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The influence of sanctions on corporate reporting behaviour: International evidence

Abstract

This study investigates the impact of sanctions on corporate reporting behaviour, encompassing both financial and sustainability reporting. Utilising comprehensive data from the Global Sanctions Database (GSDB), the study reveals an asymmetrical effect of sanctions on corporate reporting behaviours. Specifically, our findings reveal a negative relationship between sanctions and earnings management, suggesting a more conservative and transparent approach to financial reporting during sanction periods. However, the relationship between sanctions and the quality of sustainability reporting is significantly negative, indicating a decline in sustainability reporting quality during times of sanctions. Furthermore, the study provides evidence that EU sanctions have a stronger influence on both types of reporting compared to US sanctions. The results also break down the effects of each type of sanction on corporate reporting, indicating that financial and trade sanctions have a significant impact, while military and other types of sanctions do not show a significant effect. Drawing from signalling theory, corporate reports serve to signal stakeholders about a firm's behaviour and alleviate the information asymmetry between managers and other stakeholders. Consequently, our study contributes to signalling theory by illustrating that distinct signals are conveyed through different reports during uncertain periods, such as sanctions.

Key words: *Sanctions, Corporate reporting, earnings management, and sustainability reporting quality*

1. Introduction

In recent years, sanctions have received considerable attention from researchers, particularly during Trump's presidency period[1] (Kirikakha et al., 2021). Furthermore, the development of specialised databases[2] that provide information on sanctions, including types, objectives, and success rates, has contributed to the growth of the sanction literature (Felbermayr et al., 2020). However, previous literature has primarily focused on the influence of sanction imposition on country-level factors, such as economic growth, market behaviour, unemployment and inflation rates (Neuenkirch and Neumeier, 2015, McLean et al., 2018, Gutmann et al., 2023). Little attention has been given to the influence of sanctions on firm-level factors. For instance, Le and Hoang (2022) demonstrate that sanctions have a significantly negative impact on environmental performance scores, while Ahmed et al. (2024) highlight the importance of sanctions as a moderating factor between CSR performance and strategic shareholders. According to the corporate reporting literature, firms may strategically change their reporting behaviour in response to challenging periods, intending to convey a particular signal to stakeholders (Francis et al., 2013, Trombetta and Imperatore, 2014, Obradović et al., 2023). Therefore, investigating the influence of sanctions on corporate reporting behaviour, encompassing both financial and non-financial reporting, emerges as an important research question.

Firms typically provide reports on both financial and non-financial performance, such as sustainability achievements (KPMG, 2013). According to signalling theory, these reports signal stakeholders about a firm's behaviour and alleviate the information asymmetry between managers and other stakeholders (Frias-Aceituno et al., 2014, Baiman and Verrecchia, 1996, Su et al., 2016). During normal periods, firms are often motivated to showcase positive performance and disclose high earnings, leading to a less conservative reporting approach and an increased likelihood of engaging in earnings management (Filip and Raffournier, 2014, Chen et al., 2015). However, during uncertain times, firms may be more inclined to adopt conservative and transparent financial reporting, leading to less engagement in earnings management due to increased external monitoring (Ming Chia et al., 2007) or to benefit from

[1] During Trump's presidency period, the percentage of sanctions imposed by the US increased to 40% of global sanctions (Kirikakha et al., 2021).

[2] For instance, the Global Sanction Database developed by Felbermayr et al. (2020) is a comprehensive and up-to-date sanctions database that provides detailed information on sanctioning and sanctioned countries.

government financial assistance available to significantly impacted firms (Lim and Matolcsy, 1999, Navissi, 1999). Furthermore, the reduction in earnings management may stem from agency relationships with employees who remain persistent and sceptical about the firm's reported difficulties. DeAngelo et al. (1994) support this by demonstrating that earnings management tends to decrease during union negotiations, where such scepticism is particularly pronounced.

On the other hand, improving the quality of sustainability reporting requires significant changes in firms' policies, routines, and structures (Hawn and Ioannou, 2016). This may include establishing a specialized committee for sustainability issues, hiring external auditors to review sustainability reports, providing executives with financial incentives for achieving sustainability targets, and issuing standalone sustainability reports (Al-Shaer and Zaman, 2016, Al-Shaer, 2020, Abweny et al., 2024). Such changes and improvements are typically expected during normal times, when firms are willing to allocate substantial resources to enhance their sustainability reporting practices. Nevertheless, the spending of resources on improving sustainability practices may not be a priority for firms during crisis periods (McGuinness et al., 2017), leading to a compromise in the quality of such reporting.

Therefore, our study takes an initiative and examines how the imposition of sanctions, as an uncertain situation, influences corporate financial and sustainability reporting. By analysing 10,028 firm-year observations in 14 countries subjected to US or EU sanctions between 2002 and 2022, we reveal a significant and negative impact of sanctions on real earnings management, indicating that firms tend to adopt a more conservative and transparent approach to financial reporting during sanction periods. However, the relationship between sanctions and sustainability reporting quality shows a notably negative association. This result supports our assumption that firms do not prioritise sustainability practices during sanction periods. In our additional analysis, we explore the individual effects of the sanction sender (US and EU) and the type of sanction (financial, trade, military, and others) on both financial and sustainability reporting. The results indicate that EU sanctions have a stronger influence compared to US sanctions on both financial and sustainability reporting. Specifically, the coefficients for EU sanctions are –1.022 for financial reporting and –12.039 for sustainability reporting, compared to –0.484 and –8.647 for US sanctions, respectively. These results support the findings of Weber and Schneider (2020) that EU sanctions are more effective due to the collective economic power of EU nations. The additional tests also reveal that financial and trade-related

sanctions have a significant impact on both financial and non-financial corporate reporting behaviour, while military and other sanctions do not show a significant influence.

Our study contributes to the literature in several ways. First, to the best of our knowledge, this is the first study that examines the influence of international sanctions on corporate reporting behaviour, encompassing both financial and non-financial aspects. Consequently, our study contributes to the corporate reporting literature by providing empirical evidence regarding an asymmetrical pattern in corporate reporting behaviour, particularly during times of uncertainty, such as periods involving sanctions. Second, we contribute to signalling theory literature by demonstrating that firms utilise financial and sustainability reporting to convey heterogeneous signals to stakeholders during sanction periods. Third, we contribute to the sanctions literature by documenting their influence on firm-level factors, such as corporate reporting. Fourth, we contribute to international research literature by considering comprehensive and detailed sanctions data and investigating their effects on a sample across 14 countries. Finally, conducting various additional tests and robustness checks allows us to provide insights into the relationship between sanctions and corporate reporting behaviour.

The remainder of this paper is as follows. Section 2 reviews previous literature and establishes hypotheses. Section 3 outlines our research design. Section 4 presents and discusses results, and Section 5 concludes the study.

2. Literature review and hypotheses development

Corporate reporting refers to the process of disclosing information about a firm's financial and non-financial performance to its various stakeholders (Camilleri, 2018). This communication is typically formalised through documents and reports that provide a comprehensive overview of the organization's activities, strategies, risks, and achievements. Corporate reporting serves to keep stakeholders informed about the firm's performance and helps build transparency, accountability, and trust (Armstrong et al., 2010). This paper considers the behaviour of two main types of corporate reports including financial reporting and non-financial reporting, particularly sustainability reporting.

