



Does environmental, social, and governance performance mitigate earnings management practices? Evidence from US commercial banks

Mohamed Chakib Kolsi¹ · Ahmad Al-Hiyari¹ · Khaled Hussainey²

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Abstract

Environmental, social, and governance (ESG) performance has attracted debates of regulatory bodies and the academic community. Previous studies highlighted the relationship between corporate social responsibility (CSR) disclosure index and earnings management (EM) for non-financial firms. In this paper, we examine the relationship between the ESG performance and EM practices for a sample of US commercial banks over the period 2010–2019. We use two proxies for earnings management: abnormal loan loss provisions (ALLP) and EM to meet the threshold of reporting small positive profit or avoiding losses (SPOS). Consistent with the transparent financial reporting hypothesis, we find that banks reporting higher ESG performance are less likely engaged in income-increasing practice through ALLP. However, no evidence supports that ESG score mitigates EM through loss avoidance. Furthermore, we disaggregate the ESG score into its main three components: environmental, social, and governance. Our findings show that the governance pillar effectively mitigates EM practice under its two proxies. Specifically, the social pillar also seems to be an efficient constraint of banks' EM through income-increasing abnormal loan loss provisions and loss avoidance activity. However, no supporting evidence of a mitigating role for the environmental pillar is provided. Taken together, our results show that, except the environmental pillar, ESG performance score acts as an efficient mitigating tool for EM practices for US banks. Our findings provide a better understanding of banks' earnings management practices. Our findings are helpful for managers when undertaking long-term investment strategies in ESG reporting practices, regulators when issuing new standards, and banks' stakeholders when assessing both the financial and non-financial performance of such entities.

Keywords ESG performance score · Loan loss provisions · Earnings management · Environmental reporting · US banks

Introduction

The relationship between green reporting, innovation, and environmental regulations has received increasing attention from researchers, gaining prominence both in academia and organizations for many decades (Borsatto et al. 2021). Environmental disclosure is among the main factors that induce green innovation and environmental management. Governmental authorities in many countries have implemented market-based and non-market-based policies to encourage companies to reduce their gas emissions. Undoubtedly, changes in environmental regulations and restrictions inevitably influence corporate reporting practices (He et al. 2021). One way to convince numerous stakeholders towards future firm perspectives is to comply with higher corporate social responsibility (CSR) disclosure standards and, consequently, to report higher environmental, social, and

Responsible Editor: Eyup Dogan

✉ Mohamed Chakib Kolsi
Mohamed.Kolsi@ect.ac.ae

Ahmad Al-Hiyari
ahmed.alhiyari@ect.ac.ae

Khaled Hussainey
khaled.hussainey@port.ac.uk

- ¹ Faculty of Business, Liwa College of Technology, Abu Dhabi, UAE
- ² Accounting and Financial Management Subject Group, Faculty of Business and Law, University of Portsmouth, Portsmouth PO1 3DE, UK

governance (ESG) performance scores. However, firms may use the ESG performance score as a tool to mask the negative outcomes of distortive financial reporting practices or to mislead potential investors' perceptions of the true and real firm value. Prior research has provided conflicting arguments on the relationship between ESG performance scores and earnings management (EM) practices.¹ Yuan et al. (2020) argued that business strategy orientation (such as tax planning, financial reporting, and customer orientation) affects CSR performance. On the one hand, ESG practices reduce managers' tendencies to engage in unethical or illegal activities (Cho and Chun 2016). According to ethical, political, and integrative theories, managers of firms with higher ESG scores are hypothesized to be honest, trustworthy, and ethical and thus tend to provide more transparent information to stakeholders. These firms are more likely to curb earnings manipulation, which damages their relationships with key stakeholders (Kim et al. 2012; Scholtens and Kang 2013). On the other hand, managers might use ESG practices not for the public's interest but to pursue potential personal interests (Buerter et al. 2020). According to Prior et al. (2008), managers who manipulate earnings may strategically employ ESG initiatives as a shield against stakeholder activism and vigilance. Amel-Zadeh and Serafeim (2018) identified four main motivations for companies' ESG reporting: investment performance, client demand, product strategy, and ethical considerations that fall within the scope of our research. Martínez-Ferrero et al. (2016) added that ESG practices can be viewed as self-entrenchment strategies adopted by managers for job security through legitimate and social actions. Thus, managers may pursue ESG initiatives to mask opportunistic earnings management activities, and a positive association between ESG practices and EM is expected. Consequently, the relationship between ESG

practices and EM remains an open question that is subject to further debate.

This study examines whether ESG performance impacts the earnings management practices of US commercial banks. Studies on the relationship between CSR and earnings management have yielded heterogeneous outcomes. In addition, most prior research focuses on manufacturing companies rather than banks and other financial institutions. However, the relationship between the actual ESG performance score and its main components and earnings management practices in the financial sector through loan loss provisions remains unexplored in the accounting literature due to specific bank regulations. Fewer studies linking ESG data with earnings management in banks through loan loss provisions (LLPs) include Grougiou et al. (2014) and Miladi and Chouaibi (2021). The nature and activities of such banks make it difficult to assess managerial discretion using the original Jones (1991) model and its modified versions as the working capital of banks consists mainly of interest and fees for services provided to customers. Therefore, studies in the financial sector have used a particular form of earnings management based on loan loss provisions rather than the traditional concept of aggregate accruals. In addition, most previous studies (Prior et al. 2008; Kim et al. 2012; Buerter et al. 2020) have focused on manufacturing and/or higher polluting companies when checking their environmental impact. Our study focuses on CSR practices and ESG performance scores in the US context for several reasons. First, according to the Deloitte Center for Financial Services (DCFS), ESG assets in the USA are expected to increase substantially from \$3.7 trillion in 2012 to \$35 trillion in 2025, suggesting that ESG factors are central to business (Collins and Sullivan 2020). Figure 1 displays the evolving amount of sustainability reports that obtain external assurance of S&P 500 companies over the period (2011–2018) from research conducted in 2018 by the Governance and Accountability Institute. It shows a substantial increase in the proportion of sustainability score reporters compared with non-reporters throughout the entire period.

For example, in 2011, the percentage of sustainability reporting (non-reporting) companies was 20% (80%) and jumped to 86% (14%) for reporting (non-reporting) companies in 2018. Second, the occurrence of several accounting and financial scandals in the US context (Eg. Enron; 2001, WorldCom; 2002, Lehman Brothers Holdings Inc; 2008) have highlighted the use of extreme cases of earnings management (Ehsan et al. 2022) that make it useful to examine whether ESG performance score reported by US banks acts as an additional mechanism to constraint earnings management practices and strengthen higher quality reporting, or, by contrary, US banks disclose higher ESG score to mask their unethical financial practices. In response to such scandals, the issuance and mandatory application of the

¹ Baskaran et al. (2020) argue that earnings management has numerous definitions depending on the research paradigm. These definitions include earnings manipulations, creative accounting, and earnings fraud. Earnings manipulation refers to management taking deliberate steps to bring reported earnings to the desired level. Earnings management refers to the earnings by exercising the judgment of accounting standards and corporate laws and constructing activities in such a way that expected firm value is not affected negatively. Earnings fraud refers to the earnings manipulation by violating breaching accounting standards and corporate laws and constructing activities in such a way that reduces the firm's expected value. Finally, creative accounting refers to earnings manipulation practices, which do not violate accounting standards or corporate laws because of the lack of relevant standards or laws. These four different types of definitions provide a clear view of why earnings management is seen both as a fraud and non-fraud act based on a few past studies (Baskaran et al. 2020, p.373). However, in our study, we eliminate the concept of fraud due to its negative connotation for both the academic community and market participants.

