sustainability

MDPI

Article

Do the Levels of Environmental Sustainability Disclosure and Indebtness Affect the Quality of Earnings?

Cláudia Pereira [1,*], Albertina Monteiro [1], Diana Silva [2] and Armindo Lima [1]

[1] CEOS.PP, ISCAP, Polytechnic of Porto, 4465-004 Matosinhos, Portugal; amonteiro@iscap.ipp.pt (A.M.); alima@iscap.ipp.pt (A.L.)

[2] ISCAP, Polytechnic of Porto, 4465-004 Matosinhos, Portugal; diana_silvabarbosa@hotmail.com

* Correspondence: claudial@iscap.ipp.pt

Abstract: Previous research has found that, when firms engage in environmental sustainability practices, they tend to give a consistent signal to external stakeholders by acting in a more responsible, transparent, and ethical manner, and these firms tend to exhibit high earnings quality. However, other studies have found that those activities may mask a poor earnings quality. On the other hand, firms with high debt levels face constraints in raising funds. In this study, we expect these firms, when involved in environmental reporting practices, to reveal an increase in their earnings quality in order to improve their ability to capture financing. Thus, we analyze whether the level of environmental disclosure and a firm's debt increase earnings quality. To analyze the former association, we develop an environmental sustainability reporting index (ESReporting), based on GRI standards, using the content analysis for Portuguese firms from 2016 to 2020. We use earnings persistence as a proxy for earnings quality because it is a fundamental characteristic to determine firm value. Regarding debt, we include a financial indicator to analyze its effect on earnings persistence. To test the hypotheses, we estimate a multiple linear regression, applying panel data. Our results suggest that ESReporting and debt tend to positively affect earnings persistence. In addition, our evidence suggests that ESReporting produces a higher positive impact then debt. These results show that ESReporting and debt may be used as regulating mechanisms of earnings management. Besides, this article brings some insights to the improvement of earnings quality resulting from a higher commitment to environmental disclosure and contributing to monitoring managers' activities.

Keywords: earnings quality; earnings persistence; environmental disclosure; sustainability; debt

Citation: Pereira, C.; Monteiro, A.; Silva, D.; Lima, A. Do the Levels of Environmental Sustainability Disclosure and Indebtness Affect the Quality of Earnings? *Sustainability* **2023**, *15*, 2871. https://doi.org/10.3390/su15042871

Academic Editor: Roberta Costa

Received: 9 December 2022
Revised: 16 January 2023
Accepted: 2 February 2023
Published: 5 February 2023
Corrected: 8 March 2024

1. Introduction

Given the dramatic degradation of the environment, society in general and firms in particular are committed to the development of activities that allow them to be more sustainable. However, when preparing financial statements, the incentives vary from maximizing owners' profit, increasing managers' compensations, and avoiding taxes to benefit the local community. Sometimes, these incentives create conflicts and some strategies are developed to align them with the interests of the various agents, such as proposed by the Agency Theory. Corporate social responsibility (CSR) may be a means of aligning the interests of managers and shareholders by reducing managers' opportunistic activities. If it is consistent with other firm practices, it will be an effective signal sent to outsiders [1]. In the same vein, Kim et al. [2] state that socially responsible firms tend to engage in less earnings management activities and to act in a more transparent manner. In fact, some previous studies indicate that companies may increase accountability and transparency if they disclose non-financial information to stakeholders [3–5]. Therefore, based on Stakeholders Theory, we expect more accurate financial reporting to lead to a high quality of earnings. For example, conservative accounting tends to increase when companies are more socially responsible; the argument is that accounting conservatism is a corporate governance mechanism regarding managers' earnings management activities, according to the evidenced reported by Pereira et al. [6]. Although CSR-related information disclosure is voluntary for most companies, to increase comparability, the same rules and criteria should be adopted. Therefore, in this study we develop a proxy for environmental sustainability disclosure based on GRI standards.

However, in an opposite approach, CSR may be related to earnings manipulation activities. For example, Prior et al. [7] state that managers tend to develop socially responsible activities aimed at diverting attention from their opportunistic activities. Relying on Agency Theory, we assume that managers have different motivations from owners and they aim at maximizing their own interest in the short run. For that purpose, they may use the flexibility given by accounting standards based on principles rather than in rules [8,9]. Given these studies, the association between CSR and earnings management can be positive or negative. These two contradictory perspectives are based on Stakeholder Theory. In fact, when firms are committed to CSR activities, they communicate a signal to different stakeholders. Meanwhile, to respond to stakeholders' demands for CSR practices, those activities may be used to mislead shareholders. Therefore, earnings quality is fundamental to capture stakeholders' confidence and thus satisfy shareholders' and creditors' demand for high quality financial information [10]. However, as earnings quality is a board concept and not directly observable, in the literature, several indicators have been developed that allow to evaluate the perception of earning management activities [11,12].

