analysts, academics, investors and other stakeholders. Access to high-quality knowledge and relevant information is crucial for effective risk analysis and informed decision-making (IASB, 2018). The absence of such information may result in misleading and unprofitable choices. Therefore, the quality of a company's reporting is continuously reviewed and maintained. The significance of inquiries has been affirmed by the several bookkeeping-related corporate scandals that have appeared on the international market with a distorting character, such as Enron, Lehman Brothers, WorldCom, Satyam, Merck and Waste Management Company.

Accounting quality refers to the overall effectiveness of the accounting system, as determined by the quality of its financial reports (Santos-Jaén and León-Gómez, 2021). The role of managers in influencing the quality of accounting is significant, particularly when considering the external environment. Managers have the ability to shape and manipulate financial and accounting reports through earnings management and creative accounting, all while remaining within the confines of legal regulations.

The quality of financial reporting can be ascertained by models, qualitative attributes, and reports. Several models are available for analysing these dimensions, with some models building on each other or influencing the emergence of new concepts and the development of existing ones (Vagner et al., 2021).

Research has indicated that executives engage in earnings manipulation if they receive compensation based on higher corporate earnings (Healy, 1985). The influence of certain key actors on accounting practices can lead to a reduction in the relevance, credibility, verifiability and accuracy of financial reporting, which in turn can reduce the quality of financial reporting.

There are various methods of earnings management, including periodic adjustments to accounting policies to reflect short-term increases in revenue, changes in depreciation rates, and the creation of provisions against profits and their release in a less profitable year. As a result,

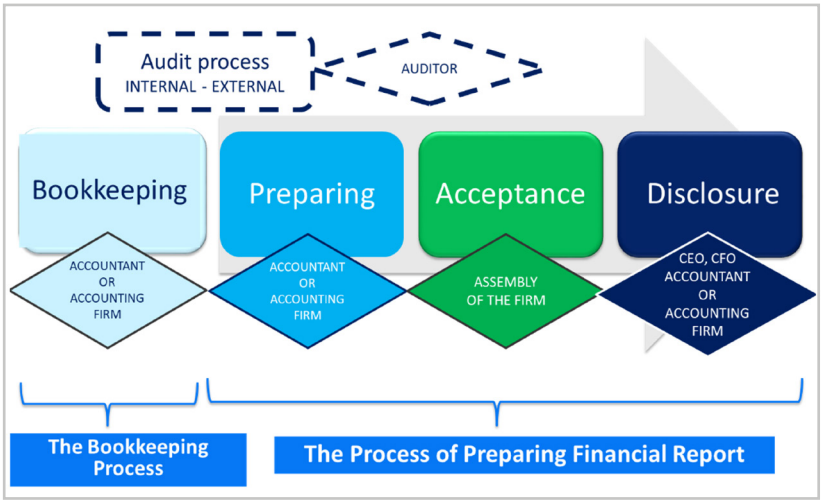

Figure 1. The accounting report as a product
Source: Budai et al. (2021) pp. 112. figure 1.

such accounting procedures may impact the operating cash flows of businesses during a given period.

It is important to acknowledge that no individual model in the literature is universally superior to others. Rather, researchers develop models and analytical methods to test their own and others' hypotheses based on the central focus of their research. The challenge does not lie in the absence of an accounting quality model, but rather in the absence of a model that surpasses all others in an all-encompassing way. Moreover, it is evident that no single model can be considered universally applicable in all situations or capable of addressing all potential limitations and measurement errors.

The following section outlines prominent research methods in accounting quality concerning earnings management. This will increase comprehension of research methodology and its determinants. In order to ensure the maintenance of comparability, all of the defining models are presented in a sequential manner.

Earnings management

Accounting quality modelling is based on management influence to achieve changes in accounting and financial performance. Within the literature, two forms of influence are detailed: non-discretionary influence and discretionary influence. Changes that correspond to managerial interests are identified as discretionary influence whilst non-discretionary influence stems from legislative or regulatory measures. The total degree of influence corresponds to the combination of these two components (Nguyen et al., 2023). It should be noted that since the 1980s, accounting studies have examined the incentives for managerial coordination, with a focus on empirical measurement of managerial influence from the point of view of several researchers.

Healy's model (1985)

Healy's (1985) model is based on the notion that managers impact accounting data. Healy highlights two factors that contribute to this influence: firstly, managers' bonus contracts, which are determined by earnings targets, and secondly, the accounting procedures and methods that managers alter to implement or modify bonus plans. It is important to note that a causal connection exists between these factors. Healy categorises the total influence into two parts: non-discretionary changes, where rule makers enforce mandatory changes; and discretionary changes, where managers choose to make changes in order to comply with accounting rules. Therefore, the total influence can be summarised as follows:

$$ACC_t = DA_t + NA_t$$

where ACCt = total accruals in year t; DAt = discretionary accruals in year t; NAt = non-discretionary accruals in year t.

