



Discretionary Accrual Quality: Evidence from ESG Companies

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Resumo/Abstract

By analyzing the discretionary accruals quality in companies considered to be socially responsible, we verify whether companies engaged in environmental, social and governance (ESG) practices use earnings management to signal their future performance in terms of cash flow. Using a large sample of public companies from 30 countries during the years 2011 to 2018, we analyze the discretionary accruals quality based on the assumptions of Dechow and Dichev's (2002) model, considering Kothari et al. (2005) model to measure discretionary accruals and ESG information from the Refinitiv Eikon database. The results showed that the discretionary accruals of ESG companies have fewer estimation errors than those of companies not involved with such practices. However, this beneficial role of ESG behavior, when related to the smallest estimation error, was not strong enough to signal a fully informative earnings management, capable of anticipating cash flows. These results were consistent when considering the Propensity Score Matching method for matching samples, an alternative proxy for estimating discretionary accruals (Dechow et al., 1995), ESG for companies with high levels of engagement and for a sample that disregarded the most populous countries. In addition, the ESG effect of minimizing estimation errors was stronger in industries exposed to political debates and pressures (sensitive), in common law and economically emerging countries. In general, the results can be useful in demonstrating that the earnings management by discretionary accruals is estimated with higher quality in ESG companies, which indicates a positive effect of socially responsible behavior when dealing with the accruals accounting.

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Abstract

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Keywords: Discretionary Accrual Quality. Environmental, Social, and Governance. Signaling Theory.

1. Introduction

The earnings management (EM) by discretionary accruals refers to the most subjective part of the accruals, once it involves a judging process and estimates made by managers, to define and adjust accounting numbers (Dechow, 1994). By involving subjectivity, a substantial amount of research considers EM by discretionary accruals as an opportunistic practice of managers, who, through their accounting discretion, manipulate accounting to achieve goals and objectives. (Healy & Wahlen, 1999). Consequently, an adjusted accrual that does not reflect the business reality, plus a particular desire of the managers, ends up making errors in estimation, which will not fulfill the beneficial role of the accruals of adjusting cash flows (Dechow & Dichev, 2002).

To the extent that the manager discretion is opportunistically used, the incurrance of greater specification errors implies a lower information quality (Dechow & Dichev, 2002). However, not always this discretion, allowed by accounting standards, is used for opportunistic reasons (Beneish, 2001), and can also transmit private information about the organization and, consequently, increase the accounting quality (Tucker & Zarowin, 2006), or still, to represent simple occurrences of unintentional judgment errors (Dechow, 1994). The question is that the literature has considered that higher levels of



accruals are mostly explained by the opportunistic behavior of the manager who seek to manipulate the accounting environment and end up harming the accounting quality (Brennan, 2021).

An empirical scenario that reflects this perception is that which relates the EM by discretionary accruals and corporate social responsibility (CSR) or environmental, social and governance (ESG) practices. On the one hand, several results showed a positive relationship between ESG engagement and EM practices (Jordaan et al., 2018; Kim et al., 2019); on the other hand, it has demonstrated that there may be a negative relationship between the themes (Hsu & Chen, 2018).

The fact is that, in both situations in which the literature relates ESG and EM, higher levels of discretionary accruals are understood as synonymous with lower information quality. If companies have higher ESG engagement and higher EM, then ESG is used to mask EM, which is opportunistic. If companies have low ESG engagement and low EM, then opportunistic low EM does not draw enough attention that companies need to form a “green curtain” through ESG practices. If companies have higher engagement in EM and lower ESG, then managers are opportunistic and do not perceive ESG practices as important. Finally, if companies have lower levels of EM and greater engagement in ESG, then they are more transparent for investing in ESG and have higher accounting quality, as they have low levels of discretionary accruals.

This scenario of prominence of the EM as an exclusively opportunistic practice has been the subject of discussions that seek to highlight the “other side of the story”. Beneish (2001) argues that research ends up simply assuming that EM is opportunistic, without even testing the incentives for such behavior. Ball (2013) questions accounting researchers and professors who argue that EM is opportunistic, but at the same time they are not responsible for reporting these results to regulators, the media, analysts, among others. Finally, Brennan (2021) questions if the assumption that lower EM by discretionary accruals reflects higher accounting quality is correct, then shouldn't managers have accounting choices?

This research, motivated by criticism of the EM's opportunistic view (Beneish, 2001; Ball, 2013; Brennan, 2021) and by the premise that socially responsible companies have greater transparency and information quality (Yoon et al., 2019; Rezaee et al., 2020; Ani, 2021; Yuan et al., 2022), investigates whether ESG disclosure can be a sign of higher discretionary accruals quality. For that, the objective of this paper is to evaluate the relationship between discretionary accruals (EM proxy) and future cash flows (FutCFO) in socially responsible companies. We state that companies engaged in ESG practices have higher discretionary accruals quality.

The findings of the main analysis suggest that discretionary accruals have a negative coefficient of relationship with FutCFO in an analysis without considering the information on ESG disclosure, which represents a greater error in estimates. However, when the ESG behavior was interacted with the FutCFO, the coefficient became positive, which indicates that ESG companies have a different behavior when using their accounting discretion in the estimation of accruals. Although the moderating effect of ESG practices was positive, when analyzing the coefficients together, it was noticed that this effect is not strong enough to infer that companies engaged in ESG make informative use of EM, which satisfactorily adjusts their cash flows. What can be said is that the ESG effect reduces errors in accounting estimates and, consequently, improves the quality of these accruals, compared to the accruals of companies not engaged in ESG.



2. Theoretical framework and development of hypotheses

According to Dechow and Dichev (2002), discretionary accruals are not necessarily loaded with estimation errors, since they also reflect informative characteristics about the company and its respective industry and, therefore, can compose what the authors understand as “good accruals”. Thus, the discretionary accruals quality is analyzed by the relationship between discretionary accruals and FutCFO, as already performed by the previous literature.