Research on CSR reporting and earnings quality reveals that CSR reporting has a positive impact on earnings persistence in listed firms (e.g., in Vietnam and Indonesia) [13]. In this regard, Istianingsih et al. [14] find that, although CSR disclosure has a positive effect on the future earnings response coefficient, earnings persistence (among other variables) is unrelated to CSR disclosure. In the same vein, Mahjoub and Khamoussi [15] investigate the relationship between CSR reporting and earning persistence (as a proxy of earning quality) in the companies listed in the SBF 250 French stock market index for the 2005–2010 period, and they empirically assert that companies with a higher level of CSR commitment are more likely to reap benefits and communicate more persistent earnings. Valipour and Moradbeygi [16] analyze the relationship between CSR disclosure and the cost of capital with earnings quality as a mediating variable. The study's results show that, for firms listed on the Indonesia Stock Exchange over the 2017–2019 period, CSR reporting enhances the earnings quality and that the earnings quality does not have a mediating role in the relationship between CSR disclosure on the cost of capital. Despite controversial results, most studies are focused on the impact of CSR disclosure in general terms rather than on a specific dimension of CSR and in emerging countries and developing economies.

In the context of environmental reporting, studies have analyzed and demonstrated a positive association between environmental disclosure quality and earnings quality [17], as well as the impact of corporate governance (CG) mechanisms on this association [18]. In Portugal, for a sample of listed companies, Pereira et al. [6] analyze "whether the level of accounting conservatism of a firm is affected by its environmental sustainability information disclosure" on listed firms from 2015 to 2017 (p. 63). Paiva [19] investigate "whether the quality of firms' financial reporting is influenced by the contracting of debt, using data on Portuguese private firms from 2013 to 2015". However, most of the studies developed in Portugal on environmental reporting are focused on other issues, as in levels of environmental disclosures in its determinants, e.g., Monteiro et al. and Pereira et al. [1,6]. Therefore, in this study, we examine the relationship between environmental sustainability disclosure and earnings persistence.

Besides, in prior literature, the argument was developed that earnings persistence is a desirable attribute, namely it contributes to reducing the risk of default and tends to reduce the cost of debt [20]. In an opposite vein, highly leveraged firms tend to have more difficulties obtaining funds, which may be an incentive to increase earnings in future periods; therefore, firms tend to decrease their earnings persistence [21]. However, the literature does not include studies that examine whether the debt level of the firms engaging in environmental sustainability practices positively affects the earnings persistence in order to capture investors and creditors confidence, or by contrast, whether, given the high level of debt, this tends to negatively affect earnings persistence. Thus, to fill a gap in the literature, this study aims to analyze whether the levels of environmental disclosure and a firm's debt increase earnings quality.

Our results contribute to the debate regarding the determinants of earnings quality by showing that both environmental sustainability disclosure and debt are positively associated with earnings persistence, which is a fundamental characteristic to anticipate firms' ability to generate future cash flows. In addition, we bring some evidence that allows us to suggest that both environment sustainability disclosure and the level of debt may be mechanisms to reduce earnings management activities as a response to stakeholders' demand as well as to capture creditors' confidence. Lastly, we show that environmental sustainability reporting tends to have a greater impact then debt on earnings persistence—an important sign for managers defining their strategies.

This article is structured as follows. In the Section 2, we present the literature review and develop the hypotheses to be tested. In Section 3, we describe the sample, methodology, and variables of the regression model. In Section 4, we document the results and proceed to a critical analysis. In Section 5, we present conclusions and highlight some limitations and perspectives for future investigations.

2. Literature Review

2.1. Earnings Quality versus Earnings Persistence

Earnings quality refers to the ability of earnings to feasibly reflect a firm's current performance, according to [11]. While preparing financial statements, it is required to take into account the qualitative characteristics; however, earnings quality is not directly observable and, given that it is a broader concept, several estimates have been proposed in prior literature [11,12]. This implies choosing the most adequate proxy of earnings quality for each specific study depending on the subject under analysis [11]. Cerqueira and Pereira [22] mention proxies of earnings quality based on accruals such as discretionary accruals and accruals quality or relying on time-series, namely, earnings smoothness, timely loss recognition, and earnings persistence. In this article, we opt for earnings persistence as the proxy given that it is a valuable feature of earnings quality. If earnings are persistent, it is possible to estimate the current and future entity's performance in a more accurate manner [20]. The persistence of earnings is a fundamental characteristic for creditors, investors, and other stakeholders to anticipate the ability of firms to fulfill their obligations. For example, when examining the impact of taxes on accounting, the authors Hanlon and Blaylock et al. [23,24] used earnings persistence because firms aim to avoid taxes by reducing their earnings.

Prior studies have established a relationship between the quality of reported earnings and earnings persistence [21,25,26]. In fact, some authors argue that earnings persistence results from earnings management activities, that is, managers tend to smooth earnings for purposes such as minimizing taxes, paying dividends, or meeting targets [11,27–30]. In addition, firms tend to keep high profits to attract new investors [31]. Therefore, the greater the persistence of earnings, the more convincing and accurate the prediction of earnings.