Signalling theory provides a theoretical framework for understanding how corporations communicate their value, stability, and future prospects to creditors, investors, and other stakeholders (Morris, 1987, Ball et al., 2012, Chen et al., 2016). Although signalling theory was initially created to address information asymmetry in the labor market (Spence, 1978), it has since been applied to explain voluntary disclosure in corporate reporting (Ross, 1977).

Voluntary disclosure serves as a signalling mechanism, where companies provide more information than what is legally required to indicate they are superior (Campbell et al., 2001). This theory clarifies that each company provides high- quality, transparent, and reliable financial reports to reduce information asymmetry and signal strong corporate governance (Ball et al., 2012, Chen et al., 2016). Conversely, poor- quality and delayed or infrequent reporting signals operational inefficiencies and higher perceived risk (Dainelli et al., 2013).

Nonetheless, firms may strategically alter their reporting practices when confronted with uncertain situations like sanctions. Therefore, our theoretical foundation for the impact of sanctions on corporate reporting behavior is based on the assumption that firms tend to adopt different approaches in corporate reporting under the influence of sanctions. Particularly, this paper examines how sanctions influence the behavior of two primary types of corporate reports: financial reporting and non-financial reporting with a particular focus on sustainability reporting.

2.1 Financial reporting behaviour and sanctions

Financial reporting serves as a cornerstone of transparency and accountability within organizations, offering stakeholders insights into a firm's fiscal health and operational practices (Armstrong et al., 2010, Ball et al., 2012). Simultaneously, sanctions represent a regulatory tool wielded by governments and international bodies to influence, deter, or penalize entities engaging in activities contrary to established norms or policies (Morgan et al., 2014). Sanctions imposed by the sender signal dissatisfaction with the targeted countries, which in turn heightens investor uncertainty regarding the economic outlook. This can lead to economic disruption and a decline in national income within the targeted country (Walentek et al., 2021). Therefore, the dramatic changes in the economic climate due to sanctions or economic crises have an impact on the firm’s propensity to manipulate earnings.

A growing body of research investigates whether firms are more motivated to manipulate their earnings during unfavourable economic conditions (Lassoued and Khanchel, 2021). For instance, in an effort to diminish the crisis impact and maintain stakeholder relationships during turbulent times, managers may be inclined to publish financial reports with a more optimistic outlook (Lassoued and Khanchel, 2021). In addition, Saha (2022) posits that firms may use some accounting techniques to obscure the full extent of a crisis's impact from stakeholders. Specifically, a company might manipulate its earnings to appear higher and its debt to seem lower, thereby presenting a more favourable image to stakeholders. Conversely, during a crisis,

firms may reduce reported earnings to account for previous poor practices or to avoid “political sanctions,” such as increased taxes, stricter regulations, and heightened scrutiny (Ming Chia et al., 2007, Filip and Raffournier, 2014).

There are several researches believe that firms engage in upward earnings manipulation in periods of economic stress to prevent a significant decrease in the firmôs stock price as well as to compensate for the decrease of operational performance (Charitou et al., 2007, Ahmad-Zaluki et al., 2011). In contrast, during challenging periods, certain firms may be motivated to engage in downward earnings management because firms undergo heightened scrutiny from auditors, creditors, and various stakeholders. (Krishnan, 2007)) indicates a rise in earnings conservatism among former clients of Andersen who transitioned to a Big Four auditor. At the same time, Ming Chia et al. (2007) point out that service-oriented listed firms in Singapore engage in income decreasing earnings management during the Asian financial crisis period. Additionally, Filip and Raffournier (2014) find that during the 2008-2009 financial instability, earnings management of the 16 European-listed firms under investigation have significantly declined. Consistent with this assertion, Cimini (2015) reports a reduction in abnormal accruals across the majority of European countries examined during uncertainty periods. Similar results of income-decreasing earning management practices during financial instability are found by Habib et al. (2013) in New Zealand, and Silva et al. (2014) in Brazil. The decrease in earnings management means increasing financial reporting conservatism and transparency (Chen et al., 2015). Francis et al. (2013) and Manganaris et al. (2017) disclose that conservatism increases during troubled periods, with greater conservatism appearing to benefit shareholders. de Batz (2020) explores the impact of the enforcement of financial regulations by the French Financial Market Authority on sanctioned firms and finds that the imposition and public disclosure of sanctions result in adverse abnormal returns for sanctioned firms. This is attributed to the financial penalties imposed, downward adjustments in forecasts, and potential damage to the firms' reputation. Recently, Saha (2022) conducts a comprehensive literature review systematically examining the effects of a crisis on the quality of financial reporting and reports mixed and inconclusive findings, indicating that the current state of literature concerning financial reporting quality during a crisis is not well-developed.

Therefore, it is crucial to comprehend how firms adapt their financial reporting during sanction periods to maintain creditability, transparency and investors’ confidence. This study aims to contribute to this understanding by examining the impacts of sanctions on earnings

management and extends the current knowledge on how senders of sanctions influence financial report quality. Hence, we propose the following hypothesis:

Hypothesis 1 International sanctions have an influence on the financial reporting behaviour.

2.2 Sustainability reporting behaviour and sanctions

Sustainability reporting, issued on a voluntary basis, serves as an effective management tool which provides greater transparency to business information beyond the traditional financial information with more responsible and trustworthy (Antonia Garcia-Benau et al., 2013, Amran et al., 2014, Zhang et al., 2021, Cho et al., 2020). The motivation to willingly share information about sustainability or to publish an assurance report on such information can be explained within the context of signalling theory (Toms, 2002, Connelly et al., 2011). Firms use sustainability reports as a signalling mechanism to convey quality and differentiate themselves from competitors (Correa-Garcia et al., 2020, Christensen et al., 2021). By disclosing comprehensive and credible sustainability information, companies signal their long-term commitment to responsible business practices, aiming to build trust and credibility with investors, customers, regulators, and other stakeholders. This is particularly important in an era where stakeholders increasingly prioritize ESG factors in their decision-making processes. Firms that demonstrate strong sustainability reporting practices effectively signal their proactive risk management, ethical standards, and strategic foresight, which can enhance their reputation, attract sustainability-oriented investors, and potentially lead to better financial performance (Gregory et al., 2014, Deng et al., 2013, Ioannou and Serafeim, 2017). In addition, Al-Shaer (2020) find a significant positive association between high-quality sustainability reporting and post-audit financial reporting. More recently, Zimon et al. (2022) reveal that non-financial sustainability reporting positively impacts corporate reputation.

Firms facing economic sanctions may experience resource constraints, compliance pressures, reputation risk, operational disruptions which can lead to a change in the quality and comprehensiveness of sustainability reports (Felbermayr et al., 2020). Sanctions frequently result in operational and budgetary constraints, which reduces the resources available for comprehensive data collecting and sustainability projects. Firms may find it difficult to allocate enough resources, including money and personnel, to sustainability initiatives, which could lower the overall quality of sustainability reports. Consistent with this assertion, Rodolfo (2012) find that transparency and quality of the CSR reports of the listed firm in the GRI report declined during the economic crises or economic uncertainty. In contrast, Antonia Garcia-

Benau et al. (2013) find that the economic crisis has affected the CSR reporting strategy of firms as the number of CSR reports increased significantly with the crisis, whereas, the CSR assurance reporting strategy of firms has remained relatively unaffected by the economic crisis. Additionally, Ahsan and Qureshi (2021) reveal that the disclosure of environmental and social information by European firms not only boosts their reputation but also aids in mitigating uncertainty resulting from policy measures. Recently, Ahmed et al. (2024) identify distinct patterns in ethical and sustainable business practices across different ownership types. Specifically, foreign and family-owned firms tend to increase their engagement in environmental, social, and governance (ESG) performance during sanction periods. In contrast, government-owned firms exhibit a decline in these activities when faced with financial sanctions.