Badertscher et al. (2012) investigated the relationship between the discretionary part of accruals and FutCFO and found that the discretionary accruals of companies motivated by informational reasons are useful when anticipating FutCFO, both in the analysis of the original values reported by the companies, as in the analysis of the restated values. Adut et al. (2013) examined whether Chief Executive Officer (CEO) compensation was related to informative (positively related to cash flow) or opportunistic (negatively related to cash flow) EM. They found that the future returns of companies were positive (negative) in the case of informative (opportunistic) EM, which reinforces the premise that the positive relationship between discretionary accruals and FutCFO shows higher accruals quality.

Downes et al. (2019) identified different results when considering the sample of firms that underwent a bigger or smaller transition from their local accounting standards to IFRS. In the group that went through a bigger transition, discretionary accruals were not significant in explaining FutCFO, while in the group that went through a smaller transition, discretionary accruals proved to be informative. This means that the ease of adaptation to international accounting standards by firms that already had similarities with such standards, leads to the generation of higher quality information.

Moardi et al. (2020) found different results in different industries located in Tehran. In pharmaceutical and food industries, there was no significant relationship between the EM by discretionary accruals and FutCFO, while in the automotive, mineral, and chemical industries, the EM proved to come from an opportunistic behavior, since, according to the authors, it was negatively related to the FutCFO.

These prior literatures have concluded that EM by discretionary accruals is opportunistic when negatively related to FutCFO. The present research, however, has a different understanding, as it understands that the non-relationship or the negative relationship between discretionary accruals and FutCFO is not determinant to affirm the opportunistic use of EM by discretionary accruals. It is assumed that the negative or non-significant relationship between discretionary accruals and FutCFO refers to a greater magnitude of estimation errors and not necessarily to a greater opportunistic EM. Estimation errors may or may not be intentional, but regardless of the motivation (which is unobservable), they reduce the accounting quality (Dechow & Dichev, 2002).

Since discretionary accruals represent the most subjective part of accruals and, therefore, are likely to contain a greater magnitude of estimation errors than non-discretionary accruals, I argue that the EM by discretionary accruals will be negatively or unrelated to FutCFO. This position is also based on previous literature, which identified that managers' discretion is negatively related to FutCFO (Badertscher et al., 2012; Adut et al., 2013; Downes et al., 2019; Moardi et al., 2020). Thus, the first research hypothesis is established:



H₁: Earnings management by discretionary accruals is negatively or not related to future cash flow.

The Signaling Theory has theoretical support to understand the ESG engagement as a signal that communicates private information about the organizational reality through the EM by accruals. It is understood that ESG engagement can be perceived as a sign that differentiates firms committed to their stakeholders and to transparency (Yoon et al., 2019; Rezaee et al., 2020; Ani, 2021; Yuan et al., 2022).

From the point of view of the Signaling Theory, Stiglitz (2000) highlights that ESG disclosures happen as a way of disclosing information about quality and company intentions. Regarding quality, information asymmetry exists when one party is not fully aware of the other party's practices. About intentions, information asymmetry exists when one party is concerned with the behavior or intentions of the other party. Connelly et al. (2011) complements, highlighting that the signaling of information about quality and intentions refers to the signaler's ability to meet the needs and demands of the external observer. Thus, Lee et al. (2022) argue that companies send informational and reputational signals to notify their external users about ESG practices, to increase trust, highlight quality, intentions, and increase utility expectations.

In terms of accounting quality, Rezaee et al. (2020) showed that companies with high CSR ratings have more persistent profits and more accurately predict cash flows from activities. Ani (2021) found that CSR disclosure can positively impact value relevance and earnings persistence, suggesting that capital market regulators use CSR information as guidelines to improve the quality of financial reports and obtain better allocation of resources in the capital market. Yuan et al. (2022) demonstrated that ESG disclosure is responsible for reducing risks of corporate financial irregularities and contributes to reducing information asymmetry, in addition to improving internal control and public scrutiny.

In fact, there are some reasons given by the literature that support the premise that engagement in ESG can signal informative accounting, or according to the approach of this research, good discretionary accruals. He et al. (2022), when investigating ESG performance and managerial misconduct, argue that companies engaged in ESG build a good social reputation and thus create an intangible reputational asset. For these companies, managerial misconduct ends up being more costly and the losses faced by audited violations end up being bigger. Thus, it is understood that ESG companies will try to make use of more subjective accruals to improve the quality of the reported information, leaving no room for external users to understand such practices as errors (intentional or not), to the detriment of the costs that this behavior can generate.

Furthermore, according to He et al. (2022), ESG engagement can have a substituting effect for external corporate governance. The authors identified that ESG practices create a favorable external monitoring environment by attracting more analyst attention, which, consequently, induces companies to be more careful when dealing with the transparency of their financial reports. Similarly, Yuan et al. (2022) contribute by demonstrating that ESG behavior can be considered a complementary factor in improving the corporate governance environment. According to the authors, although the motivations for ESG engagement are not observable, the economic consequences of such practices can be empirically tested. In this way, they show that ESG disclosure is



empirically related to the lower involvement of companies in financial irregularities, as well as having a signaling effect on the market.

Based on the arguments and from the point of view of the Signaling Theory, ESG companies are expected to use the practice of EM through discretionary accruals to signal private information about the organizational reality. This assumption stems from the arguments that ESG companies have a reputational intangible asset and, when presenting low quality accruals (bigger estimation errors), they will face bigger costs and losses (He et al., 2022), in addition to the fact that, when to engage in ESG, companies have a form of complementary governance, which monitors possible errors in the judgment of estimates (Yuan et al., 2022). Consequently, ESG companies tend to incur fewer errors in estimating discretionary accruals, which, in turn, contributes to the ability of these accruals to correctly adjust FutCFO, which is represented by a positive relationship between discretionary accruals and FutCFO. Thus, the second research hypothesis is established:

H₂: Earnings management by discretionary accruals is positively related to future cash flow in ESG firms.

3. Research design

We collected the data from public companies belonging to the Group 20 countries during the period 2010 to 2020, from the Refinitiv Eikon database. The sample is shown in Table 1.