It should be assumed that the value of the periodic discretionary accruals is expected to be zero. If it has a value other than zero, the enterprise's result will change. If the periodic discretionary accruals are negative, the result improves, and if it is positive, the result of the enterprise decreases. Total accruals and the impact of alterations in voluntary accounting methods, such as variations in depreciation, were employed as the two variables for discretionary modifications. Total accruals are defined as the difference between reported revenue and operating cash flow according to the following equation:

$$ACC_t = -DEP_t - XI_t * D_1 + \Delta AR_t + \Delta INV_t - \Delta AP_t - (\Delta TP_t + DEF_t) * D_2$$

where DEPt = depreciation in year t; XIt = extraordinary items in year t; ΔARt = accounts receivable in year t less accounts receivable in year t-1; ΔINVt = inventory in year t less inventory in year t - 1; ΔAPt = accounts payable in year t less accounts payable in year t - 1; ΔTPt = income taxes payable in year t less income taxes payable in year t-l; DEFt = deferred income tax expense (credit) for year t; D1 = 1 if bonus plan earnings are defined after extraordinary items, 0 if bonus plan earnings are defined before extraordinary items; D2 = 1 if bonus plan earnings are defined after income taxes, 0 if bonus plan earnings are defined before income taxes.

Based on their performance in bonus plans, he categorized the companies into three portfolios: low, medium and high. He connected the changes in bonus plans to the impact of accounting changes and found that the number of discretionary changes was higher in companies where there had been some change in bonus plans. This confirmed the hypothesis that managerial influence is motivated by a desire to earn bonuses.

DeAngelo's model (1986)

DeAngelo's (1986) model is structured on Healy's (1985) model, which commences with the description of total influence composed of two components, discretionary managerial influence and non-discretionary managerial influence. DeAngelo analysed the current and preceding periods using the formula below:

$$AC_1 - AC_0 = (DA_1 - DA_0) + (NA_1 - NA_0)$$

where ACt = abnormal total accruals in year t; DAt = discretionary accruals in year t; NAt = non-discretionary accruals in year t.

DeAngelo (1986) examines earnings management by computing the difference between the given period and the previous period of all discretionary managerial influences under consideration. She posits that, under the null hypothesis of no earnings management, this expectation has a value of zero.

Total accruals are quantified in a comparable manner to that of Healy's method, but with an added consideration for the effect of the capital approach of inter-company investment on earnings.

DeAngelo also acknowledges the mathematical inability to determine discretionary accruals independently, in agreement with Healy (Aren, 2003).

Jones model (1991)

Jones (1991) developed a model that supports the assumption of discretionary accruals not being constant, as confirmed by the model itself. The model, based on DeAngelo's approach, measures changes between previous and current periods, and considers economic circumstances when predicting influence. To measure the influence, Jones (1991) uses the following equation:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1\left(\frac{1}{A_{it-1}}\right) + \beta_{1i}\left(\frac{\Delta REV_{it}}{A_{it-1}}\right) + \beta_{2i}\left(\frac{PPE_{it}}{A_{it-1}}\right) + \varepsilon_{it}$$

where TAit = total accruals in year t for company i; ΔREVit = change in revenues of company i in year t and t-1; PPEit = gross

property, plant, and equipment in year t for company i; Ait-1 = total assets of company i over year t-1; εit = error term in year t; i = the indices of the enterprises given; t = indices for the periods under examination; α, β = company-specific parameters.

Jones employed the subsequent equation for calculating total influence:

$$TAit = \frac{\Delta Current\ Assetsit - \Delta Cashit - \Delta Currrent\ Liablitiesit}{- Depreciationit}$$

where TAit = total accruals in year t for company i; CurrentAssetsit = current assets in year t less current assets in year t – 1 for company i; ΔCashit = cash in year t less cash in year t – 1 for company i; ΔCurrentLiabilitiesit = current liabilities in year t less current liabilities in year t – 1 for company i; Depreciationit = depreciation and amortization expense in year t for company i.

Jones (1991) showed that the model can explain approximately a quarter of the total variability of influence (Dechow et al., 1995).

The model utilised both negative and positive variables and applied t-statistics and Wilcoxon Signed Rank test across all variables. The primary principle of Jones' (1991) outcome approach model is that any deviation between current and previous period accruals are attributed to a change in discretionary accruals, since non-discretionary accruals exhibit no consistent changes over time (Duman, 2010).