However, the impact of sanctions on the quality of sustainability reporting remains uncertain and continues to be explored. This study examines the complex relationship between sanctions and the effectiveness of sustainability reporting, aiming to understand how external pressures and economic constraints may affect the transparency, accuracy, and depth of information disclosed by companies under sanctions. By exploring this relationship, we seek to highlight the challenges and considerations involved in maintaining responsible corporate practices despite the constraints imposed by sanctions. Therefore, we propose the following hypothesis:

Hypothesis 2 International sanctions have an influence on the sustainability reporting behaviour.

3. Research design

3.1 Sample and data

Based on the Global Sanction Database (GSDB) developed by Felbermayr et al. (2020), our sample consists of firms operating in countries that were subjected to sanctions by the US or EU at some points between 2002 and 2022. For our identified sample, we gather the required financial, corporate governance, and ESG data from Refinitiv Eikon. Additionally, the data on external auditors are sourced from Bloomberg, while country-level data are obtained from the Hofstede website and the World Bank Governance Indicators. Consistent with existing literature in the field (Ahmed et al., 2024), we exclude financial firms with SIC codes ranging from 6000 to 6999. This exclusion removes the influence of the unique regulations and stringent reporting requirements specific to financial firms. Furthermore, firms with missing

data are excluded, resulting in a final dataset of 10,028 firm-year observations across 14 countries between 2002 and 2022.

3.2 Corporate reporting behaviour

In our study, we consider two types of corporate reporting: financial reporting and sustainability reporting. Financial reporting behaviour is proxied using real earnings management, while sustainability reporting behaviour is measured with an index composed of five factors.

3.2.1 Earnings management

Following previous studies (Dechow et al., 1998, Roychowdhury, 2006, Cohen and Zarowin, 2010), we measure real earnings management (REM) using three indicators: abnormal cash flow from operations (RM_CFO), production costs (RM_PROD), and discretionary expenses (RM_DISX). Utilising models implemented by Roychowdhury (2006), we apply cross-sectional regression analysis to estimate each REM indicator for every country-industry-year combination, with a minimum requirement of 10 observations. The specific model details used for estimating REM indicators are as follows:

The First model is related to RM_CFO:

$$\frac{\text{CFO}_{it}}{\text{ASSTES}_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{\text{ASSTES}_{it-1}} + \alpha_2 \frac{\text{SALES}_{it}}{\text{ASSTES}_{it-1}} + \alpha_3 \frac{\Delta \text{SALES}_{it}}{\text{ASSTES}_{it-1}} + \varepsilon_{it} \quad \textbf{(1)}$$

The second model is related to RM_PROD:

$$\frac{\text{PROD}_{it}}{\text{ASSTES}_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{\text{ASSTES}_{it-1}} + \alpha_2 \frac{\text{SALES}_{it}}{\text{ASSTES}_{it-1}} + \alpha_3 \frac{\Delta \text{SALES}_{it}}{\text{ASSTES}_{it-1}} + \alpha_4 \frac{\Delta \text{SALES}_{it-1}}{\text{ASSTES}_{it-1}} + \varepsilon_{it} \quad \textbf{(2)}$$

The third model is related to RM_DISX:

$$\frac{\text{DISX}_{it}}{\text{ASSTES}_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{\text{ASSTES}_{it-1}} + \alpha_2 \frac{\text{SALES}_{it-1}}{\text{ASSTES}_{it-1}} + \varepsilon_{it} \quad \textbf{(3)}$$

In equations 1-3, *CFO* denotes cash flow from operational activities; *PROD* represents the production cost, which is calculated as the sum of the cost of goods sold and the change in total inventory; *DISX* represents discretionary expenses, which are calculated as the sum of selling, administration expenses, research and development expenses, and advertising expenses. *ASSTES* denote total assets, while *SALES* stand for total sales.

The RM_CFO represents the residual value (ε_{it}) from equation 1, RM_PROD from equation 2, and RM_DISX from equation 3. Following (Cohen et al., 2008, Kuo et al., 2014), real earnings

management (REM) is derived by calculating the sum of RM_CFO and RM_PROD minus RM_DISX, as demonstrated in the following equation:

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A higher REM value suggests greater engagement in earnings management, thus indicating to less conservative financial reporting behaviour and lower financial reporting quality.

3.2.2 Sustainability reporting quality

Following (Al-Shaer and Zaman, 2016, Al-Shaer, 2020), we measure sustainability reporting quality (SRQ) using a composite index. This index comprises five equally-weighted dummy variables that focus on various aspects of a firm's sustainability practices. Each factor is assigned a score of 1 if present and 0 if absent. This method helps reduce potential bias that could occur if different weighting schemes were used (Alshorman et al., 2024). These factors include compliance with Global Reporting Initiatives (GRI) guidelines for sustainability reporting, the purchase of sustainability assurance services, the establishment of a sustainability committee, the issuance of a standalone sustainability report, and the alignment of sustainability objectives with executives' incentives. These factors reflect the corporate structure and contribute significantly to improved sustainability reporting (Al-Shaer, 2020). Thus, the SRQ index ranges from 0 to 5, with the highest value of the SRQ index suggesting a greater sustainability reporting quality.

3.3 Sanctions

Using a comprehensive and updated data from the Global Sanction Database (GSDB)[3] that is found by Felbermayr et al. (2020), we construct an index comprising five categories of sanctions: financial, trade, military, travel, and others. According to the GSDB, each category of sanctions is assigned a value of 1 when a country is under that specific type of sanction, and 0 otherwise. We focus on sanctions imposed by the US and EU, which together represent approximately 80% of international sanctions during the period from 2002 to 2022 (Felbermayr et al., 2020, Kirikakha et al., 2021). The GSDB is commonly used in the literature (Lee et al., 2023, Gutmann et al., 2023) because it provides consistent, verified, and extensive coverage of sanction data.

[3] A comprehensive description of the Global Sanction Database (GSDB) is available in Felbermayr et al. (2020).

3.4 Methodology

To test our hypotheses, we employ the following regression model:

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In equation 5, CRB represents corporate reporting behaviour, which takes two values: earnings management and the sustainability reporting index. FL denotes the firm-level control variables, which include firm size, leverage, market-to-book (MTB) ratio, return on assets (ROA), firm age, firm loss, cash flow to total assets (cash flow), big four external auditor (BIG4), effectiveness of the internal auditor (internal audit), governance score, and environmental, social, and governance controversies (ESG controversies). CL refers to the country-level data, including gross domestic product growth (GDP growth) and private credit to GDP (Private credit), which serve as control variables for a country's economic development. Additionally, uncertainty avoidance (Uncertainty) is used to control for a country's cultural uncertainty tolerance level. YFF and IFF represent year and industry (48 Fama-French categories) fixed effects, which are included to control for potential variations related to year and industry-specific factors. The definitions of variables and data sources are presented in Appendix A.