Table 1. Sample per country and year

Countries	2011	2012	2013	2014	2015	2016	2017	2018	Total
Australia	182	212	226	241	241	236	232	216	1,786
Austria	31	33	36	35	31	30	29	32	257
Belgium	49	55	53	59	59	64	65	62	466
Brazil	115	126	132	134	144	138	136	136	1,061
Canada	286	296	311	330	306	326	307	310	2,472
China	1,146	1,371	1,651	1,862	2,005	2,013	1,950	1,938	13,936
Cyprus	19	24	24	29	27	26	24	24	197
Denmark	43	44	51	51	56	52	49	51	397
Finland	56	55	60	58	64	65	65	65	488
France	238	244	243	247	245	246	247	240	1,950
Greece	50	58	53	59	62	64	59	67	472
India	852	987	1,038	1,104	1,154	1,144	1,108	1,082	8,469
Indonesia	130	133	152	146	150	150	154	141	1,156
Ireland	30	34	36	37	36	39	39	37	288
Italy	66	80	91	104	112	112	109	107	781
Japan	1,894	1,986	2,115	2,195	2,286	2,301	2,297	2,217	17,291
Korea (South)	568	652	747	802	826	781	738	725	5,839
Luxembourg	17	26	24	26	27	23	28	31	202
Mexico	59	64	64	73	81	86	87	82	596



Netherlands	44	52	42	46	60	63	60	57	424
Poland	124	150	158	180	179	175	161	162	1,289
Russia	72	88	96	97	100	97	100	101	751
Saudi Arabia	73	74	79	90	93	86	76	76	647
Slovenia	13	15	14	14	14	15	14	13	112
South Africa	82	82	85	94	105	99	94	94	735
Spain	49	62	62	61	67	73	75	72	521
Sweden	139	154	159	176	190	186	184	185	1,373
Turkey	53	56	67	77	94	94	89	88	618
United Kingdom	350	373	404	441	455	452	449	432	3,356
US	1,349	1,419	1,491	1,565	1,606	1,592	1,562	1,531	12,115
Total	8,179	9,005	9,764	10,433	10,875	10,828	10,587	10,374	80,045

To measure accrual quality, we followed Dechow and Dichev (2002), who suggest that the timing of the companies' economic realizations and sacrifices may differ from the timing of the related cash flow recognition and the benefits of accruals are precisely to adjust these temporal cash flow problems. However, the DD model reveals that the benefit of using accruals has the associated cost of incurring estimation errors, as presented by the error term (ε_t) in DD model.

We considered the authors' assumptions to consider the FutCFO coefficient as our measure of the accrual quality. When analyzing FutCFO, it is understood that if the company presented positive values of current accruals (ACC_t), it means that it recorded more receivables than payables in the present period. These amounts, in theory, will be converted into cash inflows in the subsequent period, when these customers must settle their obligations. If, on the other hand, the company presented negative values of accruals, it is understood that this company recorded more amounts payable than receivable in the present period. Likewise, these amounts must come out of cash in the subsequent period when these obligations will be settled.

FutCFO is expected to be a positive coefficient if the accruals are informative about the company's future performance, or even according to Dechow and Dichev (2002), if they are "good accruals". On the contrary, FutCFO coefficient is expected to be 0 or negative in case there is no informative value in these accruals, which means greater magnitude of estimation errors and, therefore, lower accounting quality.

The model used to estimate discretionary accruals was Kothari et al. (2005) model. The model was operationalized by OLS regression, cross section by industry, year, and country. ESG practices were measured by the ESG score available in the Refinitiv Eikon database. The ESG score ranges from 0 to 100 points, where 100 indicates that the company engages in all items analyzed by the database and has the best achievable score. The information analyzed by the database is divided into environmental, social, and governance, pillars that are further divided into "sub dimensions", such as emissions, innovation of environmental products, human rights, CSR strategies, among others.

Operationally, to identify ESG companies, a categorical variable (ESG_{it}) was created, in which 1 represents companies that disclose ESG reports and 0 those that do not. In additional tests, companies were analyzed according to their ESG engagement score. In this case, the score from 0.01 to 100 (ESG_{it}) was considered, which measures



the intensity of engagement in environmental, social, and governance actions. Also, as a way of isolating the characteristics of companies that have the best ESG practices, we also performed tests considering a dummy equal to 1 for companies that score ESG above the industry median and 0 otherwise ($High_ESG_{it}$).

We regressed the discretionary accruals measured by the Kothari et al. (2005) model as a dependent variable and past (β_1), present (β_2) and future (β_3) cash flows as independent variables, to verify the relationship coefficient between $FutCFO$ and discretionary accruals (β_3). When adapting the DD model, we focused on the discretionary accruals of ESG companies ($ESG > 0$). The regression that aims to test H_2 is presented in Equation 1.

$$\begin{aligned}
 DACC_{it} = & \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \beta_4 ESG_d_{it} \\
 & + \beta_5 REV_{it} + \beta_6 PPE_{it} + \beta_7 CFO_{it-1} \times ESG_d_{it} \\
 & + \beta_8 CFO_{it} \times ESG_d_{it} + \beta_9 CFO_{it+1} \times ESG_d_{it} \\
 & + \beta_{10} REV_{it} \times ESG_d_{it} + \beta_{11} PPE_{it} \times ESG_d_{it} + \varepsilon_{it}
 \end{aligned} \quad (1)$$

The coefficient of interest is β_9 . It is expected that β_9 is positive, since the more subjective accruals ($DACC_{it}$) tend to incur in estimation errors of lesser magnitude in companies considered as socially responsible ($ESG > 0$).

4 Results

4.1 Descriptive analysis

Table 2 represents the descriptive statistics. It is observed that ESG companies are significantly different from non-ESG companies in several features. In non-tabulated data, when $DACC_{it}$ is analyzed in absolute values, ESG companies have an average of 0.03, while in non-ESG the average is 0.04, which represents a greater use of subjective accruals in non-ESG companies. In addition to analyzing the differences in terms of values, Panel B is useful in showing the number of companies that do not have any activity related to social, environmental or governance engagement, which in percentage terms represents 76% of the investigated sample.