Modified Jones model (1995)

DeFond and Jiambalvo (1994) and Dechow et al. (1995) further extended the Jones model, which is widely applied in literature. DeFond and Jiambalvo (1994) suggested that, instead of using standard regression coefficients for each company across sectors, improved results could be achieved by calculating coefficients separately for each sector. Meanwhile, Dechow et al. (1995) made the greatest contribution to the Jones model by proposing a modified version of it. The authors attempt to overcome the assumption that companys do not manage their sales, since it is common for companies to manipulate their receivables in order to decide when to collect these sales. Moreover, Dechow et al.'s (1995) modification leads to the inclusion of companies that manage their profits by recognising sales, whereas in the Jones model these companies may consider their profits to be less or not manipulated at all, and thus have a higher earnings quality. Ultimately, there is greater flexibility in delaying credit sales as opposed to cash sales, rendering the former more suitable for managing earnings.

In the Modified Jones model, the estimated non-discretionary impact in the year of the event, where earnings management is assumed, follows as:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1\left(\frac{1}{A_{it-1}}\right) + \beta_{1i}\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}\right) + \beta_{2i}\left(\frac{PPE_{it}}{A_{it-1}}\right) + \varepsilon_{it}$$

where TAit = total accruals in year t for company i; ΔREVit = change in revenues of company i in year t and t-1; ΔRECit = change in receivables of company i in year t and t-1; PPEit = gross property, plant, and equipment in year t for company i; Ait-1 = total assets of company i over year t-1; εit = error term in year t; i = the indices of the enterprises given; t = indices for the periods under examination; α, β = company-specific parameters.

In Jones' (1991) model, total sales are assumed to be a normal influence, and revenue entries are made only after the conditions for settlement have been met. This approach is one of the earnings management methods that factors in revenue prior to its receipt or accrual. If revenue from sales is recognized before the credit entry, it will result in an increase in trade receivables and also impact the profit or loss on the income statement. Dechow et al. (1995) pinpointed a significant drawback in the Jones (1991) model for computing discretionary accruals and addressed it by devising the widely acknowledged „Modified Jones model".

Several key findings can be deduced from the outcomes of the investigation focused on earnings management. Initially, regardless of the model utilised to depict earnings management, the explanatory capability of the variables is comparatively limited for income management of satisfactory volume. Further exploration to create better specified models that yield more effective outcomes could enhance the perceptual competence of earnings management. If the earnings management variable correlates with company performance, then the earnings management variables could be potentially misspecified for all models considered. Additionally, it is important to consider the relationship between the context of the earnings management assumption and the models of non-discretionary accruals because the model of non-discretionary accruals may inadvertently extract the discretionary component of accruals.

Sustainability and earnings management

The evolution of ESG guidelines and frameworks has provided and continues to provide, a new field of research for professionals. The expansion of non-financial and sustainability reporting stemming from corporate social responsibility has brought greater attention to the accounting aspect of the matter. The European regulators' oversight of the stock market, which mandates disclosure of environmental, social, and governance issues and risks, has further reinforced this trend. In recent years, a wealth of literature has explored the connections and developments concerning accounting quality and ESG (Deng et al., 2024; Velte, 2020; Santos-Jaén and León-Gómez, 2021). Some authors (Barnett and Salomon, 2012; Friede at. al., 2015; Haiyu, 2024; Ho et al., 2024) have highlighted the positive effects of CSR and ESG reporting, such as improved business performance and improved accounting quality, while others have questioned the credibility of CSR and focused on its link to earnings management. Despite the substantial increase in activity, it would be difficult to conclude that the field of research into the quality of financial reporting and, within it, the approach to earnings management, has been completely closed. Future regulations are likely to lead to an increase in research and knowledge and open up new areas for experts, as a better understanding of corporate behaviour requires a thorough knowledge of financial and non-financial issues, which can be enhanced by scientific measurements and results.

A considerable amount of empirical research has examined the relationship between earnings management and ESG or CSR. Certain research indicates a negative relation between ESG and CSR policies and earnings management (Gonçalves et al., 2021; Grimaldi et al., 2020; Nagy et al., 2022), suggesting a potential shift towards the aforementioned policies.