Equation 5 is estimated using the two-way cluster method based on the approach presented by Petersen (2008), which clusters the data at both the firm and year levels. This method provides well-specified standard errors and effectively mitigates heteroscedasticity concerns within the panel dataset context. To limit the potential influence of outlier observations, all continuous variables are winsorised at the 1st and 99th percentiles.

4. Results and discussion

4.1 Descriptive statistics

Table 1 presents the descriptive statistics for all variables examined in the study. Commencing with real earnings management (REM), it exhibits an average value of -0.046. The range extends from -2.121 to 1.560, with a standard deviation of 0.236. Furthermore, the average index value measuring sustainability reporting quality (SRQ) is around 2.3 out of 5, with a standard deviation of 1.390. The sanction score that consists of financial, trade, military, and other sanctions ranges from 0 to 5, with an average of 2.354 and a standard deviation of 2.087. To offer more detailed descriptive information, Table 2 presents the average of REM, SRQ, and sanctions by countries. Accordingly, South African and Taiwanese firms exhibit the highest tendency towards REM engagement, with positive averages of 0.016 and 0.007,

respectively, while Egyptian, Indian, and Mexican firms demonstrate the lowest tendencies of -0.555, -0.140, and -0.133, respectively. Interestingly, Table 2 also reveals that firms operating in South Africa provide high-quality sustainability reports (SRQ) with an average of 4.048, whereas firms operating in Greece exhibit the lowest SRQ at 0.267. Furthermore, China holds the highest average sanction score value of 4, while Mexico exhibits the lowest at 0.016.

Regarding control variables, Table 1 indicates the range of firm size, which is determined by the natural logarithm of total assets, ranging from 2.234 to 16.004. The mean firm size is 10.791, with a standard deviation of 1.761. These results demonstrate that our sample comprises firms of varying sizes, including small, medium, and large firms, so mitigating issues regarding size bias. The averages of financial variables are as follows: 13.380 for leverage, 3.308 for MTB ratio, 5.956 for ROA, with 90% of firms in our sample reporting a loss during the study, and 5.348 for cash flow volatility. Table 1 also presents the averages of monitoring variables. Around 55% of firms are audited by big four auditors, 60% of firms have expert members in the internal audit committee, while the average for ESG controversies is 95. Finally, the country-level factors in Table 1 indicate a 4.237% GDP growth, 100% private credit, and a 44% uncertainty avoidance score.

(Insert Tables 1 and 2 about here)

Table 3 presents correlation coefficients among independent variables, all of which are below 0.6, a threshold identified by Gujarati (2022) as indicating a level of multicollinearity concern. Table 3 shows a maximum correlation coefficient of 0.556 between ROA and firm loss variables, while the minimum correlation coefficient of 0 is observed between the cash flow and governance score variables. These results demonstrate the absence of a multicollinearity problem among the study's variables.

(Insert Table 3 about here)

4.2 Main analysis

Table 4 illustrates the impact of international sanctions on REM and SRQ. In Model 1 for REM, the findings reveal a negative relationship between Sanctions and REM at the 1% significance level (β= - 0.479, $p<0.01$). This indicates that firms are inclined to avoid overstating their profits and instead opt for a cautious and honest approach to financial reporting during periods of sanctions. This result supports the argument that during challenging times, firms are less likely to manipulate their earnings and instead demonstrate a more

conservative financial reporting (Ming Chia et al., 2007, Jenkins et al., 2009, Filip and Raffournier, 2014). The reduction in earnings management behaviour during troubled periods is justified as firms aim to take benefits from debt restructuring opportunities and government support available for struggling firms during challenging periods (Lim and Matolcsy, 1999, Navissi, 1999, Filip and Raffournier, 2014). Moreover, firms are subjected to high level of monitoring during uncertainty periods, leading to a reduction in earnings manipulation (Ming Chia et al., 2007).

In terms of control variables, result in Model 1 indicates a positive relationship between firm size and REM at 1% significant level. This finding is consistent with the argument that how larger firms may have greater opportunities and resources to participate in different types of earnings management, which may include both accrual-based and real earnings management approaches (Roychowdhury, 2006). Similarly, firms with ESG controversies are more inclined to engage in real earnings management. However, financial indicators including MTB ratio, ROA, and cash flow volatility exhibit a negative association with REM at the 1% significance level. Likewise, the existence of effective monitoring mechanisms, especially involving big four auditors, an expert internal audit committee, and a robust governance system, contributes significantly to mitigating REM. These findings corroborate previous literature (Chen et al., 2015, Zang, 2012, Chen et al., 2020). Model 1 in Table 4 also demonstrates that GDP growth, private credit to GDP, and uncertainty avoidance as a cultural dimension display a positive association with REM at the 1% significance level.

In Model 2 of Table 4, the findings reveal a contrasting effect on the quality of sustainability reporting (SRQ), which diminishes under the influence of international sanctions. Particularly, Model 2 shows that sanctions have negative influence on SRQ ($\beta = -7.752$, $p<0.01$). Improving sustainability reporting quality requires substantial changes in corporate structure, norms, routines, and policies (Hawn and Ioannou, 2016). However, during uncertainty periods, firms tend not to prioritise sustainability actions (McGuinness et al., 2017), which may explain the compromise in sustainability reporting quality during such challenging periods. This result supports the finding of Rodolfo (2012), indicating a significant decline in the quality and transparency of sustainability reports during economic crisis periods in 2007, 2008, and 2011.

The results in Model 2 for control variables are consistent with previous studies (Choi and Pae, 2011, Kim et al., 2012, Bozzolan et al., 2015, Al-Shaer, 2020). Firm-characteristic factors, particularly firm size, leverage, MTB ratio, ROA, and firm age, exhibit a positive effect on

SRQ. Country-characteristic factors, particularly private credit to GDP and uncertainty avoidance, positively impact SRQ at the 10% and 1% significance levels, respectively. Furthermore, Model 2 of Table 4 displays that governance mechanisms, both external (big four auditor) and internal (effective audit committee and governance system), positively influence SRQ at the 1% significance level. However, ESG controversies is negatively impact SRQ at the 1% significance level.

(Insert Table 4 about here)

4.3 Additional analysis—sender of sanctions

To offer insight into the impact of sanctions on corporate reporting behaviour, we segment our sample into two subsamples based on the sanction sender, specifically the US and EU. Table 5 indicates that both US and EU sanctions have similar directional influences on financial and sustainability reporting quality. However, there are variations in the levels of significance and coefficients. In Model 1 and 2 of Table 5, the coefficient of US sanctions negatively impacts REM (β= -0.494, $p<0.10$) and SRQ (β= -8.647, $p<0.01$), respectively. Similarly, EU sanctions have statistically negative influence on REM and SRQ, however, with the significantly higher coefficients of EU sanctions affecting REM (β= -1.022, $p<0.05$) and SRQ (β= -12.039, $p<0.01$) as presented in Model 3 and Model 4, respectively. Our results suggest that EU sanctions have a stronger influence than US sanctions in both mitigating earnings manipulation and compromising sustainability reporting quality. This result is in line with Weber and Schneider (2020) who find that EU sanctions are more effective and successful than those sanctions imposed by the US due to the greater aggregated economic power of EU countries. This is because the combined economic strength of the EU nations increases the effectiveness of their sanctions compared to those from a single nation such as the US. With several strong economies, the EU accounts for a large share of global trade, and its sanctions can create extensive restrictions that impact numerous multinational companies.