Table 2. Difference of Means between ESG and Non-ESG firms

Variáveis	ESG firms		Non-ESG firms		t
	Mean	SD	Mean	SD	
$DACC_{it}$	0.0080	0.0455	0.0059	0.0599	-4.5659***
CFO_{it-1}	0.1018	0.0592	0.0891	0.0588	-26.0060***
CFO_{it}	0.1069	0.0629	0.0931	0.0624	-26.7304***
CFO_{it+1}	0.1146	0.0711	0.1016	0.7280	-21.6912***
REV_{it}	0.8568	0.5839	0.9475	0.5800	18.8600***
PPE_{it}	0.5322	0.4386	0.4632	0.4139	-19.8699***
	19,225		60,820		

Note: Statistics are aggregated by firm-year; all variables were deflated by the average of total assets; SD denotes standard deviation; ESG_{it} represents the score from 0.01 to 100; the sample period is 2011-2018; financial industry companies were excluded; to minimize the influence of outliers, all continuous variables (except ESG_{it}) were truncated at 1% at their extremes.



4.2 Accrual quality and ESG analysis

Table 3 reports the estimated coefficients of DD model (columns 1, 2 and 3) and Equation 1 without consider ESG variable (columns 4, 5, 6 and 7). According to the Table 3, FutCFO is positively related to total accruals (in columns 1, 2 and 3), but negatively with discretionary accruals (in columns 4, 5, 6 and 7). Thus, it is inferred that, according to theoretical predictions, discretionary accruals, as they reflect the discretion of managers in making subjective estimates, present a greater magnitude of errors, which reflects the lower quality of these accruals in anticipating the firm's future performance in terms of cash flow.

Table 3. Accrual quality versus discretionary accrual quality

	ACC_{it} (1)	ACC_{it} (2)	ACC_{it} (3)	$DACC_{it}$ (4)	$DACC_{it}$ (5)	$DACC_{it}$ (6)	$DACC_{it}$ (7)
	Coefficien t (t-stat)	Coefficien t (t-stat)	Coefficien t (t-stat)	Coefficien t (t-stat)	Coefficien t (t-stat)	Coefficien t (t-stat)	Coefficien t (t-stat)
Intercept	-0.0217*** (-8.48)	-0.0591*** (-5.32)	-0.0109*** (-3.06)	0.0085*** (9.00)	0.0192*** (10.55)	0.0209*** (5.52)	0.0019 (1.12)
CFO_{it-1}	0.2797*** (11.96)	0.2977*** (14.47)	0.3058*** (16.11)	-0.1640*** (-13.53)	-0.1586*** (-14.40)	-0.1603*** (-13.76)	-0.1504*** (-11.96)
CFO_{it}	-0.9380*** (-30.99)	-0.9246*** (-29.79)	-0.9642*** (-22.56)	0.3313*** (20.71)	0.3491*** (19.21)	0.3509*** (20.29)	0.3672*** (17.47)
CFO_{it+1}	0.3696*** (22.36)	0.3697*** (21.07)	0.3274*** (22.61)	-0.1802*** (-15.28)	-0.1685*** (-15.89)	-0.1665*** (-14.64)	-0.1616*** (-30.56)
REV_{it}					-0.0131*** (-10.50)	-0.0149*** (-18.44)	
PPE_{it}					-0.0043* (-2.07)	-0.0039 (-1.30)	
Firm FE	No	No	Yes	No	No	No	Yes
Country FE	No	Yes	No	No	No	Yes	No
Industry FE	No	Yes	No	No	No	Yes	No
Year FE	No	Yes	Yes	No	No	Yes	Yes
R ²	18.98%	21.17%	29.10%	7.56%	9.32%	10.23%	14.79%
VIF max	2.00	2.02		2.00	2.02	2.04	
DW	1.17	1.19		1.17	1.17	1.18	
N	80,045	80,045	80,045	80,045	80,045	80,045	80,045

Note: *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively.

All models were estimated by OLS regression; $DACC_{it}$ is the discretionary accruals indicator, operationalized at its nominal value and according to the Kothari et al. (2005) model; standard errors were clustered by industry; FE represents fixed effect; R² represents the coefficient of determination; DW represents Durbin Watson; N represents the number of firm-year observations; to minimize the influence of outliers, all continuous variables were truncated at 1% at their extremes.

Table 4 reports the estimated coefficients of Equation 1, considering different fixed effects configurations and use of control variables. When ESG_{dit} information is interacted with FutCFO (CFO_{it+1}), the $DACC_{it}$ of these companies suggests smaller estimation errors, as it is positively related to FutCFO. Economically, the results show that ESG engagement reduces by 3.65% (0.0234/0.0064) the estimation errors of discretionary accruals in anticipating FutCFO (CFO_{it+1}) in the model with firm effect



control (column 5) and up to 11.09% (0.0710/0.0064) in the model without controls (column 2). These results show the intensity in which socially responsible companies have higher discretionary accruals quality, confirming the beneficial potential of ESG behavior in terms of the accounting quality.

Table 4. Discretionary accruals quality in ESG firms

	$DACC_{it}$ (1)	$DACC_{it}$ (2)	$DACC_{it}$ (3)	$DACC_{it}$ (4)	$DACC_{it}$ (5)
	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
Intercept	0.0197*** (4.97)	0.0094*** (8.90)	0.0221*** (10.20)	0.0236*** (5.10)	0.0441*** (12.20)
CFO_{it-1}	-0.1610*** (-13.94)	-0.1654*** (-15.43)	-0.1612*** (-16.11)	-0.1638*** (-15.57)	-0.1396*** (-12.83)
CFO_{it}	0.3503*** (20.17)	0.3309*** (24.12)	0.3513*** (22.36)	0.3529*** (23.46)	0.4405*** (19.70)
CFO_{it+1}	-0.1667*** (-14.71)	-0.1927*** (-17.05)	-0.1796*** (-18.03)	-0.1761*** (-17.11)	-0.1211*** (-25.16)
$ESGd_{it}$	0.0020*** (3.47)	-0.0030 (-1.53)	-0.0098** (-3.24)	-0.0079** (-2.41)	-0.0048 (-0.99)
REV_{it}	-0.0148*** (-18.15)		-0.0153*** (-12.71)	-0.0169*** (-19.04)	-0.0511*** (-14.98)
PPE_{it}	-0.0039 (-1.33)		-0.0038 (-1.73)	-0.0033 (-1.04)	-0.0089* (-1.84)
$CFO_{it-1} * ESGd_{it}$		-0.0098 (-0.32)	-0.0047 (-0.17)	-0.0011 (-0.04)	0.0273 (1.61)
$CFO_{it} * ESGd_{it}$		-0.0177 (-0.54)	-0.0276 (-0.83)	-0.0274 (-0.84)	-0.0481 (-1.28)
$CFO_{it+1} * ESGd_{it}$		0.0710*** (7.35)	0.0645*** (7.65)	0.0575*** (6.89)	0.0234*** (3.43)
$REV_{it} * ESGd_{it}$			0.0091 (9.51)	0.0091*** (8.16)	0.0037 (1.38)
$PPE_{it} * ESGd_{it}$			-0.0017 (-1.07)	-0.0019 (-1.14)	0.0008 (0.32)
Firm FE	No	No	No	No	Yes
Country FE	Yes	No	No	Yes	No
Industry FE	Yes	No	No	Yes	No
Year FE	Yes	No	No	Yes	Yes
R ²	10.25%	7,67%	9.60%	10,50%	18,54%
VIF maximum	2.05	12.54	12.64	12.66	
DW	1.1852	1.1735	1.1783	1.1868	
N	80,045	80,045	80,045	80,045	80,045