This means that there is less earnings management in companies where sustainability policies and reports are applied (Velte, 2019). The ethical pillar of the guidelines underpins the rationale behind this phenomenon, which stipulates that influencing and concealing information based on a manager's personal interests is unethical conduct. Consequently, the implementation of ESG or CSR measures in this context can enhance transparency and curtail corporate opportunism (Sofian et al., 2022). Moreover, ESG and CSR may often be expected to contain factors that negatively affect company performance or improve reporting quality and reduce discretionary accruals (Gavana et al., 2022, Rezaee and Tuo, 2019), and may also provide a competitive advantage in terms of enhanced corporate reputation or increased market share. In highly competitive markets, there may be incentives for companies to adopt ESG practices. Competition in product markets incentivises companies to adopt ESG practices proactively and deliberately to prosper in a challenging marketplace. This, in turn, affects financial reporting and earnings management. This may imply that widely applied ESG standards are more effective in limiting the influence of corporate earnings on market competition (Andriosopoulos and Gialtouridis, 2021), thereby reducing so-called agency costs. These findings indicate that high ESG standards can be more effective in restricting companies' earnings management activities where market competition is intense.

Research reveals a statistical correlation between CSR or ESG and financial performance. Nevertheless, this correlation is weakly interpreted in economic terms because the methodologies used in the studies have prevented the complete definition of the relationship. Therefore, there is no centrally defined relationship, only the fact of its existence (Brooks and Oikonomou, 2018). Nevertheless, some studies (Şeker and Şengür, 2021; Liu, et al., 2023; Ricapito, 2024) indicate that when management uses earnings management techniques, it is in the company's interest to improve ESG performance, thus masking the impact of the influence used. These findings establish a favourable correlation between ESG and earnings management. However, the researcher's position on the magnitude of this link remains a topic of debate. In certain literature, a connection has been established between CSR or ESG and earnings management when a company experiences a period of losses or when there is a macroeconomic crisis that impacts the companys profitability through its management during specific cycles (Gonçalves et al., 2021).

Methodology and Data

The present study was predicated on the compilation of a proprietary panel database, utilising data from the Securities and Exchange Commission's (SEC) Electronic Data Collection, Analysis, and Retrieval (EDGAR) database system. The database was constructed through the aggregation and evaluation of annual reports and statements from the aforementioned system. The companies under observation were assigned ESG scores from the S&P Global database system. In order to be included in the sample, a number of criteria had to be met, focusing exclusively on large international companies that:

– data were available for all financial years between 2018 and 2024,
– reported in USD,
– were quoted on the NASDAQ (National Association of Securities Dealers Automatic Quotation) and NYSE (New York Stock Exchange),
– were incorporated and located in the United States of America,
– were engaged in manufacturing, retailing or service activities (the financial institution sector is excluded due to its specific characteristics),
– the corresponding ESG score was available.

The sample was selected from companies with high market capitalisation according to NASDAQ and NYSE 2025 data, from which 300 companies were selected through simple random sampling and further screening. Taking these criteria into account, a panel of 882 observations (company-years) was obtained, containing a total of 126 companies with 7 years of data (2018 to 2024). The sampling restriction of the analysis is summarised in *Table 1.*

Table 1. Narrowing the analysis sample.

Number of companies to be sampled	**300**
Number of excluded companies	**174**
Of which:	
Companies not headquartered in the United States	89
Companies with incomplete financial data for the examined period	46
Financial institutions, companies	31
Companies with a non-available ESG score	8
Final sample used in research	**126**

Source: based on own editing (2025)

For each company, the necessary data has been collated in order to examine the relationship between accounting quality and ESG performance for all financial years from 2018 to 2024.

The analyses include a dummy variable indicating whether any of the BIG4 companies (Deloitte, KPMG, EY, PwC) audited the listed companies. Consequently, if any of the aforementioned parties audit the reports, the value assigned to the analysis is ‚1'; otherwise, it is ‚0'. The introduction of this variable is attributable to the fact that auditors of larger companies are more experienced, conservative, and legitimately examine the financial data of companies (DeFond and Jiambalvo, 1994). Consequently, the likelihood of the use of earnings management is reduced.

Analysis and Results

Following the collection of data from reports and company websites, the modelling was conducted using the SPSS statistical software. This yielded the descriptive statistics presented in *Table 2.*

The descriptive statistics are based on the four indicators and variables employed to assess discretionary accruals. Two of these are directly related to the modified Jones model, while the remaining two are included as controls. The mean value of (ΔRev-ΔRec)/At-1 for the 126-item sample ranges between 0.296 and 0.575, which is relatively low. This may be attributed to the fact that the change in turnover is less pronounced than the change in receivables, or it may be due to the allocation of a higher value of assets. The evolution of the indicator is