(Insert Table 5 about here)

4.4 Additional analysis—Type of sanctions

The Global Sanction Database (GSDB) provides information on different types of sanctions: financial sanctions, trade sanctions, military sanctions and other sanctions (Felbermayr et al., 2020). We utilize this information to examine the individual influence of each sanction type on REM and SRQ, as presented in Table 6. Specifically, in Model 1 and 2, financial sanctions display a statistically negative influence on both REM (β= -1.907, $p<0.01$) and SRQ (β= -

8.728, p<0.01), respectively. Similarly, Model 3 and 4 reveal that trade sanctions also exhibit a statistically negative effect on REM (β= -1.806, p<0.01) and SRQ (β= -20.264, p<0.01). Conversely, Model 5 and 6 demonstrate that military sanctions do not indicate any significant effect on either REM or SRQ. Finally, other forms of sanctions in Model 7 negatively impact REM (β= -2.796, p<0.01) and show a negative, yet insignificant, effect on SRQ as reported in Model 8. Overall, by dividing sanctions into four types, our analysis reveals that financial and trade sanctions exert a more pronounced impact on both financial and sustainability reporting behaviours compared to other sanctions. However, military sanctions do not yield a significant effect on either financial or sustainability reporting behaviours. This result aligns with findings from Le and Hoang (2022), who indicate that military sanctions do not show a significant effect when examining their association with environmental performance.

(Insert Table 6 about here)

4.5 Robustness checks—Alternative measures

To ensure that our results are not influenced by specific measures, we employ alternative measures for both earnings management and sustainability reporting quality. We use discretionary accrual earnings management (AEM) as an alternative measure for earnings management. Following (Kuo et al., 2014, Cohen et al., 2008) , we estimate the AEM using a model developed by Jones (1991) based on cross-sectional regression analysis for every country-industry-year combination, with a minimum requirement of 10 observations. The specific model details used for estimating AEM are as follows:

$$\frac{TA_{it}}{ASSETS_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{ASSETS_{it-1}} + \alpha_2 \frac{\Delta SALES_{it}}{ASSETS_{it-1}} + \alpha_3 \frac{PPT_{it}}{ASSETS_{it-1}} + \varepsilon_{it} \quad \textbf{(6)}$$

In equation 6, TA represents total accruals, calculated as net income minus cash flow from operating activities. ASSETS denote total assets, SALES indicate total sales, and PPT represents gross property, plant, and equipment. Therefore, the AEM is the different between total accruals and fitted normal accrual value estimated from equation 6.

With regard to sustainability reporting quality, we use a singular factor measure which is sustainable reporting assurance (SRA) as an alternative measure. The SRA is a dummy variable coded 1 if the sustainable report is assured by external party, and 0 otherwise. Previous studies demonstrate that the presence of independent external assurer improves sustainability reporting quality and reduces stakeholder's concern about the credibility of such reports (Simnett et al., 2009, Al-Shaer and Zaman, 2016).

Table 7, Model 1, displays a negative association between sanctions and AEM, suggesting that firms tend to reduce their earnings manipulation and adopt a more conservative and transparent financial reporting behaviour during sanction periods. On the other hand, Model 2 in Table 7 reveals a negative relationship between sanctions and SRA, indicating that firms may not prioritise sustainability practices that lead to improved sustainable reporting quality during sanction periods. These findings align with those reported in Table 4, supporting the robustness of our results and indicating that they are not driven by specific measures.

(Insert Table 7 about here)

4.6 Robustness checks—Alternative methods

Given the varying number of observations across the countries in our sample, we adopt the Weighted Least Squares (WLS) method to mitigate the influence of countries with a high number of observations on the results. Particularly, we adjust the standard errors by using the inverse of the number of observations per country as weights. By assigning suitable weights to each data point (country-firm-year), this method ensures a more accurate estimation of the parameters (Li et al., 2021). Model 1 and 2 of Table 8 show the results of the WLS method, which are consistent with those results reported in Tables 4 and 7. This consistency adds robustness to our results that they are not influenced by countries with a substantial number of observations.

Furthermore, we employ the Two-Stage Least Squares (2SLS) method to address the potential endogeneity concerns resulting from issues such as reverse causality and omitted factors (Ullah et al., 2018, Gull et al., 2023). Following Boubakri et al. (2018), we use average industry-region of independent variable (i.e., sanctions) as an external instrumental variable. Industries are categorised using the 48 Fama-French categories, while regions are classified based on the locations of their headquarters. The use of the average industry-region of sanctions as an instrumental variable is appropriate as it maintains a direct association with sanctions while avoiding direct influence on corporate reporting behaviour. The results from the 2SLS method, presented in Model 3 of Table 8, reveal a negative association between sanctions and REM, indicating a decrease in earnings manipulation during sanction periods. Conversely, Model 4 of Table 8 displays a significantly negative relationship between sanctions and SRQ, suggesting a compromise in sustainability reporting quality during sanction periods. These findings align with the results reported in Tables 4 and 7, confirming the robustness of our results as they are unaffected by endogeneity issues.

(Insert Table 8 about here)

5. Conclusion

This study explores the impact of sanctions imposed by the US and EU on corporate reporting behaviour from 2002 to 2022. We analyse two types of reporting: financial reporting, assessed through earnings management (real and accrual), and sustainability reporting, measured by a composite index encompassing five factors representing a firm's sustainability practices. These factors include adopting GRI guidelines, acquiring sustainability assurance, establishing a sustainability committee, issuing standalone sustainability reports, and aligning sustainability objectives with executives' incentives. By merging corporate reporting with sanctions data obtained from the GSDB, resulting in 10,028 firm-year observations, the study reveals that sanctions have a negative impact on earnings management. The reduction in earnings management suggests that firms tend to adopt a more conservative and transparent financial reporting approach (Jenkins et al., 2009). This trend is justified by firms tending to decrease their earnings to benefit from government financial assistance and the debt restructuring offered to struggling firms (Navissi, 1999, Lim and Matolcsy, 1999, Ming Chia et al., 2007). Conversely, the results indicate a decline in the quality of sustainability reporting during sanction periods. This result supports the argument that the spending of resources on improving sustainability practices may not be a priority for firms during crisis periods (McGuinness et al., 2017), resulting in compromised sustainability reporting quality.

Furthermore, the results demonstrate that EU sanctions exert a stronger influence on both financial and sustainability reporting compared to US sanctions. Weber and Schneider (2020) argue that the aggregated economic power of EU nations exceeds that of the US, leading to a more substantial influence of their sanctions on other countries. This is due to the fact that the EU's collective economic strength makes its sanctions more effective than those of a single country like the US. The EU's numerous robust economies contribute to a significant portion of global trade, and its sanctions can impose broad restrictions affecting a wide range of multinational companies. Particularly, the EU and US series of sanctions measures imposed on Russia in response to its annexation of Crimea in 2014 and subsequent activities in Eastern Ukraine which evidenced by Dong and Li (2018) that EU sanction measures have larger impacts to Russia than the US measures. Our additional analysis also reveals that financial and trade sanctions have a stronger influence on financial and sustainability reporting behaviours compared to other forms of sanctions when they are divided into four categories (financial,

trade, military, and others). However, military sanctions do not exhibit a significant impact on either financial or sustainability reporting behaviours. The consistency of our findings persists in several sensitivity analyses and other regression approaches, demonstrating the stability of our results and their resistance to endogeneity concerns.