Note: *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively.

All models were estimated by OLS regression; $ESGd_{it}$ is a categorical variable, where 1 indicates companies engaged in ESG and 0 otherwise; $DACC_{it}$ is the discretionary accruals indicator, operationalized at its nominal value and according to the Kothari et al. (2005) model; standard errors were clustered by industry; FE represents fixed effect; R² represents the coefficient of determination; DW represents Durbin Watson; N represents the number of firm-year observations; to minimize the influence of outliers, all continuous variables were truncated at 1% at their extremes.

When analyzing the coefficients together, it is observed that the coefficient of CFO_{it+1} in column 2 is -0.1927, while the interacted coefficient is positive 0.0710. These coefficients reveal that the effect of ESG information decreases the negative relationship between CFO_{it+1} and $DACC_{it}$ from -0.1927 to -0.1217 (-0.1927 + 0.0710). This means



the ESG effect improves the accrual quality by decreasing estimation errors, but that its effect is only marginal in making the $DACC_{it}$ ability to anticipate CFO_{it+1} resemble its theoretical prediction of a coefficient close to 1. The same can be observed for the other models in Table 4.

4.3 Additional tests

Additional tests were performed to confirm the robustness of the main analysis results. The coefficient of $CFO_{it+1} * ESG_{it}$ remained positive in all analyzes in Table 5, except in Column 5 (negative accrual).

The results for the sample of companies with positive discretionary accruals showed that when managers of ESG companies use income-increasing accruals with greater intensity, they use these estimations as a way of transmitting information with fewer estimation errors, since the $CFO_{it+1} * ESG_{it}$ coefficient was positive and significant in column 1. However, when analyzing only the sample of companies with negative discretionary accruals, the ESG characteristic has no impact on the use of income-decreasing accruals as a way of adjusting cash flows, as the coefficient of $CFO_{it+1} * ESG_{it}$ was non-significant in column 2. These results limit the effects of the ESG characteristic to management to increase-earnings.

Regarding the analysis of sensitive and non-sensitive industries, my hypothesis that ESG companies have an intangible reputational asset seems to be even stronger in companies whose economic activities are classified as sensitive, since economically, ESG engagement from sensitive industries causes discretionary accruals to incur about 11.59% (0.0742/0.0064) fewer estimation errors when anticipating FutCFO, while ESG engagement from non-sensitive sectors has a 7.79% (0.0499/0.0064) impact on this ratio.

In non-tabulated results, we found that in code law countries, ESG behavior causes discretionary accruals to have about 7.70% (0.0493/0.0064) fewer estimation errors, while in common law countries, this rate is 13.45% (0.0861/0.0064). Regarding developed countries, ESG engagement causes discretionary accruals to reduce estimation errors by about 9.70% (0.0621/0.0064), while in economically emerging countries, this index is 12.39% (0.0793/0.0064). Also in non-tabulated tests, we operationalized the Propensity Score Matching (PSM), using sales volume, year, country, and industry as matching criteria, which resulted in an equal sample of 38,450 similar observations (19,225 observation of ESG companies and 19,225 observations of non-ESG companies). The results confirm the findings of previous analyses.

5. Discussion

This paper demonstrates higher discretionary accrual quality in ESG companies. However, this result should be interpreted with caution, since the higher discretionary accrual quality in ESG companies cannot be considered synonymous with an informative EM, since, when analyzing the joint effect of the interaction coefficients, it is noticed that the discretionary accruals of ESG companies are not reversed in FutCFO. The ESG effect only mitigates the negative relationship between discretionary accruals and FutCFO but is not strong enough to make this relationship positive. Although the ESG role does not demonstrate a fully reversed discretionary accrual in the future cash, important contributions can be argued based on this evidence.