Table 2. The results of descriptive statistics, 2018-2024.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
2018							
(ΔRev- ΔRec)/At-1	126	-0.140	4.650	0.318	0.399	5.102	49.266
PPE/At-1	126	0.000	4.650	0.400	0.417	4.321	37.871
ESG	126	0.040	1.000	0.488	0.198	0.109	-0.247
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719
2019							
(ΔRev- ΔRec)/At-1	126	-0.190	78.780	0.575	4.694	16.632	278.053
PPE/At-1	126	0.000	78.780	0.673	4.690	16.610	277.555
ESG	126	0.090	0.990	0.495	0.189	0.085	-0.348
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719
2020							
(ΔRev- ΔRec)/At-1	126	-0.330	5.580	0.341	0.546	5.823	48.770
PPE/At-1	126	0.000	5.580	0.438	0.552	5.333	42.764
ESG	126	0.050	0.940	0.494	0.185	-0.057	-0.318
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719
2021							
(ΔRev- ΔRec)/At-1	126	-0.080	2.370	0.296	0.308	2.179	9.372
PPE/At-1	126	0.000	2.370	0.375	0.350	1.953	6.402
ESG	126	0.080	0.980	0.522	0.179	-0.182	-0.466
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719
2022							
(ΔRev- ΔRec)/At-1	126	-0.080	14.260	0.345	0.886	13.977	219.282
PPE/At-1	126	0.000	10.940	0.398	0.708	11.999	176.851
ESG	126	0.090	0.990	0.575	0.180	-0.044	-0.416
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719
2023							
(ΔRev- ΔRec)/At-1	126	0.000	2.360	0.361	0.299	1.525	6.157
PPE/At-1	126	0.000	1.780	0.317	0.276	1.252	2.660
ESG	126	0.020	0.980	0.507	0.197	-0.149	-0.102
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719
2024							
(ΔRev- ΔRec)/At-1	126	0.000	2.370	0.332	0.294	1.866	8.136
PPE/At-1	126	0.000	1.410	0.353	0.280	0.741	0.040
ESG	126	0.070	0.960	0.533	0.187	-0.041	-0.357
Audit/BIG4	126	0.000	1.000	0.972	0.167	-5.701	30.719

Source: own editing using SPSS (2025)

characterised by a high standard deviation, ranging between 0.294 and 4.694, however, these trends are addressed by models measuring accounting quality when running the regression equations. The average value of PPE/At-1 is between 0.317 and 0.673, which is indicative of a medium level of fixed assets for a sample of 126 items. The observed variation in the values may be explained by the differing depreciation methods employed, the fluctuations in the stock of fixed assets over the period in question, and the size of the total value of assets used as a divisor. The methodology for calculating the ESG score published by S&P Global can be described as a multi-stage system. In the first step, the published non-financial reports and information of the company or organisation under assessment are examined against a number of factors, so that one component of the overall summary score can be determined. As the set of data contained in the non-financial reports may not always provide sufficient information, additional disclosure/data may be required for the benefit of the analysing company. This leads to a secondary step, whereby the final component of the score is quantified using the scoring information provided by the companies or organisations under assessment.

The combined score of the two components provides the overall aggregate score on ESG performance, with a lower bound of 0 and a maximum bound of 100. The scores obtained are subsequently classified into groups in order to evaluate the value of the three ESG performance areas in question. The final score is constructed by weighting the importance of the environmental, social and governance values specific to the sub-sector of the company in question, thus demonstrating the value of the specific ESG pillars in aggregate. It is important

Table 3. Results of the Shapiro-Wilk test to examine the normality of ESG scores, 2018-2024.

	ESG_2018	ESG_2019	ESG_2020	ESG_2021	ESG_2022	ESG_2023	ESG_2024
Shapiro-Wilk	0.992	0.992	0.994	0.990	0.992	0.991	0.992
P-value of Shapiro-Wilk	0.151	0.107	0.283	0.061	0.134	0.100	0.107

Source: own editing using JASP (2025)

Table 4. Descriptive statistics for discretionary accruals, 2018-2024.

	N	Minimum	Maximum	Mean	Std. Deviation	Shapiro-Wilk	P-value of Shapiro-Wilk
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
EM_2018	126	0.011	1.030	0.492	0.192	0.992	0.168
EM_2019	126	0.020	1.920	0.750	0.293	0.922	0.157
EM_2020	126	0.089	1.540	0.690	0.297	0.993	0.181
EM_2021	126	0.112	1.580	0.695	0.294	0.993	0.245
EM_2022	126	0.091	1.080	0.516	0.176	0.995	0.586
EM_2023	126	0.001	1.380	0.808	0.239	0.994	0.362
EM_2024	126	0.022	1.360	0.683	0.270	0.995	0.429
Valid (N) listwise	126	-	-	-	-	-	-