Fig. 1 Evolving amount of sustainability reports. (Source: <https://www.iasplus.com/en/publications/us>)



Sarbanes Oxley Act (SOX) of 2002 in the USA highlights the importance of corporate social responsibility concept for all corporations. Namely, the SOX act was crucially aimed to restore public trust in corporate financial reporting and was designed to tackle the most elementary of CSR challenges. Third, the Global Reporting Initiative (GRI) organization, considered as a global leader in CSR standardization and sustainability, was initially founded in the USA in 1997 in response to the environmental damage caused by Exxon energy company. GRI standards were later adopted by many companies across the globe and received a large acceptance at the international level. Finally, “CorporateRegister.com”² is the largest online (with more than 22,000 organizations) directory of CSR reports in the USA that includes many types of non-financial reports including sustainability, environmental, and integrated reports.

The choice of banks and the financial sector rather than the manufacturing sector is motivated by the following reasons: First, banks play a pivotal role in allocating capital, which is essential for the nation’s economic development (Miralles-Quirós et al. 2019). Despite their purported role, studies examining the impact of ESG practices on earnings management via LLPs are limited (Grougiou et al. 2014). Second, banks have changed their approach to ESG as they are currently considering all risks associated with lending to firms exposed to environmental, social, and governance issues (Carnevale et al. 2012). Third, earnings management is a more problematic issue for banks than for industrial firms as they are highly leveraged institutions that rely primarily on depositors and central bank funding (Salem et al. 2020). Fourth, compared with previous studies that

used the modified Jones model (1995) to estimate abnormal accruals for non-financial firms, the measure of EM in the banking industry is less prone to measurement errors due to the homogeneous sample composition (Tran et al. 2019). Sharma et al. (2021) addressed the harmful environmental impacts of financial sector development in selected developing nations. They added that financial sector development drove the association between the overall environmental quality and energy solutions in the long run.

In our study, we use two proxies of EM to strengthen the validity and robustness of our inferences: income-increasing discretionary loan loss provisions and managing earnings to avoid earnings decreases and losses (DeFond and Zhang 2014). Our findings highlight the relationship between corporate social responsibility through ESG performance activities and earnings management. First, we find a significant negative relationship between ESG performance practices and income-increasing EM practices of US public banks. Second, we find no evidence of a negative relationship between ESG performance scores and earnings benchmark beating behavior (to avoid earnings losses). Third, we decompose ESG into its main pillars: environmental, social, and governance. We find a negative relationship between governance mechanisms and EM proxies. We also find that social performance is negatively related to income-increasing abnormal LLPs and EM to meet the threshold of reporting small positive profits or avoiding losses (SPOS). However, there is no evidence to support the importance of environmental pillars in mitigating EM. Taken together, our results suggest that corporate governance can effectively constrain bank EM activities. More importantly, our results suggest that social activities are not used as a shield to conceal managers’ unethical behavior; rather, they are ethical behaviors that reduce EM practices.

² <https://www.corporateregister.com/>

Our study contributes to the extant literature in several ways. First, while most of the concurrent studies linking CSR and earnings management use a qualitative measure of CSR activities based on the KLD rating or GRI standards (Grougiou et al. 2014; Kim et al. 2012; Prior et al. 2008), our study uses a quantitative ESG performance score rather than a general disclosure index. Second, most studies on earnings management use discretionary accruals models (Dechow et al. 1995; Kothari et al. 2005) to proxy for EM in non-financial sectors. However, in our study, we use two different proxies for earnings management: discretionary loan loss provisions and earnings management to meet the threshold of reporting SPOS. Third, previous literature on the relationship between CSR and EM reported conflicting results on whether CSR acts as a motivation or a constraint for earnings management (Gao and Zhang 2015; García-Sánchez et al. 2020; Grougiou et al. 2014). This study highlights the role of ESG performance in mitigating managers' opportunistic earnings management through discretionary loan loss provisions. Finally, unlike previous studies that use data before 2010, we provide up-to-date evidence on the relationship between ESG and EM for US banks.

The remainder of the paper is structured as follows. First, we present the institutional and theoretical background and hypotheses development in "[Theoretical background and hypotheses development](#)" section. Section "[Research methodology](#)" discusses our research methodology, data collection, and research models, and the results are presented in "[Discussion of the results](#)" section. Next, we provide additional robustness checks in "[Additional analysis](#)" section. Finally, we conclude the paper in "[Conclusion](#)" section.

Theoretical background and hypotheses development

Zahra et al. (2005) emphasized the devastating consequences of top management opportunism practices for capital providers, employees, customers, society, and, ultimately, firm reputation. Given their detrimental effects, the business community has vigorously exercised pressure on firms to act ethically and responsibly. In response to this, firms tend to integrate environmental, social, and governance initiatives into their business models to align the goals and needs of stakeholders (Tettamanzi et al. 2022; Martínez-Ferrero and García-Sánchez, 2014; Kolk and Tulder 2010). Tettamanzi et al. (2022) argued that the principal role of accounting and corporate reporting activities should be oriented towards making the emergence of what is and what is not done by companies in their business operations and that the disclosure of financial information is currently deemed inappropriate for pursuing sustainable growth in the medium and long run. Grougiou et al. (2014) argued that the interdependencies

between CSR (along with its derived ESG performance score) and earnings management practices are based on four main theories: legitimacy, stakeholders, social norm, and signaling theories. First, Suchman (1995) defined legitimacy theory as the general perception that companies comply with value systems or social norms. A company conducts social and environmental responsibility activities to gain legitimacy from society. Second, Freeman (1983) defined stakeholders' theory as follows: "A stakeholder approach identifies and models the groups that are stakeholders of a corporation, and both describe and recommend methods by which management can give due regard to the interests of those groups. In short, it attempts to address the principle of whom or what really counts." Third, signaling theory stipulates that firms with positive future perspectives must distinguish themselves from less profitable ones through voluntary disclosures, especially social ones. Studies in this field include Cao et al. (2016); Gao and Zhang (2015); Grougiou et al. (2014); and Prior et al. (2008). Finally, social norm theory "draws attention to how endorsed patterns of behavior affect economic attitudes" (Grougiou et al. 2014, p.3). Accordingly, CSR is considered the code for endorsing corporate attitudes.

Studies on this concern have reported conflicting outcomes, and the link between earnings management and CSR practices differs according to the adopted paradigm (Ehsan et al. 2022). Under legitimacy and signaling theories, earnings management and ESG performance scores are expected to be positively related. However, under stakeholder and social norm theories, firms should behave ethically for the sake of their all-related stakeholders, thereby minimizing opportunistic earnings management. CSR practices and earnings management are considered antithetical practices and are, thus, negatively related. Moreover, Cao et al. (2016), Kim et al. (2012), Muttakin et al. (2015), and Prior et al. (2008) revealed two competing hypotheses of earnings management for socially responsible firms: the opportunistic hypothesis and the transparent financial reporting hypothesis (Kolsi and Attayah 2018). Cao et al. (2016) argued that researchers have investigated whether CSR practices really represent the interests of a wide variety of stakeholders, thereby enhancing earnings quality and the transparent reporting hypothesis, or a manifestation of agency problems that lead to higher levels of misreporting behaviors, thereby enhancing the opportunistic hypothesis. Eccles and Serafeim (2013) argued that ESG score has emerged as an important proxy for CSR activities in assessing sustainable projects.