Given the findings and contributions presented, our study holds several implications for different groups of stakeholders, including investors, banks, and policymakers in both target and sender countries. Particularly, investors can benefit from our results in evaluating the transparency and credibility of various types of reporting during uncertain periods, which can assist them in making appropriate investment decisions. Our results also indicate that firms can strategically modify their reporting approach to send specific signals to their stakeholders. For instance, during normal times, firms tend to engage in earnings management, reflecting a less conservative and transparent approach. However, they adjust their reporting to be more conservative and transparent during sanction periods, which allows them to benefit from government support and take advantage of debt restructuring offered to struggling firms. Accordingly, government bodies and banks should be aware of firms altering their reporting approaches in response to external pressures such as sanctions. By recognizing these shifts, they can better assess the true financial health of these firms and ensure that support mechanisms, such as government aid or debt restructuring programs, are allocated appropriately. Enhanced scrutiny will help prevent firms from exploiting these support systems through temporary or strategic reporting modifications.

Policymakers in both target and sender countries need to be aware that the impact of sanctions goes beyond the direct economic and financial indicators. Thus, policymakers in target countries can benefit from our results by establishing specific rules to ensure reporting quality, even during uncertain times. These policies might include mandating standardised reporting frameworks such as Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), or the Task Force on Climate-related Financial Disclosures (TCFD) and ensuring public access to sustainability reports. The target countries can also require companies to conduct scenario analysis and stress testing as part of their sustainability reporting and offer incentives such as tax breaks for maintaining high standards of sustainability report even during challenging time. Similarly, policymakers in sender countries can use our findings to optimize their sanctions strategy and identify the most effective approaches. They can offer continued access to financial market and trade privileges for companies in target countries that maintain transparency and high sustainability reporting standards during sanction time.

This study sets a precedent for future research exploring the impact of sanctions on firm-level factors. It creates opportunities for more extensive investigations in this crucial field that intersects geopolitics, finance, and corporate governance. Future studies can explore the specific causal links that explain the inconsistencies in reporting behaviour. Additionally, expanding this research to explore potential interactions between sanctions and other external factors, such as regulatory frameworks or cultural aspects, could offer a more comprehensive understanding of how external pressures shape corporate reporting practices within complex global contexts.

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Table 1 Descriptive statistics

	Obs.	Mean	Median	SD	Min	Max
REM	10028	-0.046	-0.019	0.236	-2.121	1.560
SRQ	10028	2.362	2.000	1.390	0.000	5.000
Sanctions	10028	2.354	2.000	2.087	0.000	5.000
Firm size	10028	10.791	10.607	1.761	2.234	16.004
Leverage	10028	13.380	9.494	13.960	0.000	75.550
MTB ratio	10028	3.308	2.020	3.787	-3.000	22.800
ROA	10028	5.956	5.134	8.122	-67.983	32.040
Firm age	10028	3.088	3.091	0.672	0.000	4.511
Firm loss	10028	0.905	1.000	0.294	0.000	1.000
Cash flow	10028	5.348	2.470	9.714	0.097	71.042
BIG4	10028	0.559	1.000	0.497	0.000	1.000
Internal Audit	10028	0.629	1.000	0.483	0.000	1.000
Governance score	10028	49.578	49.495	21.509	0.290	98.050
ESG controversies	10028	95.898	100.000	15.223	0.880	100.000
GDP growth	10028	4.237	3.796	3.601	-6.545	12.721
Private credit	10028	100.893	111.843	47.872	32.043	165.390
Uncertainty	10028	44.212	30.000	19.252	29.000	100.000

This table displays descriptive statistics for the study variables. Variable definitions are presented in Appendix A.

Table 2 Descriptive statistics by country

Country	Obs.	REM	SRQ	Sanctions
Brazil	449	-0.014	3.024	0.096
China	4265	-0.047	1.755	4.370
Egypt	4	-0.555	1.750	3.000
Greece	15	-0.025	0.267	1.067
Hong Kong	1160	-0.043	1.999	0.495
India	1155	-0.140	2.901	0.052
Indonesia	306	-0.063	2.722	1.997
Mexico	61	-0.133	2.918	0.016
Russia	256	-0.071	2.875	2.813
Saudi Arabia	75	-0.043	1.547	2.000
South Africa	373	0.016	4.048	0.558
Taiwan	1324	0.007	3.023	1.533
Thailand	402	-0.012	3.057	0.550
Turkey	183	-0.041	3.044	1.749
Total	10028	-0.046	2.362	2.354

This table displays country-wise averages for the primary variables. Variable definitions are presented in Appendix A.

Table 3 Correlation matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Sanctions	1.000														
2	Firm size	-0.173*	1.000													
3	Leverage	-0.210*	0.247*	1.000												
4	MTB ratio	0.071*	-0.174*	-0.167*	1.000											
5	ROA	-0.044*	-0.022*	-0.295*	0.343*	1.000										
6	Firm age	-0.180*	0.134*	0.019	-0.005	0.038*	1.000									
7	Firm loss	0.029*	0.080*	-0.140*	0.070*	0.556*	0.015	1.000								
8	Cash flow	0.008	-0.165*	0.022*	0.080*	-0.146*	-0.073*	-0.261*	1.000							
9	BIG4	-0.343*	-0.027*	0.085*	-0.172*	-0.033*	-0.056*	-0.012	-0.005	1.000						
10	Internal Audit	-0.038*	-0.038*	0.026*	0.011	-0.038*	-0.060*	-0.023*	0.039*	0.051*	1.000					
11	Governance score	-0.004	0.059*	0.042*	-0.030*	-0.015	0.045*	-0.009	0.000	0.108*	0.193*	1.000				
12	ESG controversies	0.188*	-0.193*	-0.090*	0.028*	0.030*	-0.070*	0.070*	-0.015	-0.029*	-0.058*	-0.071*	1.000			
13	GDP growth	0.184*	0.044*	-0.126*	0.096*	0.101*	-0.114*	0.095*	-0.032*	-0.174*	-0.005	-0.030*	0.021*	1.000		
14	Private credit	0.454*	-0.337*	-0.150*	-0.058*	-0.133*	-0.215*	-0.005	0.018	0.094*	0.185*	-0.001	0.201*	-0.095*	1.000	
15	Uncertainty	-0.397*	0.108*	0.175*	-0.109*	0.030*	0.182*	-0.046*	0.011	0.233*	-0.297*	0.003	-0.078*	-0.269*	-0.551*	1.000

This table displays the correlation matrix among independent variables. Variable definitions are presented in Appendix A, and "*" indicates significance at the 5% level.