Source: own editing using SPSS and JASP (2025)

to note that the weighting basis employed by Standard and Poor's Global in its methodology considers the significant risks and opportunities of the company within the context of industry-specific weighting. The mean of the index is 0.488 (48.8 points) to 0.575 (57.5 points), with a standard deviation of 0.180 (18 points) to 0.198 (19.8 points). In order to verify the normality of the variable, the Shapiro-Wilk tests were applied to the ESG scores between 2018 and 2024. The findings indicate that the null hypothesis, which postulates that the data follow a normal distribution, cannot be rejected at the 5% significance level in any given year. The Shapiro-Wilk statistics range from 0.990 to 0.994, while the p-values are above the 0.05 threshold in all years, thus confirming the normality of the ESG variables and the applicability of the parametric procedures in the analysis.

Following the descriptive statistical analysis, the linear regression test were conducted. Furthermore, the extent of discretionary accruals for each company was also examined. The value of the discretionary accruals is derived from the company error term (εi,t) which were calculated by companies, and by standardising each residuals. The results are presented in *Table 4*.

Table 4 illustrates that the data published by the companies in question exhibits distortions, as evidenced by the observation that the quality of the accounting reports for the companies under study is not identical to 0. It can be inferred that as the value obtained deviates further from 0, the degree of bias in the accounting reports increases. Additionally, as illustrated in *Table 4*, the mean values for each year fall within the range of 0.492 to 0.808, which may indicate that the financial statements prepared by the companies largely adhere to the legal requirements. Shapiro-Wilk test were used to examine the normal distribution of discretionary accruals (EM) over the period 2018-2024. The resulting statistics demonstrate that for all years, the Shapiro-Wilk values range from 0.922 to 0.995, while the corresponding p-values are above the 0.05 significance level in all cases. Consequently, it is not possible for the null hypothesis, which posits that the distribution of discretionary delimitations does not deviate significantly from a normal distribution, to be rejected in any given year.

It is noteworthy that the lowest Shapiro-Wilk value (0.922) and the lowest p-value (0.157) also indicate that normality is maintained (for EM_2019), while the highest values provide strong support for the assumption of normality. The means and variances of the variables demonstrate slight year-to-year variations; however, these do not have a substantial impact on the conclusions concerning normality.

Descriptive statistical methods were employed for the purpose of evaluating the performance of the companies included in the study. In order to ascertain the potential correlation between discretionary accruals and ESG performance, it is recommended that a correlation matrix be employed. Subsequent to this, significant results should be subjected to further testing.

However, prior to the analysis, it is important to note that the literature and the approaches of the study suggest that mixed results can be interpreted in the relationship between ESG performance and earnings management or accounting quality. The majority of studies maintain or assume a negative relationship between ESG performance and earnings management, but the contradictions between studies cannot be ignored (Lo, 2008; Nurrahman et al., 2019; Yamina and Ghazi, 2022; Almubarak et al., 2023). The discrepancies can be interpreted from the different methodologies of different sustainability scores and it is also important to take into account the different treatment of variables in some models (Velte, 2019).

The correlation coefficient (r) can assume a value between -1 and +1. As the number of elements in the sample increases, the theoretical correlation coefficient is approximated with greater and greater reliability. It would be erroneous to infer a true correlation from a result that appears to demonstrate a close correlation. It may be the case that the variation in both ‚x' and ‚y' is clearly inferred from the value of a third variable, ‚z'.

In the case of a small sample size, there is a possibility that the observed correlation may be attributed to chance. In order to consider the correlation coefficient value as acceptable, it is also necessary to test the significance level using the N-2

Table 5. Correlation coefficients, 2018-2024.