In sum, Kim et al. (2012), Grougiou et al. (2014), and Cao et al. (2016) concluded that the relationship between earnings management and CSR depends mainly on which paradigm research is based. On the one hand, based on signaling and legitimacy theories, socially responsible banks employ their discretion as a positive signal to outsiders,

distinguishing themselves from companies with bad perspectives. In addition, firms use CSR activities as tactics to confer legitimacy on their actions. However, both social norms and stakeholder theories suggest that CSR activities constrain earnings management practices because of their detrimental role in companies' reputations and financial value. Firms have strong incentives to maintain good relationships with their environment and avoid customer and supplier dissatisfaction (Cho and Chun 2016).

One stream of research including Prior et al. (2008), Grougiou et al. (2014), and Pakawaru et al. (2021) finds that CSR is associated with evidence of positive earnings management behavior. Grougiou et al. (2014) reported that banks engaged in EM are deeply involved in CSR activities, thereby legitimizing their financial reporting practices toward numerous stakeholders. Thus, a relationship between EM and CSR is warranted. However, other streams of empirical research, such as Cho and Chun (2016), Liu and Lee (2019), and García-Sánchez et al. (2020), found the opposite. Finally, there is little evidence of a relationship between the two concepts (Toukabri et al. 2014). These findings can be explained by certain factors such as different ESG and EM measures, institutional settings, sample size, and endogeneity concerns. For instance, Prior et al. (2008) argued that earnings management behavior negatively affects stakeholders' interests and that managers who manipulate earnings can deal with stakeholder activism and vigilance by resorting to CSR practices from the opportunistic perspective of earnings management. In these cases, CSR and earnings management are positively related. These results align with the opportunistic perspective of earnings management (Cao et al. 2016). Scholtens and Kang (2013) investigated the relationship between CSR disclosure practices and earnings management, proxied by the income smoothing ratio and earnings aggressiveness in ten Asian economies. These economies are characterized by poor investor protection. Their results show that firms with higher CSR performance engage less in earnings management. They concluded that CSR practices moderate firms' earnings management, which is conditioned by the juridical system. Kim et al. (2012) found that socially responsible firms behave differently than other companies in their financial reporting practices. For example, socially responsible firms are less likely to (1) engage in discretionary accruals management, (2) engage in real activities manipulation, and (3) be subject to Securities and Exchange Commission (SEC) investigations. Muttakin et al. (2015) reported that Bangladeshi firms use CSR disclosures to mitigate their opportunistic behavior. This finding is more pronounced for export-oriented firms than for local-oriented ones. Cao et al. (2016) found a positive relationship between CSR disclosures and earnings management, suggesting that socially responsible firms are more likely to engage in opportunistic earnings management. However,

they reported a negative relationship between CSR activities and earnings management toward small positive earnings, along with real cash flow management. Velte (2019) provided a systematic literature review on the relationship between CSR and earnings management based on agency and stewardship theories and a total of 33 empirical studies. The results show negative, positive, and insignificant links between CSR and earnings management. However, the negative relationship is more prevalent in line with stewardship theory in most studies. Velte (2019) added that endogeneity concerns between CSR and earnings management should be checked using the instrumental variables approach as an enhancement for most studies. Finally, Pakawaru et al. (2021) investigated the effect of CSR disclosure on earnings management for a sample of Indonesian firms. The results reveal a positive relationship between CSR and earnings management. This finding implies that Indonesian managers use CSR to cover up unethical stakeholder actions. Following Ehsan et al. (2022) and prevailing the ethical role of socially responsible banks under the social norm and stakeholders' theories, where managers are assumed to behave for the sake of all banks' partners, we assume that the ESG performance score mitigates the discretionary behavior of US bank managers through loan loss provisions. Hence, our first hypothesis is as follows:

H₁: Banks with higher ESG performance scores use less income-increasing practices through abnormal LLPs.

Earnings management literature uses various measures to proxy for management discretion. Most studies relied on the Jones (1991) model of discretionary accruals, along with its modified versions (Dechow et al. 1995; Kothari et al. 2005). However, another stream of the literature uses a particular form of earnings management to meet or exceed thresholds. Studies in this field include those by Burgstahler and Dichev (1997), Degeorge et al. (1999), Beatty et al. (2002), Burgstahler and Eames (2003), and Pududu and Villier (2016). These studies analyzed earnings management practices through earnings patterns that should meet or exceed a given threshold, which is important for managers. Degeorge et al. (1999) identified three main thresholds or benchmarks: earnings management to avoid losses (report positive profit), earnings management to avoid earnings decreases (sustain recent performance), and earnings management to meet analysts' expectations. Hayn (1995) noticed a discontinuity in the earnings distribution around zero income. In fact, there is an abnormal concentration of reported earnings just above zero, but there are fewer as expected small negative earnings consistent with managers' use of their discretion to meet the benchmark of zero income or EM to meet the threshold of reporting SPOS.

However, the results of this study provide conflicting outcomes. For instance, DeAngelo et al. (1996) found that decreases in earnings patterns lead to immediate declines in stock prices. This provides managers with a strong incentive to maintain increasing patterns in reported earnings. Burgstahler and Dichev (1997) argued that managers of non-financial firms emphasize the importance of earnings increases in the management discussion and analysis (MD&A) section of annual reports. They added that firms disclose more small increases in earnings than small decreases in the series of net income, consistent with managers' discretionary behavior to avoid earnings decreases and losses. DeGeorge et al. (1999) added another important threshold to meet analysts' earnings expectations. They added that one of the most important incentives behind earnings management is compensation plans based on stock options and future firm profitability. Analysts' consensus estimates are endogenous in that managers try to guide those forecasts downward, whereas analysts try to forecast earnings estimates that are subject to management discretion.³ Beatty et al. (2002) concluded that public banks report fewer declines in earnings patterns than expected and higher increases in earnings patterns than expected, consistent with earnings management, to meet important benchmarks. However, this reporting behavior depends on the status of the bank, whether public or private. Barth et al. (2006) find that companies reporting abnormally small increases in a consecutive series of net income are priced at a premium. Based on Burgstahler and Dichev (1997), DeGeorge et al. (1999) and Zainuldin and Lui (2020) examine the earnings management practices of Islamic versus conventional banks in emerging markets for the period 2006–2011. Contrary to the expectations that Islamic banks engage in lower earnings management practices than conventional banks, the results show that Islamic banks are more engaged in earnings management through both abnormal loan loss provisions and earnings management to report the psychological threshold of small profits or avoid negative earnings and losses, thereby convincing potential investors with regard to their future financial performance and avoiding the adverse consequences of reporting losses. However, these findings do not parallel the Islamic principles of ethics, transparency, and accountability embedded in all aspects of the Islamic banking industry. However, Pududu and Villier (2016) studied whether South African firms' directors manage earnings to avoid reporting small losses for a sample of firms listed on the Johannesburg Stock Exchange (JSE) from 2003 to 2011 based on the Burgstahler and Dichev (1997) model. Their results show no evidence of earnings management avoiding reporting small losses or small decreases

in earnings. A possible explanation for this result could be the relatively smaller size of the JSE compared to developed western markets. Furthermore, investors and analysts in South Africa seem to be fixated on other performance indicators such as revenues and bottom-line earnings per share. By prevailing the first scenario of earnings management evidence to avoid earnings decreases and losses, and is consistent with both legitimacy and signaling theories, where banks manage the psychological thresholds of zero income and loss avoidance, we assume that socially responsible banks are less engaged in earnings management practices by reporting small positive profits or avoiding losses. Specifically, we test the following hypothesis:

H₂ Banks with higher ESG performance scores engage less in earnings management practices through loss avoidance.