Table 4 Main analysis

	REM	SRQ
	Model 1	Model 2
Sanctions	-0.479***	-7.752***
	(-3.09)	(-9.41)
Firm size	0.960***	23.895***
	(7.24)	(32.13)
Leverage	-0.027	0.785***
	(-1.64)	(8.13)
MTB ratio	-1.177***	1.219***
	(-13.73)	(3.68)
ROA	-1.356***	0.689***
	(-25.46)	(3.59)
Firm age	-0.924***	17.598***
	(-2.75)	(9.41)
Firm loss	3.634***	5.277
	(4.22)	(1.15)
Cash flow	-0.409***	-0.318
	(-5.61)	(-1.54)
BIG4	-1.013**	37.550***
	(-2.08)	(14.55)
Internal Audit	-1.159***	17.396***
	(-2.67)	(7.08)
Governance score	-0.016*	1.557***
	(-1.80)	(30.86)
ESG controversies	0.029**	-0.553***
	(2.42)	(-8.13)
GDP growth	0.350***	-0.696
	(3.77)	(-1.36)
Private credit	0.027***	0.057*
	(4.52)	(1.69)
Uncertainty	0.100***	1.787***
	(6.05)	(19.36)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Adj. R-squared	0.373	0.439
F-statistic p-value	0.000	0.000

This table displays the impact of sanctions on earnings management and sustainability reporting quality. Variable definitions are presented in Appendix A. Continuous variables are winsorised at the 1st and 99th percentiles to handle potential outliers. Coefficients are multiplied by 100 for scaling purposes. Robust t-statistics by firms and year are shown in parentheses, with significance levels marked as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5 Sender of sanctions

	REM	SRQ	REM	SRQ
	Model 1	Model 2	Model 3	Model 4
US Sanctions	-0.494*	-8.647***		
	(-1.88)	(-5.84)		
EU Sanctions			-1.022**	-12.039***
			(-2.33)	(-3.15)
Firm size	1.062***	24.237***	1.295***	33.927***
	(7.98)	(32.11)	(7.61)	(24.89)
Leverage	-0.033**	0.792***	-0.016	0.872***
	(-2.02)	(8.14)	(-0.95)	(5.68)
MTB ratio	-1.267***	1.177***	-0.633***	2.264***
	(-14.63)	(3.55)	(-8.02)	(4.67)
ROA	-1.352***	0.718***	-1.466***	0.530*
	(-24.02)	(3.71)	(-19.84)	(1.92)
Firm age	-0.962***	19.188***	0.357	-8.606***
	(-2.72)	(10.24)	(0.79)	(-2.71)
Firm loss	4.681***	4.613	4.667***	2.099
	(5.62)	(1.00)	(4.74)	(0.33)
Cash flow	-0.103***	-0.302	-0.105	-0.190
	(-3.41)	(-1.46)	(-1.18)	(-0.69)
BIG4	-1.002**	42.449***	-1.404***	34.054***
	(-2.11)	(16.96)	(-3.36)	(10.54)
Internal Audit	-0.935**	19.174***	0.044	4.863
	(-2.17)	(7.81)	(0.11)	(1.49)
Governance score	-0.017*	1.537***	-0.016*	1.232***
	(-1.84)	(30.35)	(-1.75)	(17.13)
ESG controversies	0.033***	-0.564***	0.060***	-0.528***
	(2.73)	(-8.24)	(3.16)	(-3.32)
GDP growth	0.336***	-1.392***	0.722***	7.193***
	(3.67)	(-2.67)	(3.95)	(5.47)
Private credit	0.021***	0.007	0.107***	0.660***
	(3.57)	(0.20)	(3.20)	(2.76)
Uncertainty	0.099***	1.830***	0.223***	3.461***
	(5.82)	(19.14)	(3.68)	(8.07)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Adj. R-squared	0.383	0.436	0.504	0.421
F-statistic p-value	0.000	0.000	0.000	0.000

This table displays the impact individual of US and EU sanctions on earnings management and sustainability reporting quality. Variable definitions are presented in Appendix A. Continuous variables are winsorised at the 1st and 99th percentiles to handle potential outliers. Coefficients are multiplied by 100 for scaling purposes. Robust t-statistics by firms and year are shown in parentheses, with significance levels marked as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6 Type of sanctions

	REM	SRQ	REM	SRQ	REM	SRQ	REM	SRQ
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Financial sanctions	-1.907***	-8.728***						
	(-3.40)	(-2.72)						
Trade sanctions			-1.806***	-20.264***				
			(-2.74)	(-5.71)				
Military sanctions					0.991	-10.184		
					(0.61)	(-1.32)		
Other sanctions							-2.796***	-5.858
							(-3.45)	(-1.08)
Firm size	0.999***	24.045***	1.110***	23.060***	0.391	14.779***	1.288***	27.117***
	(7.37)	(31.39)	(7.41)	(27.77)	(0.94)	(10.70)	(7.87)	(25.25)
Leverage	-0.034**	0.810***	-0.058***	1.004***	-0.035	0.703***	0.012	0.950***
	(-2.10)	(8.34)	(-3.29)	(9.45)	(-0.88)	(3.42)	(0.51)	(6.56)
MTB ratio	-1.222***	1.274***	-1.349***	1.147***	-1.206***	-0.110	-1.111***	2.152***
	(-14.21)	(3.83)	(-15.16)	(3.27)	(-6.98)	(-0.16)	(-10.33)	(4.70)
ROA	-1.354***	0.719***	-1.420***	0.823***	-1.224***	1.708***	-1.360***	0.368
	(-25.28)	(3.70)	(-25.00)	(4.12)	(-9.51)	(3.09)	(-16.19)	(1.29)
Firm age	-1.047***	21.000***	-0.822**	22.860***	-3.999***	16.971***	1.481***	1.582
	(-3.08)	(11.37)	(-2.26)	(11.31)	(-4.73)	(3.54)	(2.81)	(0.54)
Firm loss	3.499***	4.643	4.177***	5.270	-0.280	-3.807	3.093**	4.226
	(4.05)	(1.00)	(4.47)	(1.08)	(-0.16)	(-0.34)	(2.53)	(0.66)
Cash flow	-0.400***	-0.313	-0.403***	-0.339	-0.570***	-2.105***	-0.427***	-0.098
	(-5.43)	(-1.52)	(-5.25)	(-1.62)	(-3.75)	(-2.71)	(-4.08)	(-0.36)
BIG4	-1.220**	42.581***	-1.521***	42.733***	1.775	2.654	-2.539***	33.468***
	(-2.54)	(16.77)	(-3.09)	(16.20)	(1.40)	(0.45)	(-4.41)	(10.47)
Internal Audit	-1.025**	19.927***	-0.762	20.902***	0.110	26.257***	-0.214	3.655
	(-2.37)	(8.03)	(-1.62)	(7.85)	(0.10)	(4.04)	(-0.38)	(1.14)
Governance score	-0.016*	1.542***	-0.021**	1.508***	-0.026	1.704***	0.007	1.432***
	(-1.74)	(30.39)	(-2.23)	(28.72)	(-1.10)	(13.95)	(0.60)	(20.58)
ESG controversies	0.033***	-0.589***	0.043***	-0.659***	0.048**	-0.580***	0.054**	-0.618***