Variables		EM_2017	EM_2018	EM_2019	EM_2020	EM_2021	EM_2022	EM_2023	EM_2024	ESG_2017	ESG_2018	ESG_2019	ESG_2020	ESG_2021	ESG_2022	ESG_2023	ESG_2024
EM_2017	P. corr.	—															
	p-value	—															
EM_2018	P. corr.	0.012	—														
	p-value	0.839	—														
EM_2019	P. corr.	0.023	0.014	—													
	p-value	0.701	0.813	—													
EM_2020	P. corr.	0.009	0.060	0.051	—												
	p-value	0.886	0.317	0.393	—												
EM_2021	P. corr.	0.090	0.040	0.005	0.005	—											
	p-value	0.131	0.500	0.937	0.938	—											
EM_2022	P. corr.	0.082	**0.120***	0.055	0.013	0.070	—										
	p-value	0.168	**0.045**	0.361	0.827	0.240	—										
EM_2023	P. corr.	0.035	0.010	0.049	0.014	0.053	0.075	—									
	p-value	0.561	0.869	0.416	0.822	0.377	0.213	—									
EM_2024	P. corr.	0.051	0.042	0.066	0.002	0.052	**0.123***	0.004	—								
	p-value	0.390	0.481	0.268	0.967	0.382	**0.040**	0.944	—								
ESG_2017	P. corr.	**-0.222***	-0.060	**-0.146***	-0.069	-0.013	-0.143	**-0.116***	**-0.158****	—							
	p-value	**0.037**	0.120	**0.014**	0.147	0.327	0.016	**0.048**	**0.008**	—							
ESG_2018	P. corr.	-0.012	**-0.230****	-0.005	0.005	-0.085	0.022	-0.039	-0.018	0.044	—						
	p-value	0.447	**0.001**	0.438	0.332	0.157	0.317	0.212	0.466	0.462	—						
ESG_2019	P. corr.	-0.163	**-0.082***	**- 0.118***	-0.163	-0.069	0.034	-0.216	-0.174	0.128	0.100	—					
	p-value	0.294	**0.028**	**0.048**	0.289	0.248	0.566	0.625	0.218	0.637	0.997	—					
ESG_2020	P. corr.	-0.083	0.054	-0.172	**-0.132***	**-0.147***	-0.117	-0.156	-0.233	0.213	0.104	0.031	—				
	p-value	0.165	0.950	0.228	**0.026**	**0.043**	0.083	0.054	0.381	0.834	0.648	0.605	—				
ESG_2021	P. corr.	-0.090	-0.027	-0.024	0.035	**-0.102****	-0.017	-0.026	-0.173*	0.117	0.061	0.041	**0.180***	—			
	p-value	0.134	0.257	0.188	0.563	**0.001**	0.472	0.461	**0.030**	0.721	0.311	0.494	**0.041**	—			
ESG_2022	P. corr.	-0.107	-0.142	**-0.086***	-0.006	0.017	**-0.246***	**-0.142***	-0.135	0.217	0.013	0.033	0.043	-0.076	—		
	p-value	0.435	0.483	**0.047**	0.921	0.778	**0.022**	**0.014**	0.563	0.582	0.823	0.486	0.372	0.205	—		
ESG_2023	P. corr.	-0.041	-0.026	-0.084	0.013	-0.018	**-0.119***	-0.233	-0.165	0.231	0.096	0.034	0.191	0.052	0.027	—	
	p-value	0.495	0.066	0.159	0.823	0.761	**0.046**	0.581	0.274	0.301	0.424	0.570	0.126	0.389	0.155	—	
ESG_2024	P. corr.	-0.014	-0.015	-0.066	-0.005	-0.056	-0.023	**-0.202***	**-0.107***	0.056	0.023	0.265	0.161	0.096	0.022	0.162	—
	p-value	0.209	0.808	0.271	0.931	0.350	0.705	**0.019**	**0.030**	0.351	0.707	0.280	0.007	0.108	0.716	0.304	—

** p < 0.05, ** p < 0.01, *** p < 0.001, Source: own editing using JASP (2025)*

degree of freedom t-test. The resulting values allow us to conclude that the prerequisites for the empirical tests are fulfilled (*Table 5.*).

The objective of the modelling is to identify a potential correlation between discretionary accruals, accounting quality and ESG performance. The initial hypothesis is H0: ρ=0, which implies that there is no relationship between the factors under investigation, namely that accounting quality and ESG performance are not related. If the absolute value of t is greater than the critical value for the given level of significance and degrees of freedom, the null hypothesis is rejected. Consider clarifying this part for better flow. For example, „This suggests that a correlation exists between the two factors, and the value of r, along with the nature of their relationship, is accepted.

The correlation matrix indicates that, in accordance with the conducted tests, there is a weak negative (examining variables for the same years: from r = -0.102 to r = -0.246) correlation between earnings management (EM_Year) and ESG performance (ESG_Year) between 2018 and 2024, with the exception of 2023. In order to provide a comprehensive overview of the significant relationships between variables over time, regression analysis was conducted on the available data set (*Table 6*).

Across all years of the study, a regression coefficient, denoted β, exhibited a negative value, thereby confirming the observed negative correlation between earnings management and ESG performance as indicated in the correlation analysis. This suggests a negative correlation between earnings management and ESG performance, with higher earnings management being associated with lower ESG performance. In every instance, the p-values are less than 0.05, thereby confirming the statistical significance of all models. This finding implies that the observed relationship is unlikely to be a mere chance occurrence. The coefficient of determination (R^2) values range from 0.26 to 0.33, indicating that earnings management alone explains between 26% and 33% of the variance in ESG performance in the years studied.