Research methodology

Empirical models

Previous studies have used different metrics to measure earnings management (see for example, Barth et al. 2008). In this study, we employ two earnings management metrics: an accrual-based metric (abnormal loan loss provisions) and earnings management to avoid losses or report small positive profits. The use of multiple metrics related to EM is consistent with the suggestion provided by DeFond and Zhang (2014).

Income-increasing abnormal loan loss provisions

The literature offers numerous measures and proxies for earnings management practices for firms in different industrial sectors (Kothari 2001). However, this practice may differ across sectors, owing to the specificities of firms and reporting requirements. While most studies on earnings management used a sample of manufacturing (non-financial) firms (such as Jones 1991; Dechow et al. 1995; Subramanyam 1996; Sloan 1996; Xie 2001; Kothari et al. 2005), coupled with the Jones modified model, the study of earnings management in banks is less pervasive due to the reporting requirements of such firms. Ahmed et al. (1999) highlighted the use of loan loss provisions by banks for capital management, earnings management, and signaling. To examine the association between ESG practices and income-increasing EM, we first compute the normal portion of LLPs. LLPs are non-cash (accrual) charges presented on profit and loss statements, reflecting managers' expectations of future loan losses (Ahmed et al. 1999). As the level of LLPs increases, net profit decreases, and vice versa. LLPs are used by

³ However, due to lack of data, this threshold was excluded in our research.

managers as a cushion to offset the expected credit losses inherent in banks' portfolios during bad times. Therefore, LLPs are an important indicator of a bank's capacity to absorb defaults in its loan portfolio (Cornett et al. 2009; Grougiou et al. 2014). Empirical evidence shows that banks use loan loss provisions for earnings management purposes in their accounts (Ahmed et al. 1999; Cornett et al. 2009; DeBoskey and Jiang 2012; Grougiou et al. 2014; Jin et al. 2018; Kanagaretnam et al. 2004a; Leventis et al. 2011).

The normal portion is subject to managers' discretionary behavior and is heavily regulated, while the abnormal component is mainly related to bringing loan loss allowances to an adequate level (Cornett et al. 2009). Consistent with Kanagaretnam et al. (2010), we apply the two-stage model to estimate EM. Specifically, we first estimate the normal portion of the LLP by employing the following econometric model:

$$LLP_{it} = \beta_0 + \beta_1 ALLOW_{it} + \beta_2 LCO_{it} + \beta_3 LOAN_{it} + \beta_4 \Delta LOAN_{it} + \beta_5 NPL_{it} + \beta_6 REAL_{it} + \beta_7 COM_{it} + \beta_8 CON + YEAR DUMMY + \varepsilon_{it} \quad (1)$$

where LLP = provisions for loan losses, $ALLOW$ = opening loan loss reserves, LCO = net loan write-offs, $LOAN$ = total loans outstanding, $\Delta LOAN$ = change in total loans outstanding from year $t - 1$ to t , NPL = non-performing loans, $REAL$ = ratio of real estate loans, COM = commercial and industrial loans, and CON = ratio of consumer and installment loans. All the variables are scaled by lagged total assets.

In Model (1), we control for the beginning loan loss reserves ($ALLOW$). Since banks with higher opening loan loss reserves are likely to have a lower provision for loan losses in the current period, we anticipate a negative relationship between $ALLOW$ and LLP (Kanagaretnam et al. 2010). We also control for net loan write-offs (LCO) as they are likely to be positively associated with LLP by construction (Kanagaretnam et al. 2004b). We control for the change in loans ($\Delta LOAN$) because it captures real growth in the amount of loans. Accordingly, this variable is hypothesized to be positively correlated with LLP (DeBoskey and Jiang 2012). Moreover, we control for the beginning balance of non-performing loans (NPL) to account for loan portfolio quality. Banks with larger amounts of NPL should report a higher provision for loan losses, and a positive association should, thus, exist between NPL and LLP . Finally, Liu and Ryan (1995) demonstrated that loan portfolio composition affects the timeliness of loan loss provisions. That is, the overall loan portfolio consists of different types of loans that involve different default threats, thereby affecting the loan loss provisions (DeBoskey and Jiang 2012). Therefore, $REAL$, commercial and industrial loans (COM), and consumer and installment loans (CON) account for the effects of loan portfolio characteristics. The abnormal portion of the

$LLPs$ ($ALLPs$) is the fitted residual derived from Model (1). We utilize the absolute value of negative $ALLPs$ as a proxy for income-increasing earnings management.

To examine the relationship between ESG performance practices and abnormal loan loss provisions ($ALLPs$), a linear regression is performed, as shown in Model (2) below. The regression is estimated by employing fixed effects as a Hausman test indicates that fixed effects are the most suitable estimators for our sample.

$$ALLP_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 BIG4_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 CAR_{it} + \beta_6 EBTP_{it} + \beta_7 PASTLLP_{it} + YEAR DUMMY + \varepsilon_{it} \quad (2)$$

where $ALLP$ is the absolute value of the negative abnormal loan loss provisions; ESG = environmental, social, and corporate governance rate provided by Thomson Reuters Eikon database; $BIG4$ = dummy variable coded one if the CPA firm is a $BIG4$, zero otherwise; $SIZE$ = natural logarithm of lagged total assets; $GROWTH$ = the change in total assets from $t - 1$ to t scaled by lagged total assets; $EBTP$ = ratio of earnings before taxes and loan loss provisions to lagged total assets; CAR = capital adequacy ratio computed as (Tier 1 capital + Tier 2 capital)/risk-weighted assets; and $PASTLLP$ = loan loss provisions at year $t - 1$ as a percentage of lagged total assets. A positive (negative) coefficient of ESG indicates that ESG performance practices are associated with more (less) income-increasing earnings management practices.

Following previous studies, we control for several factors that have been shown to be related to the $ALLP$: bank size ($SIZE$), performance ($EBTP$), growth ($GROWTH$), risk (CAR), audit quality ($BIG4$), and level of past accruals ($PASTLLP$).⁴ Auditors also play an important role in enhancing the credibility of financial statements. DeAngelo (1981) pointed out that large auditors have stronger incentives to supply public client firms with quality-differentiated audit services because they have "more to lose" by failing to report material misstatements in financial statements. Becker et al. (1998) showed that Big N auditors are more successful at constraining extreme cases of income management. This leads to the expectation that Big N auditors will curb bank managers from engaging in creative accounting activities through loan loss provisions. Thus, we expect a negative relationship between $BIG4$ and $ALLP$.