	(2.72)	(-8.58)	(3.19)	(-8.77)	(2.54)	(-5.48)	(2.14)	(-4.02)
GDP growth	0.323***	-2.253***	0.407***	-3.011***	-0.103	0.930	0.591***	2.717**
	(3.73)	(-4.55)	(4.42)	(-5.68)	(-0.35)	(0.61)	(3.51)	(2.53)
Private credit	0.024***	-0.019	0.021***	-0.000	-0.679***	1.490**	0.064***	0.429***
	(4.03)	(-0.54)	(3.24)	(-0.01)	(-3.48)	(2.10)	(6.35)	(5.80)
Uncertainty	0.112***	1.781***	0.089***	1.933***	-0.055	0.801***	0.133***	2.934***
	(6.38)	(18.03)	(4.70)	(18.12)	(-0.93)	(3.05)	(5.04)	(16.32)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.386	0.434	0.407	0.438	0.547	0.385	0.416	0.405
F-statistic p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

This table displays the impact individual of financial, trade, military, and other sanctions on earnings management and sustainability reporting quality. Variable definitions are presented in Appendix A. Continuous variables are winsorised at the 1st and 99th percentiles to handle potential outliers. Coefficients are multiplied by 100 for scaling purposes. Robust t-statistics by firms and year are shown in parentheses, with significance levels marked as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7 Alternative measures

	AEM	SRA
	Model 1	Model 2
Sanctions	-0.119**	-2.501***
	(-2.20)	(-5.26)
Firm size	-0.225***	2.579***
	(-4.49)	(6.32)
Leverage	0.003	0.253***
	(0.54)	(4.95)
MTB ratio	-0.262***	0.627***
	(-8.43)	(2.93)
ROA	0.271***	-0.057
	(13.71)	(-0.56)
Firm age	0.393***	-0.301
	(3.10)	(-0.34)
Firm loss	0.009	8.903***
	(0.02)	(3.58)
Cash flow	0.040	-0.128
	(1.15)	(-1.08)
BIG4	-0.593***	8.588***
	(-3.39)	(5.15)
Internal Audit	-0.080	-2.981**
	(-0.49)	(-2.10)
Governance score	-0.007**	0.243***
	(-2.21)	(8.86)
ESG controversies	0.010**	-0.112***
	(2.33)	(-3.92)
GDP growth	-0.075*	1.206***
	(-1.93)	(4.64)
Private credit	0.001	0.078***
	(0.59)	(4.28)
Uncertainty	-0.022***	0.352***
	(-3.26)	(7.31)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Adj. R-squared	0.091	0.216
F-statistic p-value	0.000	0.000

This table displays the impact of sanctions on earnings management and sustainability reporting quality, using alternative measures for both reporting types. Variable definitions are presented in Appendix A. Continuous variables are winsorised at the 1st and 99th percentiles to handle potential outliers. Coefficients are multiplied by 100 for scaling purposes. Robust t-statistics by firms and year are shown in parentheses, with significance levels marked as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8 Alternative methods

	Weighted least squares (WLS)		Two-stage least squares (2SLS)	
	REM	SRQ	REM	SRQ
	Model 1	Model 2	Model 3	Model 4
Sanctions	-1.486***	-8.692***	-0.468**	-13.832***
	(-3.78)	(-5.70)	(-2.45)	(-13.72)
Firm size	2.216***	20.133***	0.936***	24.037***
	(3.85)	(12.25)	(7.07)	(32.51)
Leverage	-0.005	0.391**	-0.033**	0.752***
	(-0.13)	(2.08)	(-2.03)	(7.76)
MTB ratio	0.273	0.780	-1.222***	1.162***
	(0.70)	(1.25)	(-14.27)	(3.52)
ROA	-1.325***	0.548	-1.358***	0.673***
	(-8.79)	(1.49)	(-25.41)	(3.52)
Firm age	0.499	15.258***	-1.206***	14.698***
	(0.68)	(4.70)	(-3.44)	(7.83)
Firm loss	3.218**	19.912*	3.570***	5.615
	(2.12)	(1.85)	(4.14)	(1.22)
Cash flow	-0.146	-0.856**	-0.403***	-0.311
	(-1.51)	(-2.01)	(-5.48)	(-1.48)
BIG4	-2.163	25.662***	-1.352***	32.756***
	(-1.61)	(4.42)	(-2.75)	(12.55)
Internal Audit	-1.865*	4.487	-0.987**	14.465***
	(-1.75)	(0.86)	(-2.28)	(5.87)
Governance score	0.001	2.191***	-0.015*	1.569***
	(0.04)	(18.00)	(-1.66)	(31.25)
ESG controversies	-0.015	-0.367***	0.031***	-0.508***
	(-0.89)	(-3.31)	(2.62)	(-7.43)
GDP growth	0.738**	3.975***	0.366***	0.779
	(2.40)	(3.27)	(3.88)	(1.49)
Private credit	0.116***	0.168**	0.023***	0.142***
	(4.11)	(2.10)	(3.87)	(4.19)
Uncertainty	0.274***	1.776***	0.100***	1.852***
	(3.70)	(10.64)	(6.04)	(20.26)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Adj. R-squared	0.517	0.463		
Centered R-squared			0.386	0.435
F-statistic p-value	0.000	0.000	0.000	0.000

This table displays the impact of sanctions on earnings management and sustainability reporting quality, using alternative regression methods. Variable definitions are presented in Appendix A. Continuous variables are winsorised at the 1st and 99th percentiles to handle potential outliers. Coefficients are multiplied by 100 for scaling purposes. Robust t-statistics by firms and year are shown in parentheses, with significance levels marked as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix A Variable definitions

Variable	Measurement	Source
REM	Real earnings management is measured using three indicators: abnormal cash flow from operations (RM_CFO), production costs (RM_PROD), and discretionary expenses (RM_DISX).	Refinitiv Eikon
AEM	Accrual earnings management is measured using a model developed by Jones (1991).	Refinitiv Eikon
SRQ	Sustainability reporting quality is measured using five factors: adopting GRI guidelines, acquiring sustainability assurance, establishing a sustainability committee, issuing standalone sustainability reports, and aligning sustainability objectives with executives' incentives.	Refinitiv Eikon
SRA	A dummy variable is coded as 1 if an external party assures a sustainability report, and 0 otherwise.	Refinitiv Eikon
Sanctions	A composite index consists of five types of sanctions: financial, trade, military, travel, and other.	Global Sanction Databases
Firm size	Natural logarithm of total assets.	Refinitiv Eikon
Leverage	Ratio of long-term debt to total assets.	Refinitiv Eikon
MTB ratio	Market value of equity divided by the book value of equity.	Refinitiv Eikon
ROA	Net income divided by total assets.	Refinitiv Eikon
Firm age	Natural logarithm of the number of years since the firm's incorporation.	Refinitiv Eikon
Firm loss	A dummy variable is coded as 1 if a firm has a net loss and 0 otherwise	Refinitiv Eikon
Cash flow	Standard deviation of cash flow over the last four years divided by total assets.	Refinitiv Eikon
BIG4	A dummy variable is coded as 1 if a firm hires a Big Four auditor and 0 otherwise.	Refinitiv Eikon
Internal Audit	A dummy variable is coded as 1 if an audit committee has expert members and 0 otherwise.	Bloomberg
Governance score	Governance performance score.	Refinitiv Eikon
ESG controversies	ESG controversies score.	Refinitiv Eikon
GDP growth	Gross Domestic Product (GDP) growth rate.	World Bank Governance Indicators
Private credit	Ratio of private credit to Gross Domestic Product.	World Bank Governance Indicators
Uncertainty	A score representing uncertainty avoidance as a cultural dimension.	Hofstede website

This table displays the variable definitions and their respective data sources.