Table 5. Additional tests of the discretionary accrual quality in ESG companies

	<i>Full Sample Jones Modified model (1)</i>	<i>Selected Sample (2)</i>	<i>Full Sample High ESG (3)</i>	<i>Positive accrual (4)</i>	<i>Negative accrual (5)</i>	<i>Sensitive industries (6)</i>	<i>Non-sensitive industries (7)</i>
	<i>DACC_{it}</i>	<i>DACC_{it}</i>	<i>DACC_{it}</i>	<i>DACC_{it}</i>	<i>DACC_{it}</i>	<i>DACC_{it}</i>	<i>DACC_{it}</i>
	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
Intercept	0.0532*** (5.06)	0.0277*** (5.95)	0.0222*** (5.28)	0.0247*** (7.27)	-0.0152** (-2.98)	0.0198*** (1.46)	0.0182*** (4.06)
<i>CFO_{it-1}</i>	-0.1993*** (-24.64)	-0.1772*** (-18.72)	-0.1614*** (-14.08)	-0.0630*** (-20.81)	-0.0745*** (-8.78)	-0.1474*** (-11.26)	-0.1660*** (-14.09)
<i>CFO_{it}</i>	0.3132*** (22.41)	0.3479*** (16.97)	0.3500*** (21.31)	0.2270*** (16.34)	0.0811*** (7.65)	0.3283*** (10.59)	0.3582*** (21.80)
<i>CFO_{it+1}</i>	-0.2074*** (-17.88)	-0.1555*** (-12.63)	-0.1711 (-15.45)	-0.0662*** (-12.45)	-0.1014*** (-12.35)	-0.1694** (-5.65)	-0.1779*** (-15.72)
<i>ESGd_{it}</i>	-0.0155*** (-4.80)	-0.0045** (-2.45)		-0.0038* (-2.09)	-0.0015 (-0.83)	0.0014 (0.44)	-0.0093** (-2.70)
<i>HighESG_{it}</i>			-0.0086** (-2.37)				
<i>REV_{it}</i>	-0.0179*** (-18.51)	-0.0122*** (-8.99)	-0.0158*** (-18.30)	-0.0018* (-1.94)	-0.0116*** (-23.07)	-0.0126 (-2.37)	-0.0176 (-22.08)
<i>PPE_{it}</i>	0.0003 (0.08)	-0.0026 (-1.15)	-0.0041 (-1.31)	-0.0073*** (-3.52)	0.0042*** (3.33)	0.0060* (4.14)	-0.0056* (-1.87)
<i>CFO_{it-1}*ESGd_{it}</i>	0.0322 (1.36)	0.0388 (1.12)		-0.0064 (-0.36)	0.0124 (0.85)	0.0568 (1.48)	-0.0274 (-1.21)
<i>CFO_{it}*ESGd_{it}</i>	-0.0143 (-0.42)	-0.1234*** (-3.73)		-0.0552*** (-3.72)	0.0207 (1.26)	-0.1498** (-9.29)	0.0133 (1.19)
<i>CFO_{it+1}*ESGd_{it}</i>	0.0747*** (6.31)	0.0676*** (3.56)		0.0324*** (3.34)	0.0178 (1.55)	0.0742** (6.97)	0.0499*** (4.29)
<i>REV_{it}*ESGd_{it}</i>	0.0117***	0.0038*		0.0008	0.0063***	0.0078	0.0099***



	(5.83)	(2.02)		(0.58)	(7.16)	(1.86)	(8.20)
$PPE_{it} * ESGd_{it}$	-0.0036	0.0004		0.0035**	-0.0061***	-0.0013	-0.0036
	(-1.61)	(0.21)		(2.79)	(-5.90)	(-0.63)	(-1.88)
$CFO_{it-1} * HighESG$			-0.0331				
			(-1.27)				
$CFO_{it} * HighESG$			-0.0074				
			(-0.28)				
$CFO_{it+1} * HighESG$			0.0688***				
			(4.99)				
$REV_{it} * HighESG$			0.0092***				
			(4.51)				
$PPE_{it} * HighESG$			0.0003				
			(0.13)				
Firm FE	No	No	No	No	No	No	No
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	27,50%	11,07%	10,41%	22,76%	20,95%	11,58%	10,79%
VIF maximum	12.66	11.44	15.23	14.37	11.93	9.47	13.77
DW	1.2281	1.4093	1.1862	0.9245	0.7310	1.0816	1.1203
N	80,045	28,234	80,045	46,376	33,522	13,506	66,539

Note: *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively.

Column 1 shows the results of the Modified Jones model (Dechow et al., 1995) as a discretionary accrual estimation model ($DACC_{it}$); Column 2 shows the results for the sample of companies that disregards companies from China, India, Japan, and the US; Column 3 shows the results considering the ESG variable as 1 if the company's ESG score is higher than the industry median and 0 otherwise ($HighESG_{it}$); Column 4 shows the results considering the positive discretionary accruals of the Kothari et al. (2005) model as a dependent variable ($DACC_{it}$); Column 5 shows the results considering the negative discretionary accruals of the Kothari et al. (2005) model as a dependent variable ($DACC_{it}$); Column 6 shows the results for the display of sensitive industries only; Column 7 shows the results for the sample of non-sensitive industries only; sensitive industries were classified as proposed by Garcia et al. (2017) and based on the six-digit GICS classification: energy (including oil and gas), chemical, paper and pulp, mining, and steel-making; all models were estimated by OLS regression; $ESGd_{it}$ is a categorical variable, where 1 indicates companies engaged in ESG and 0 otherwise; $DACC_{it}$ is the discretionary accruals indicator, operationalized at its nominal value and according to the Kothari et al. (2005) model for columns 2 and 3; standard errors were clustered by industry; FE represents fixed effect; R² represents the coefficient of determination; N represents the number of firm-year observations; to minimize the influence of outliers, all continuous variables were truncated at 1% at their extremes



When dealing exclusively with samples whose discretionary accruals were income-increasing or income-decreasing, the results showed that the ESG signals estimation errors of smaller magnitude for accruals that increase profit, but not for accruals that decrease profit. These results limit the effects of the ESG characteristic when considering different types of accruals and can be understood based on the arguments of Makarem and Roberts (2020).

Makarem and Roberts (2020) showed that managers have incentives to use income-decreasing EM in cases of presenting a higher profit in the first three quarters of a year, when compared to the profit of the previous year. In fact, when analyzing the intensity of manipulation of negative accruals with earnings for the period in non-tabulated tests, I find a correlation coefficient of 0.2708 and a ratio of 0.3244 (when considering earnings as dependent and negative accruals, in absolute values, as independent). This positive relationship means that the companies that make use of income-decreasing accruals are the same companies that have high profit values in the period.

Approaching the findings of Makarem and Roberts (2020) to those of this research, it is understood that companies with high profit values may have incentives to intentionally use this type of discretionary accrual. ESG behavior, in turn, does not mitigate estimation errors in these situations, as companies engaged in ESG with a positive result may not consider that their reputational assets will be harmed by using accruals that reduce a small portion of their profits. In these cases, where the company presents a favorable scenario for external users, both in terms of ESG performance and financial performance, the potential damage of having its image affected may not have as much effect as in cases where companies have profits below expectations (or losses), or close to the values presented in the previous period.