Cornett et al. (2009) argued that large banks are more exposed to intense scrutiny by regulators than small banks and are less likely to inflate earnings artificially using

⁴ Following the inclusion of lagged variables in both models is a way of dealing with endogeneity. The argument is that although current values might be endogenous, it is unlikely that past values are subject to the same problem (https://artnet.unescap.org/tid/artnet/mtg/gravity09_tues3.pdf).

unethical accounting activities. Lassoued et al. (2018) provided evidence that large banks are negatively associated with earnings management. Thus, a negative association is anticipated between SIZE and ALLP. Growth in total assets (GROWTH) and earnings before taxes and loan loss provisions as a percentage of lagged total assets (EBTP) are incorporated into the regression model to control for differences in performance, which may affect the level of earnings management (Cornett et al. 2009; Grougiou et al. 2014; Kanagaretnam et al. 2010; Leventis and Dimitropoulos 2012). Lassoued et al. (2018) showed that earnings management is more pronounced in banks with superior performance. Therefore, we expect positive coefficients for GROWTH and EBTP.

Cornett et al. (2009) and Leventis and Dimitropoulos (2012) argued that poorly capitalized banks face more monitoring from federal regulators; thus, they have fewer opportunities to manipulate earnings. On the other hand, banks with high capital adequacy ratios are subject to less scrutiny by regulators, implying that they can manage earnings more easily. Hence, we expect that the relationship between CAR and ALLP can operate in a non-monotonic manner. Finally, with respect to PASTLLP, banks with greater loan loss provisions have a higher tendency to manage earnings (Kanagaretnam et al. 2010; Lassoued et al. 2018). Therefore, we hypothesize a positive association between the PASTLLP and ALLP.

Managing earnings for loss avoidance

Our second metric attempts to identify the presence of earnings management that is aimed at creating positive earnings. Previous studies show that bank managers are likely to exercise their accounting discretion for benchmark beating behavior and use the frequency of small positive incomes as a metric for managing earnings toward achieving such a benchmark (Altamuro and Beatty 2010; Kanagaretnam et al. 2010; Leventis and Dimitropoulos 2012). The underlying rationale for this metric originates from the premise that bank managers opportunistically report small positive earnings to reduce transaction costs with external stakeholders (Burgstahler and Dichev 1997). Consistent with the approach of Kanagaretnam et al. (2010) and Zainuldin and Lui (2020), we use the following logistic regression to examine the association between ESG performance practices and EM to meet the threshold of reporting SPOS:

$$SPOS_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 BIG4_{it} + \beta_3 SIZE_{it} + \beta_4 GROWTH_{it} + \beta_5 CAR_{it} + \beta_6 \Delta CFO_{it} + \beta_7 ALLOW_{it} + \beta_8 LOAN_{it} + YEARDUMMY + \varepsilon_{it} \quad (3)$$

where SPOS is a dummy variable that equals one if the net profit deflated by lagged total assets falls into the interval of (0 and 0.01) (i.e., the firm reports a small positive profit

slightly above zero, Burgstahler and Dichev 1997). Otherwise, the variable is equal to zero. ΔCFO = change in operating cash flows from year $t - 1$ to t deflated scaled by lagged total assets; all other variables are previously defined. Consistent with Kanagaretnam et al. (2010), Model 3 incorporates a comprehensive set of control variables (BIG4, SIZE, GROWTH, CAR, ΔCFO , ALLOW, and LOAN) that may be related to managing earnings toward small positive profits. A negative coefficient on β_1 indicates that banks with higher ESG scores do not manage earnings toward small positive net income.

Discussion of the results

Sample selection and descriptive statistics

To empirically test our research hypotheses, we used a sample of publicly traded US commercial banks from 2010 to 2019.⁵ Our sample period starts from 2010, so we avoid the effects of the global financial crisis of 2007–2008. Financial and non-financial data were obtained from the Thomson Reuters Eikon database, which has been widely used by scholars and financial analysts (Al-Hiyari and Kolsi 2021). As in previous studies (e.g., Grougiou et al. 2014; Leventis and Dimitropoulos 2012), we lost many observations for the following reasons. We first eliminate all non-commercial banks (e.g., central banks, cooperative banks, development banks, import–export banks, and investment banks). Second, we exclude observations with missing bank-specific information and observations with extreme values such as a negative book value of equity or negative long-term liabilities.⁶ This procedure yielded a final sample of an unbalanced panel of 1763 bank-year observations from 394 commercial banks.⁷ Our final sample seems reasonable given that DataStream offers limited data on ESG rates and LLPs for US-listed commercial banks. Nevertheless, our final sample is higher than that of Grougiou et al. (2014), who used the KLD database and obtained 580 bank-year observations for the 2003–2007 period.

Table 1 presents the descriptive statistics. The aggregate ESG performance rate ranges from a minimum of 5.330 points out of 100 to a maximum of 78.940, with a mean of 34.188 and a standard deviation of 11.574, indicating that there is significant variation in the ESG performance

⁵ We exclude data for the year 2020 due to the occurrence of the COVID-19 pandemic which causes a delay in the release of the financial reporting (both annual and quarterly reports).

⁶ Data were winsorized for the 5% and 95% levels.

⁷ The DataStream contains limited data on ESG information for US commercial banks and this.

Table 1 Descriptive statistics

Variable	Mean	Median	Std. Dev	Minimum	Maximum
LLP	0.003	0.001	0.005	0.001	0.070
ALLP	-0.0001	-0.0007	0.004	-0.089	0.058
SPOS	0.069	0.000	0.254	0.000	1.000
EBTP	0.018	0.017	0.008	-0.014	0.076
ALLOW	0.009	0.007	0.005	0.001	0.037
ESG	34.188	33.890	11.574	5.330	78.940
ENV	14.324	0.000	27.056	0.000	91.690
SOC	38.334	33.310	18.661	5.090	90.520
GOV	49.567	50.635	20.609	3.590	92.040
Δ LOAN	0.055	0.038	0.072	-0.614	0.596
LOAN	0.644	0.676	0.138	0.197	0.938
LCO	0.003	0.001	0.006	0.000	0.093
NPL	0.010	0.007	0.009	0.000	0.065
REAL	0.359	0.352	0.212	0.000	0.939
COM	0.216	0.174	0.150	0.000	0.786
CON	0.087	0.061	0.120	0.000	0.910
BIG4	0.754	1.000	0.431	0.000	1.000
SIZE	17.084	16.635	2.022	13.792	21.542
GROWTH	0.101	0.056	0.161	-0.264	1.482
PASTLLB	0.003	0.001	0.006	0.000	0.055
Δ CFO	-0.001	0.001	0.036	-0.649	0.342
CAR	13.109	12.450	2.949	8.550	41.620

practices of our sample banks. Further analysis of each major component reveals that the mean (median) of GOV 49.567 (50.635) is higher than the mean (median) of SOC 38.334 (33.310) and the mean (median) of ENV 14.324 (0.000). These statistics suggest that listed banks perform better on GOV than on SOC and ENV components, consistent with Mervelskemper and Streit (2017) and Tamimi and Sebastianelli (2017).