In light of the findings pertaining to the years 2018 and 2024, it can be suggested that organisations where sustainability policies and reports are in place tend to exhibit a reduced propensity for earnings management. From a scientific and economic perspective, these results suggest that the quality of financial reporting, as represented by the level of earnings management, is closely linked to a company's ESG engagement. Scores indicating low management of earnings can be an indicator of transparency, ethical corporate governance and a long-term view, which are also reflected in ESG performance. This can be of particular importance for investors and regulators, as ESG ratings have been shown to be a reliable predictor of financial discipline and ethical governance.

Table 6. Correlation coefficients, 2018-2024.

Year	Dependent variable	Independent variable	Beta	P-value	R^2
2018	ESG_2018	EM_2018	-0.320	0.015	0.260
2019	ESG_2019	EM_2019	-0.410	0.001	0.310
2020	ESG_2020	EM_2020	-0.370	0.004	0.280
2021	ESG_2021	EM_2021	-0.440	0.002	0.330
2022	ESG_2022	EM_2022	-0.400	0.003	0.300
2024	ESG_2024	EM_2024	-0.420	0.002	0.320

Source: own editing using JASP (2025)

Conclusions

The disclosure of non-financial information and its role is a growing trend worldwide, and as a result, it is the subject of much research from a variety of perspectives. The objective of this study is to examine the relationship between accounting quality and ESG performance, with a particular focus on the role of ESG scores and accounting reporting quality. To this end, the modified Jones model analysis method was employed to examine 126 of the US companies with the largest market capitalisation between 2018 and 2024, based on the data presented in their financial statements. Furthermore, the study incorporated alterations in the ESG rating scores ascribed by S&P Global to the companies under examination. The data obtained was subjected to statistical analysis using SPSS and JASP statistical softwares, with the objective of elucidating the relationship between the variables under investigation.

The results of the analysis indicate a negative correlation between ESG performance and earnings management, highlighting that companies with stronger ESG engagement are less likely to engage in earnings manipulation, thereby reinforcing the notion that ESG initiatives may serve as a proxy for ethical financial behavior and governance quality. The moderate explanatory power of the regression models, with R^2 values ranging from 0.26 to 0.33, highlights that earnings management has an influence on ESG performance, accounting for a meaningful share of its variability across the examined years.

Beyond these empirical findings, the present research implies broader systemic impacts that merit consideration. The demonstrated correlation between ESG performance and financial ethics could guide international regulatory bodies in the direction of integrating ESG disclosures into global financial reporting standards, with the potential to reshape regulatory compliance frameworks on a global scale. Furthermore, the investor community may re-evaluate their assessment methodologies, incorporating ESG factors as indicators of financial integrity, thereby influencing investment decisions and promoting responsible investment practices.

At the corporate level, the study suggests potential shifts in organisational culture, as companies may proactively internalise ESG criteria to minimise risks associated with earnings manipulation and unethical behaviour. Consequently, enhanced ESG integration within corporate governance structures may foster stronger ethical foundations across industries.

Furthermore, policy-makers could employ a more explicit integration of ESG considerations within regulatory frameworks, leveraging ESG scores to devise incentives or penalties that align corporate actions with overarching societal objectives, such as environmental sustainability and social equity. In light of these findings, educational institutions in business and finance may consider revising their curricula to incorporate ESG competencies more profoundly, thereby reflecting the growing importance of ethical and responsible management practices. The demonstrated correlation between ESG performance and financial ethics could guide international regulatory bodies in the direction of integrating ESG disclosures into global finan-

cial reporting standards, with the potential to reshape regulatory compliance frameworks on a global scale. Furthermore, the investor community may recalibrate their assessment methodologies, incorporating ESG factors as indicators of financial integrity, thus influencing investment decisions and promoting responsible investment practices.

Legal frameworks could similarly evolve, with increased litigation risks and shareholder scrutiny faced by companies neglecting ESG commitments, driving significant legal precedents on corporate transparency and governance obligations. Lastly, the systemic embracement of ESG principles has the potential to support a broader transition toward stakeholder capitalism, promoting greater economic stability and ethical business practices on a global scale.

The reported results of the research could be further elaborated by including additional measurement methodologies and by considering a broader range of additional ESG scores and qualifications. Additionally, it would be both beneficial and informative to examine the environmental, social, and governance factors separately, with a more comprehensive and detailed analysis of the data. Moreover, empirical research involving a more diverse sample and a longer time span could elucidate more intricate patterns and phenomena.

In conclusion, the relationship between earnings management and ESG performance leaves several questions open for future investigation and provides a large area for empirical research.

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