Regarding the industry analysis, it was noticed that in sensitive industries, the beneficial effect of ESG engagement is greater than in non-sensitive industries, which is consistent with my hypothesis that ESG companies have an intangible reputational asset, which it is possibly even stronger in companies whose economic activities are more susceptible to political pressures and debates. These results represent that, due to the existence of an expectation for sensitive industries to present a higher ESG performance than non-sensitive industries (Garcia et al., 2017), the reputational intangible asset of these industries may also be greater. Thus, when presenting low- accrual quality (translated into bigger estimation errors), these industries may face bigger costs and losses (He et al., 2022). Consequently, managers of companies belonging to sensitive industries are likely to be pressured to use their accounting estimates as transparently and realistically as possible, as they may face serious negative effects if they do not.

In legal terms, it was evidenced that discretionary accruals of ESG companies resulted in estimation errors twice as small when anticipating FutCFO in common law countries. This result can be explained by the fact that in these countries, companies, for the most part, acquire capital from third parties through the capital market, which, consequently, requires higher financial reports quality (Nobes, 2011). On the other hand, in code law countries, companies have private financing options and, thus, do not need public disclosure channels, as they communicate privately with banks and financing organizations (Black & Nakao, 2017). Therefore, these results show that the informative use of EM in ESG companies is more present in common law countries than in code law, which is in line with Trimble (2018), who found that common law countries had higher accounting quality than code law before IFRS adoption.

In economic terms, it was found that the ESG effect is greater in economically emerging countries than in developed countries. This result can be justified by the different levels of valuation that ESG practices have in economically different contexts. According to Adamska and Dabrowski (2021), emerging markets reflect a higher level of risk than developed



ones, which results from bigger information asymmetry generated by less rigorous disclosure regulation, less effective supervision, less independent monitoring by non-governmental organization, media, and analysts, as well as weaker self-regulation. This scenario leads to less involvement of companies in ESG practices, which implies fewer opportunities for investors to effectively monitor the behavior of organizations (Adamska & Dabrowski, 2021). Thus, in an emerging market with less information transparency, ESG practices tend to have greater value (Brzeszczyński et al., 2015), as they serve as an even stronger signal than in developed countries.

Relating this signaling to accrual accounting, it is understood that, as ESG practices have greater incremental value when signaling the behavior or intentions of companies (Lee et al., 2022), it is expected that their reputational intangible asset will be also bigger. It is likely that companies engaged in ESG in economically emerging countries have a more valuable reputational asset than in developed countries, where ESG behavior is more common among companies. In such a way, in emerging countries, companies are more pressured to maintain a quality behavior when estimating their more subjective accruals, considering that the costs of the possibility of external parties understanding errors of estimates as intentional generate bigger costs and reputational losses (He et al., 2022).

6. Conclusion and recommendation for future research

We conclude that ESG engagement can be considered a sign that managers use their accounting discretion to improve the transparency and accounting quality, although this signal is not strong enough to make more subjective accruals correctly anticipate future performance of companies in terms of FutCFO. This conclusion has implications for the literature on EM and ESG information. First, the results renew the discussion that is rarely present in the literature that, in certain contexts and considering characteristics of organizations (such as engagement in ESG), accounting discretion can be used by the manager to transmit private or higher quality information (“good accruals”). Therefore, future research can investigate other positive signs from organizations that are able to signal an informative EM that correctly anticipates cash flows.

Second, this research reaffirms previous findings that showed that ESG engagement can be considered a sign that differentiates companies in terms of the accounting quality. Thus, greater caution is suggested for research that considers ESG behavior as opportunistic behavior, which seeks to mask the misconduct of managers. This research showed that ESG companies are committed to estimating the most subjective portion of accrual accounting more carefully and incurring fewer estimation errors, which implies that ESG companies have higher discretionary accrual quality than non-ESG companies.

Third, this paper demonstrates that the effect of ESG behavior on the accrual quality has a role limited to discretionary accruals that aim to increase profit, and that companies that use income-decreasing discretionary accruals are related to the highest profit indicators. This suggests that these firms may be motivated to intentionally use EM to reduce profits considerably higher than expected. These findings contribute by identifying that there may be situations that encourage managers of ESG companies to intentionally use discretionary accruals. Therefore, such results should not be generalized to all types of accruals and, especially, to other metrics of EM.

Finally, the conclusions may have implications for the decision-making of shareholders, investors, and accounting standards makers. Shareholders and investors benefit from the results by having the information that ESG engagement can be considered a sign that companies seek information transparency, not only in environmental, social, and governance



terms, but also when estimating subjective accruals. Regulators and corporate report makers benefit from the results by understanding that the disclosure of non-mandatory information (ESG) can generate a reputational asset for companies and an additional governance mechanism, by attracting external monitoring, analysts, and other information users. This can encourage them to be more cautious when dealing with the flexibility allowed by accounting standards when estimating discretionary accruals, to incur fewer estimation errors and approach the informative EM, which predicts the performance of organizations in terms of more reliably future cash flow.

For future research, this research contributes by providing space for the discussion of an informative EM, which is not necessarily intentionally used. Future research may focus on investigating antecedents of the discretionary accrual quality in ESG companies, seeking to analyze motivations, intentional or not, for managers to use discretionary accrual. In this way, future research may address a side not yet revealed in the literature, which is to identify whether estimation errors result from unintentional errors, naturally caused by changes in the accounting environment, or by intentional errors, which in fact seek to mask organizational reality.