Table 1 also shows that LLPs represent, on average, 0.30% of the opening of total assets. The average (median) value of ALLPs is -0.0001 (-0.0007), suggesting that, on average, banks included in our sample understate LLPs to inflate their reported earnings. Regarding the earnings management variable SPOS, approximately 6.9% of the banks in our sample report a slightly positive income (e.g., they simply avoided recognizing a net loss).

Regarding the control variables, nearly 75.4% of our sample banks are audited by one of the large accounting firms. The average (median) net loan write-offs-to-asset ratio (LCO) is 0.003 (0.001), and the average (median) capital adequacy ratio (CAR) is 13.109 (12.450). Δ CFO ranges from a minimum of -0.649 to a maximum of 0.342, while Δ LOAN ranges from a minimum of -0.614 to a maximum of 0.596. The average (median) asset growth (GROWTH) is 0.101 (0.056), while the average (median) EBTP earnings before taxes and loan loss provisions is 0.018 (0.017),

suggesting that our sample banks are profitable. The average (median) non-performing loans as a percentage of total assets (NPL) is 0.010 (0.007), and the average (median) assets-deflated allowance for loan losses (ALLOW) is 0.009 (0.007). Finally, the average of asset-deflated real estate loans (REAL) is 0.359, commercial and industrial loans (COM) is 0.216, and consumer and installment loans (CON) is 0.087.

Table 2 presents Pearson's correlation coefficients between the test variables. As expected, the results reveal that the ESG dimensions are highly correlated with each other. To avoid potential multicollinearity issues, we follow Miralles-Quirós et al. (2019) and Wasiuzzaman and Mohammad (2020) and introduce ESG variables individually in our regression models. Moreover, we find that the LCO and ALLOW are highly correlated with PASTLLB. However, these variables are not included in the single model. Apart from these variables, none of the correlations across the independent variables is greater than the conventional cut-off of 0.80 (Studenmund 2005). Following Ringle et al. (2015), the variance index factors (VIF) for both regression models (income-increasing earnings management and loss avoidance) show values below the acceptable level ($VIF < 5$). This indicates that multicollinearity is unlikely to be a serious concern in the subsequent multivariate regression analyses.

Multivariate analysis

Table 3 reports the results of the estimation of Models (2) and (3) respectively. The first column presents the results of Model (2) which examines the relationship between ESG performance activities and income-increasing earnings management. Table 3 shows that an explanatory power is of about 19.31% and the model is globally significant ($F=92.33$ and p -value=0.000). Consistent with the transparent financial reporting hypothesis (Kim et al. 2012), the coefficient associated with ESG performance score is negative and significant at conventional levels (-0.01206; p -value=0.037). This indicates that firms reporting higher ESG score use less discretionary loan loss provisions for income-increasing purposes, thereby confirming the ethical behavior of socially responsible banks toward earnings management within the stakeholder theory. This result also shows that higher CSR firms are more likely to constrain earnings management practices than lower CSR firms (Cho and Chun 2016). Our finding corroborates with previous studies, suggesting that socially responsible firms are less likely to engage in unethical accounting practices (García-Sánchez et al. 2020; Kim et al. 2012; Liu and Lee 2019; Scholtens and Kang 2013).

Turning to the control variables, the coefficient related to BIG4 auditors is negative, as predicted, and significant at

Table 2 Pearson correlations for the main variables employed in the regressions

	ESG	ENV	SOC	GOV	SIZE	GROWTH	ROA	CAR	PASTLLP
ESG	1.000								
ENV	0.410***	1.000							
SOC	0.644***	0.827***	1.000						
GOV	0.802***	0.463***	0.508***	1.000					
SIZE	0.427***	0.847***	0.815***	0.486***	1.000				
GROWTH	-0.141***	-0.259***	-0.216***	-0.161***	-0.341***	1.000			
ROA	0.046**	-0.164***	-0.061***	0.025	-0.071***	0.207***	1.000		
CAR	-0.148***	-0.037	-0.057**	-0.107***	-0.079***	-0.154***	0.052**	1.000	
PASTLLP	0.105***	0.192***	0.222***	0.128***	0.311***	-0.169***	0.292***	0.070***	1.000
LCO	0.161***	0.260***	0.307***	0.168***	0.396***	-0.186***	0.372***	0.045*	0.919***
ALLOW	0.132***	0.121***	0.171***	0.134***	0.233***	-0.111***	0.373***	0.045*	0.809***
LOAN	-0.151***	-0.274***	-0.238***	-0.168***	-0.364***	0.467***	0.231***	-0.177***	-0.162***
ΔLOAN	-0.104***	-0.598***	-0.486***	-0.234***	-0.202***	0.209***	0.223***	-0.242***	-0.117***
NPL	0.073***	0.249***	0.280***	0.137***	0.367***	-0.119***	0.102***	0.104***	0.486***
REAL	-0.294***	-0.429***	-0.442***	-0.264***	-0.525***	0.371***	-0.021	-0.012	-0.243***
COM	0.104***	-0.192***	-0.093***	-0.009	-0.156***	0.255***	0.065***	-0.298***	-0.060***
CON	0.149***	0.087***	0.153***	0.119***	0.179***	0.024	0.417***	-0.061***	0.262***
ΔCFO	0.088***	0.051**	0.051**	0.126***	0.115***	-0.070***	0.332***	-0.065***	0.307***
BIG4	0.297***	0.288***	0.367***	0.223***	0.468***	-0.315***	-0.058**	0.033	0.203***
LCO	1.000	ALLOW	LOAN	ΔLOAN	NPL	REAL	COM	CON	ΔCFO
ALLOW	0.579***	1.000							BIG4
LOAN	-0.178***	-0.098***	1.000						
ΔLOAN	-0.148***	0.027	0.300***	1.000					
NPL	0.528***	0.505***	-0.151***	-0.131***	1.000				
REAL	-0.318***	-0.216***	0.398***	0.537***	-0.176***	1.000			
COM	-0.091***	-0.004	0.273***	0.251***	-0.139***	-0.264***	1.000		
CON	0.369***	0.357***	0.022	0.053**	0.209***	-0.362***	-0.084***	1.000	
ΔCFO	0.328***	0.297***	-0.004	0.111***	0.166***	-0.107***	0.025	0.263***	1.000
BIG4	0.248***	0.176***	-0.322***	-0.280***	0.142***	-0.315***	-0.093***	0.121***	0.060***

*denotes that the coefficient is significant at .1 level

**denotes that the coefficient is significant at .05 level

***denotes that the coefficient is significant at .01 level

Table 3 Regression results

	Income-increasing EM hypothesis		Loss avoidance hypothesis	
	Column 1		Column 2	
	Coef	<i>p</i> -values	Coef	<i>p</i> -values
Intercept	.0036298	0.535	− 3.982168	0.284
ESG	− 0.01206	0.037**	− .9861499	0.220
ESG*EBTP	−	−	−	−
EBTP	.0105409	0.277	−	−
BIG4	− .00133	0.000***	− .8460487	0.179
SIZE	.0003529	0.527	.1549957	0.489
GRWOTH	.0005075	0.007***	− 3.09403	0.000***
CAR	0.00442	0.000***	.1027837	0.111
ALLOW	−	−	56.11479	0.009***
LOAN	−	−	− 2.150634	0.366
Δ LOAN	−	−	−	−
LCO	−	−	−	−
NPL	−	−	−	−
REAL	−	−	−	−
COM	−	−	−	−
CON	−	−	−	−
PASTLLP	.0359071	0.263	−	−
Δ CFO	−	−	12.60427	0.090*
Year dummies	Included		Included	
F-statistics	92.33***		181.74***	
Adjusted <i>R</i> ²	19.23		21.54	
<i>N</i>	1021		1865	