References

- Adamska, A., & Dąbrowski, T. J. (2021). Investor reactions to sustainability index reconstitutions: Analysis in different institutional contexts. *Journal of Cleaner Production*, 297, 126715. <https://doi.org/10.1016/j.jclepro.2021.126715>
- Adut, D., Holder, A. D., & Robin, A. (2013). Predictive versus opportunistic earnings management, executive compensation, and firm performance. *Journal of Accounting and Public Policy*, 32(3), 126-146. <https://doi.org/10.1016/j.jaccpubpol.2013.02.007>
- Ani, M. K. A. (2021). Corporate social responsibility disclosure and financial reporting quality: Evidence from Gulf Cooperation Council countries. *Borsa Istanbul Review*. <https://doi.org/10.1016/j.bir.2021.01.006>
- Badertscher, B. A., Collins, D. W., & Lys, T. Z. (2012). Discretionary accounting choices and the predictive ability of accruals with respect to future cash flows. *Journal of accounting and economics*, 53(1-2), 330-352. <https://doi.org/10.1016/j.jacceco.2011.11.003>
- Ball, R. (2013). Accounting informs investors and earnings management is rife: Two questionable beliefs. *Accounting Horizons*, 27(4), 847-853. <https://doi.org/10.2308/acch-10366>
- Beneish, M. D. (2001). Earnings management: A perspective. *Managerial Finance*. <https://doi.org/10.1108/03074350110767411>
- Black, R., & Nakao, S. H. (2017). Heterogeneity in earnings quality between different classes of companies after IFRS adoption: evidence from Brazil. *Revista Contabilidade & Finanças*, 28, 113-131. <https://doi.org/10.1590/1808-057x201702750>
- Brennan, N. M. (2021). Connecting earnings management to the real World: What happens in the black box of the boardroom?. *The British Accounting Review*, 53(6), 101036. <https://doi.org/10.1016/j.bar.2021.101036>
- Brzeszczyński, J., Gajdka, J., & Kutan, A. M. (2015). Investor response to public news, sentiment and institutional trading in emerging markets: A review. *International Review of Economics & Finance*, 40, 338-352. <https://doi.org/10.1016/j.iref.2015.10.042>
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of management*, 37(1), 39-67. <https://doi.org/10.1177/0149206310388419>



- Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of accounting and economics*, 18(1), 3-42. [https://doi.org/10.1016/0165-4101\(94\)90016-7](https://doi.org/10.1016/0165-4101(94)90016-7)
- Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The accounting review*, 77(s-1), 35-59. <https://doi.org/10.2308/accr.2002.77.s-1.35>
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review*, 193-225.
- Downes, J. F., Kang, T., Kim, S., & Lee, C. (2019). Does the mandatory adoption of IFRS improve the association between accruals and cash flows? Evidence from accounting estimates. *Accounting Horizons*, 33(1), 39-59. <https://doi.org/10.2308/acch-52262>
- Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of cleaner production*, 150, 135-147. <https://doi.org/10.1016/j.jclepro.2017.02.180>
- He, F., Du, H., & Bo, Y. U. (2022). Corporate ESG performance and manager misconduct: Evidence from China. *International Review of Financial Analysis*, 102201. <https://doi.org/10.1016/j.irfa.2022.102201>
- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting horizons*, 13(4), 365-383. <https://doi.org/10.2308/acch.1999.13.4.365>
- Hsu, F. J., & Chen, Y. C. (2018). Human behavior analysis under financial information science: Evidence from corporate social responsibility. *Library Hi Tech*. <https://doi.org/10.1108/LHT-11-2016-0130>
- Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of accounting research*, 29(2), 193-228. <https://doi.org/10.2307/2491047>
- Jordaan, L. A., De Klerk, M., & De Villiers, C. J. (2018). Corporate social responsibility and earnings management of South African companies. *South African Journal of Economic and Management Sciences*, 21(1), 1-13.
- Kim, S. H., Udawatte, P., & Yin, J. (2019). The effects of corporate social responsibility on real and accrual-based earnings management: Evidence from China. *Australian Accounting Review*, 29(3), 580-594. <https://doi.org/10.1111/auar.12235>
- Kim, Y., Park, M. S., & Wier, B. (2012). Is earnings quality associated with corporate social responsibility?. *The accounting review*, 87(3), 761-796. <https://doi.org/10.2308/accr-10209>
- Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of accounting and economics*, 39(1), 163-197. <https://doi.org/10.1016/j.jacceco.2004.11.002>
- Lee, M. T., Raschke, R. L., & Krishen, A. S. (2022). Signaling green! firm ESG signals in an interconnected environment that promote brand valuation. *Journal of Business Research*, 138, 1-11. <https://doi.org/10.1016/j.jbusres.2021.08.061>
- Makarem, N., & Roberts, C. (2020). Earnings management to avoid earnings boosts. *Journal of Applied Accounting Research*, 21(4), 657-676. <https://doi.org/10.1108/JAAR-01-2019-0012>
- Moardi, M., Salehi, M., Poursasan, S., & Molavi, H. (2020). Relationship between earnings management, CEO compensation, and stock return on Tehran Stock Exchange. *International Journal of Organization Theory & Behavior*. <https://doi.org/10.1108/IJOTB-12-2018-0133>
- Nobes, C. (2011). IFRS practices and the persistence of accounting system classification. *Abacus*, 47(3), 267-283. <https://doi.org/10.1111/j.1467-6281.2011.00341.x>



- Refinitiv Eikon (2022). ESG Scores. Available at: <https://www.refinitiv.com/pt/sustainable-finance/esg-scores>. Accessed 6 February 2022.
- Rezaee, Z., Dou, H., & Zhang, H. (2020). Corporate social responsibility and earnings quality: Evidence from China. *Global Finance Journal*, 45, 100473. <https://doi.org/10.1016/j.gfj.2019.05.002>
- Stiglitz, J. E. (2000). The contributions of the economics of information to twentieth century economics. *The quarterly journal of economics*, 115(4), 1441-1478. <https://doi.org/10.1162/003355300555015>
- Trimble, M. (2018). A reinvestigation into accounting quality following global IFRS adoption: Evidence via earnings distributions. *Journal of International Accounting, Auditing and Taxation*, 33, 18-39. <https://doi.org/10.1016/j.intaccaudtax.2018.09.001>
- Tucker, J. W., & Zarowin, P. A. (2006). Does income smoothing improve earnings informativeness?. *The accounting review*, 81(1), 251-270. <https://doi.org/10.2308/accr.2006.81.1.251>
- Yoon, B., Kim, B., & Lee, J. H. (2019). Is earnings quality associated with corporate social responsibility? Evidence from the Korean market. *Sustainability*, 11(15), 4116. <https://doi.org/10.3390/su11154116>
- Yuan, X., Li, Z., Xu, J., & Shang, L. (2022). ESG disclosure and corporate financial irregularities—Evidence from Chinese listed firms. *Journal of Cleaner Production*, 332, 129992. <https://doi.org/10.1016/j.jclepro.2021.129992>