1% levels (-0.00133 ; p -value = 0.000). Previous accounting literature (e.g., Becker et al. 1998) argued that audit quality, as proxied by the BIG4, is a constraint for opportunistic behavior. Such auditors have no benefit in certifying fraudulent accounts and are subject to higher scrutiny and legal proceedings, both by firms' stakeholders and governmental authorities. The coefficient related to asset growth (GROWTH) is positive and significant at 1% levels (0.0005075; p -value = 0.007). This result may indicate that high-growth banks tend to manage their reported income more upwards. Furthermore, we find that the coefficient of CAR is positive and significant at the 1% level (0.0005075; p -value = 0.000). The negative coefficient of CAR may indicate that well-capitalized banks face less scrutiny by regulators and hence have more opportunities to manage earnings (Cornett et al. 2009). Finally, earnings before taxes and loan loss provisions (EBTP), firm size (SIZE), and past loan loss provisions (PASTLLP) are not statistically significant. This suggests that the EBTP, SIZE, and PASTLLP have no relationship with income-increasing EM. In summary, our first model indicates that banks with higher ESG performance scores are less likely to engage in income-increasing EM practices through discretionary loan loss provisions.

Column 2 of Table 3 reports the results of the logistic regression examining whether ESG banks manage earnings to meet an important benchmark (Model 3): earnings management to avoid losses (Burgstahler and Dichev 1997; DeGeorge et al. 1999; Beatty and Petroni 2002; Burgstahler and Eames 2003; Barth et al. 2008). As expected, the coefficient of ESG is negative (-0.9861), but not statistically significant at the significance level of 0.05. This finding is not consistent with the view that banks with better ESG performance scores are less likely to engage in EM to report SPOS. Thus, our second prediction is not supported. In terms of control variables, we find a significant positive relationship between SPOS and GROWTH, ALLOW, and Δ CFO. Banks with higher levels of growth are inclined to manipulate earnings, consistent with Lassoued et al. (2018). In addition, banks tend to manage their reported earnings to avoid earnings decreases and losses when the allowance for loans is relatively high. This finding is also consistent with that of Kanagaretnam et al. (2010), who found no significant relationship between ALLOW and SPOS.

Additional analysis

Disaggregation of ESG scores

Previous findings on the impact of ESG performance scores are based on the aggregate measure of CSR activities. However, many studies have reported that individual pillars or sub-scores (i.e., environmental, social, and governance) may lead to different outcomes (Miralles-Quirós et al. 2018; Yoon et al. 2018). Gangi et al. (2020) argued that the environmental dimension of CSR can generate both tangible and intangible benefits for businesses and positively affect firm value (Li et al. 2020). Assessed the economic, social, and environmental well-being of Asian economies and their relationship with CO₂ emissions. The results show that social and human indicators decrease CO₂ emissions to desired rates. Therefore, we re-estimate all models after replacing the aggregate ESG score with its components: the environmental (ENV), the social (SOC), and the governance (GOV) components. Table 4 displays the results of the association between income-increasing EM and the three subcategories of ESG (ENV, SOC, and GOV). The results in the first column of Table 5 show that the coefficient related to the environmental component is positive, contrary to our predictions, but not significant at the conventional levels (0.001458; p -value = 0.147). This result conflicts with those of Velte (2019), who reported a negative association between environmental performance and earnings management for a sample of non-financial firms. An interpretation of the result is that unlike non-financial firms, banks may focus more on social and governance issues because their

Table 4 Regression results for the income-increasing earnings management

	Column 1 (ENV)		Column 2 (SOC)		Column 3 (GOV)	
	Coef	<i>p</i> -values	Coef	<i>p</i> -values	Coef	<i>p</i> -values
Intercept	.0036823	0.537	.0003788	0.949	0,015,041	0.786
ENV	.001458	0.147				
SOC			−0.00105	0.046**		
GOV					−0.00135	0.031**
BIG4	−.0010611	0.013**	−.0012007	0.000***	−.0013393	0.001***
SIZE	−.000228	0.514	−.0000604	0.863	−.0000685	0.837
GROWTH	.0005521	0.004***	.0006002	0.001***	.0004691	0.013**
EBTP	.0110842	0.222	.0143947	0.072*	.0119094	0.170
CAR	0.00436	0.000***	0.0046	0.000***	0.00512	0.000***
PASTLLP	.049655	0.109	.0296096	0.348	.0452021	0.155
Year dummies	Yes		Yes		Yes	
F-statistics	85.16***		89.03***		90.62***	
Adjusted <i>R</i> ²	19.14		19.29		19.27	
<i>N</i>	1021		1021		1021	

Table 5 Regression results for the loss avoidance

	Column 1 (ENV)		Column 2 (SOC)		Column 3 (GOV)	
	Coef	<i>p</i> -values	Coef	<i>p</i> -values	Coef	<i>p</i> -values
Intercept	1.698551	0.692	−10.57207	0.057	−1.741594	0.560
ENV	.9949992	0.416				
SOC			−.9666204	0.041**		
GOV					−1.025932	0.003***
BIG4	−.652048	0.271	−.9711822	0.163	−.8195016	0.180
SIZE	−.2585028	0.284	.5963448	0.073*	−.0696798	0.640
MB	−3.095917	0.000***	−2.815973	0.000***	−3.07849	0.000***
CAR	.0989381	0.130	.1398966	0.047**	.1124838	0.090*
ΔCFO	13.1934	0.090*	8.750459	0.150	12.67363	0.104
ALLOW	62.00019	0.004***	52.93225	0.014**	61.88686	0.003***
LOAN	−2.521205	0.272	−1.505347	0.557	−2.465326	0.302
Year dummies	Included		Included		Included	
Wald chi ²	179.24***		186.94***		173.01***	
Pseudo <i>R</i> ²	21.31		22.41		22.68	
<i>N</i>	1865		1865		1865	

operations’ impact on the environment does not matter. Figure 1 reports the average magnitude of the ESG aggregate score and its components for our sample firms during the full period (2010–2019). As shown in Fig. 1, the environmental pillar has declined over the years, which explains the peripheral importance of the environmental component of ESG performance for our sample banks. Therefore, the relationship between the environmental pillar and earnings management policy is expected to be weak compared to that between governance and social components.

Column 2 shows that the coefficient related to the social sub-score (SOC) is negative, consistent with our predictions, and significant at conventional levels (−0.00105; *p*-value = 0.046), indicating that socially responsible banks

are less likely to engage in income-increasing EM through discretionary loan loss provisions. This result supports the view that social activities reflect banks’ willingness to maintain good relationships with stakeholders and can deter management from engaging in unethical reporting behavior (Kim et al. 2012; Liao et al. 2019). The last column in Table 4 reports the results of the regression estimating the effect of the governance score on income-increasing EM. Consistent with the extant accounting literature, we note that the estimated coefficient of the governance pillar (GOV) is negative and significant at conventional levels (−0.00135; *p*-value = 0.031). This implies that strong governance structures and related practices can effectively mitigate the agency conflicts between managers and stakeholders (Fig. 2).

Fig. 2 The evolving of environmental (ENV), social (SOC), and governance (GOV) pillars across the years. Source: (Developed by the authors)

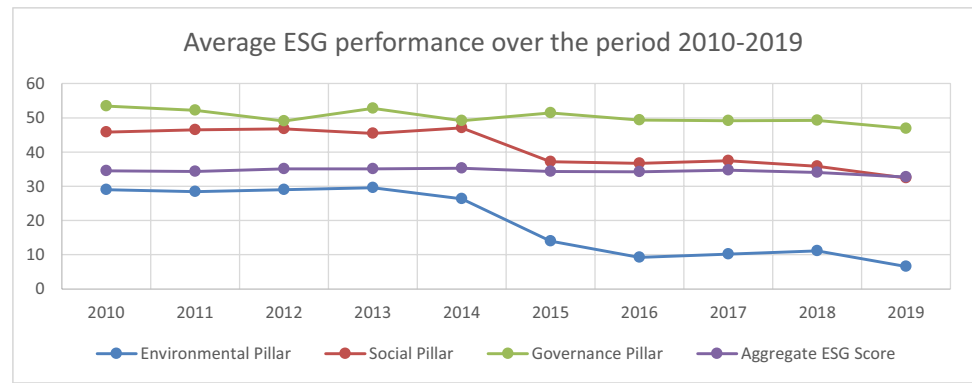


Table 5 displays the relationship between the three pillars of ESG and earnings management to meet a benchmark, using the logistic regression model. The regression results in column 1 reveal that the coefficient of ENV is statistically insignificant (0.9949992; p -value = 0.416), implying that environmental performance has no impact on EM to avoid earnings decreases and losses. Sun et al. (2010) provided evidence consistent with this outcome, revealing that environmental activities are insignificantly related to EM. These results suggest that bank managers do not employ environmental activities as shields to mask their unethical financial practices. This finding is inconsistent with Dobler et al. (2014), who reported a significant relationship between environmental risk and environmental performance. This result is aligned with the banking sector, which assigns less importance to environmental concerns than to social and governance issues due to the nature of their activities compared to manufacturing companies. As per the results presented in Table 5, the social performance (SOC) pillar has a negative impact on loss avoidance (-0.9666204 ; p -value = 0.041). Finally, in the third and last columns, we find that the corporate governance sub-score (GOV) exhibits a negative and significant coefficient when associated with a small positive earnings interval variable (-1.025932 ; p -value = 0.003), meaning that such a pillar acts as a constraint for EM to avoid earnings decreases and losses (Yoon et al. 2018; Miralles-Quiros et al. 2019).

Endogeneity concerns

Numerous studies on the relationship between CSR and earnings management or corporate financial performance have raised endogeneity concerns between the two variables, and the results may be driven by such problems (see for example Grougiou et al. 2014; Li et al. 2020; Liu et al. 2021; Khan et al. 2021). Therefore, our previous findings may have been driven by endogeneity problems between the two variables. To address this issue and control for endogeneity, we first re-estimate our models (both for the aggregate score and the sub-score models) using a simultaneous

equation approach by employing a two-stage least squares 2SLS regression model. The untabulated results show that our findings are, on average, unchanged in terms of both significance levels and directions. Thus, endogeneity concerns have no significant effect on our findings. Second, we re-estimate our models by replacing our contemporaneous explanatory variables with their lagged values, thereby reducing the endogeneity bias caused by reverse causality (Roberts 1992). Our results remain robust to this model specification.

Conclusion

Socially responsible firms are expected to behave ethically towards numerous stakeholders (Grougiou et al. 2014; Kim et al. 2012). However, empirical evidence provides inconclusive and conflicting results on whether ESG performance acts as a constraint or an incentive for earnings management behavior (Ehsan et al. 2022). This study provides additional evidence that ESG performance activities act as a constraint for earnings management in US banks. Consistent with ethical, political, and social norm theories, our findings support the premise that banks' commitment to CSR activities and related ESG performance scores mitigate managers' willingness to manage reported earnings upward or downward through discretionary loan loss provisions. Specifically, we provide evidence that the ESG performance score of US banks is negatively related to discretionary loan loss provisions. We then show that ESG banks are insignificantly related to EM to avoid earnings decreases and losses. We interpret these findings as follows: socially responsible US banks are constrained by both social and ethical norms that mitigate opportunistic behavior toward outsiders. In other words, reporting higher levels of ESG performance to manage stakeholders' perceptions and mask firms' actions that may trigger partners' activism and scrutiny of managers' opportunism is not supported in our research.

Furthermore, we conducted additional analyses using the three main sub-factors of ESG. The results show that the governance factor is negatively related to two EM

proxies: income-increasing abnormal LLPs and EM to avoid earnings decreases and losses. This finding is consistent with the view that corporate governance can effectively constrain bank managers' accounting misconduct. Next, we find that banks with better social performance exhibit lower levels of income-increasing abnormal LLPs and loss avoidance activities. These results suggest that social activities such as human rights, workforce environment, and community involvement are ethical behaviors that alleviate EM practices (Kim et al. 2012; Liao et al. 2019). Lastly, the environmental pillar seems to have no significant impact on the EM behavior of US banks. We attribute this to the idea that the banking industry has a relatively lower environmental impact, and thus, managers do not use environmental practices to gain the support of stakeholders. Taken together, our results suggest that social and governance factors can effectively constrain banks' EM activities, whereas environmental factors are not significantly associated with EM activities. These results highlight the importance of disaggregating the ESG performance score into its main pillars, thereby drawing on specific outcomes. Our study has important implications for scholars, standards setting bodies, and practitioners in that it shows how commitment to CSR activities mitigates managers' opportunistic though ethical values. Analytical models of earnings management that encompass ethical and behavioral incentives/constraints in other sectors and institutional settings may be useful.

Our study has some limitations. First, because of the specifications of several models and the numerous control variables used, we were constrained to reduce our sample firms, thereby avoiding statistical problems and missing data. Second, the use of the US context may lead to contradictory outcomes if our models were applied to other contexts, especially emerging countries. Third, even though we use two proxies of earnings management and individual ESG pillars, the existing literature offers alternative measures of earnings management (real cash flow management, capitalization of R&D, etc.) and ESG sub-pillars (carbon emission rates, donations, and other charitable actions). However, these measures may have led to different results. Further disaggregation of the environmental, social, and governance pillars into their main components could enhance our understanding of socially responsible banks and other organizations' earnings management behavior.

Author contribution All authors contributed to the study conception and design. Data collection and analysis were performed by Dr. Al Hiyari. The first draft of the manuscript was written by Dr. Kolsi and Dr. Al Hiyari. Additional analyses were performed by Dr. Kolsi. The final draft of the manuscript was deeply reviewed by Prof. Khaled Hussainey, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data availability Data for the paper are retrieved from the Refinitiv database at www.refinitiv.com.

Declarations

Ethics approval The authors declare that the work is original and is not submitted or under review elsewhere, and plagiarism issues are checked. All used material and data are identified through the manuscript.

Consent for publication Not applicable to this manuscript.

Competing interests The authors declare no competing interests.

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