2.2. Impact of Financial and Sustainability Disclosure on Earnings Persistence

In recent years, sustainability reports have been a challenge for organizations, at an early stage in most developed nations, namely, the United States, United Kingdom, China, Japan, France, and Germany [32], and at a later stage for a great majority of nations. In order to establish sustainable development, business disclosure and its impact on business performance is not limited to conventional business tactics and strategies. In fact, measuring the organization's performance is important and significant, as it provides information about the organization's objectives and the way in which they were achieved. Organizations with good performance attract investors [32] and consistent results help to better interpret financial information [33]. In this perspective, a positive relationship between good performance and earnings disclosure is expected because both sustainability and financial disclosure policies can be considered an extension of a firm's efforts to foster effective corporate governance, promoting accountability and transparency not only to shareholders, but also to society [34]. In addition, it shows that companies with a greater commitment to the disclosure of sustainability reports tend to engage in less profitable management, particularly with regard to earnings smoothing and preventing income decline [35]. In the same vein, Kim et al. [2] state that socially responsible firms tend to engage in less earnings management activities and to act in a more transparent manner.

A negative relationship between sustainability disclosure and earnings disclosure can also be explained by the opportunistic use of sustainability disclosure reports, as they can inform about sustainability practices to cover up the impact of some corporate misconduct and actions potentially linked to the pursuit of managers' self-interest [7,36–38].

To analyze the impact of sustainability information disclosure on earnings persistence, we take into account the argument of Badia et al. [3] that non-financial reporting increases accountability and transparency and is a response to stakeholder expectations. In fact, non-financial reports are prepared based on standards or guidelines by different organizations, such as the International Organization for Standardization (ISO), Global Reporting Initiative (GRI), United Nations (UN), International Labor Organization (ILO), and International Integrated Reporting Council (IIRC). According to prior studies, the GRI framework is the most used in preparing and disseminating non-financial information [39]. This framework contributes to improving the quality of non-financial information [40,41]. Regarding the environmental dimension of sustainability, GRI standards have 34 indicators related to expenses, such as raw materials, energy and water, the production of emissions and waste, and the impact on biodiversity. Therefore, we expect firms that follow GRI standards to exhibit more detailed sustainability information as well as present a higher quality.

In Portugal, there are relatively few studies on environmental reporting. Most of them analyze the changes in levels of voluntary environmental disclosures or the determinants of the level of disclosure of environmental information (e.g., firm size, industry, profitability, quotation on the stock market, foreign ownership, corporate governance, and environmental certification) in the annual reports and/or sustainability reports of Portuguese companies (large companies or listed companies) or local public entities [1]. However, studies associating environmental reporting with debt level and earnings quality are scarce internationally and practically non-existent in Portugal.

Theoretical and empirical studies show that the level of voluntary information disclosures in the CSR report and their credibility vary depending on the degree of financial reporting conservatism [42]. These authors find that the market reaction to a firm's CSR reporting is reduced when its financial information reporting is more conservative. Gerged et al. [18] indicate that high environmental information disclosure companies seemed to be more conservative in accounting decisions, providing more accurate earnings-related information to their stakeholders. Kuong et al. [13] find that CSR reporting has a positive impact on earnings persistence on listed companies of Vietnam and Indonesia. For a sample of Iran non-financial firms, the results of Mohammad et al. [43] and Alipour et al. [17] show that there is an association between corporate environmental disclosure and earnings quality. However, studies applied to European Union countries, including Portugal, have not been identified. Based on these studies, we formalize the first hypothesis as follows:

H1: *The level of environmental sustainability reporting enhances earnings quality of Portuguese firms.*

2.3. Impact of Debt Level on Earnings Persistence

Next, we analyze the influence of a financial indicator on earnings quality. Fields et al. [44] highlight the importance of debt contract clauses analyzed in studies related to accounting choices. Debt contracts are usually designed to protect creditors. Consistently, Dichev et al. [45]

argue that earnings may be useful for the definition of debt contracts if they are used as a regulatory mechanism to avoid earnings management activities. For the banking sector, earnings persistence plays an important role in maintaining the stability of the entire financial system [27,46–48]. In this sense, earnings persistence is a desirable attribute as it contributes to reducing the risk of default and tends to reduce the cost of debt [20]. In the same vein, Barbosa et al. [49] argue that, for debt providers, namely financial institutions, earnings may be interesting to help them in setting the appropriate price for the loans they make available to firms. In turn, the financial situation of each firm is fundamental. However, Ewert and Wagenhofer [50] mention that managers' compensation schemes, political factors, and debt clauses are incentives for decision-makers to manage earnings. Overall, the quality and persistence of earnings have economic consequences for firms and can be seen as an incentive for firms to increase their quality of financial and non-financial information. Therefore, earnings may contribute to reducing the cost of debt [20]. However, Khuong et al. [21] mention that companies with a high debt-to-asset ratio tend to exhibit more problems obtaining funds, which may be an incentive to increase earnings. In fact, firms that are in financial distress will have more difficulties obtaining additional funds from banks and tend to have lower liquidity. Therefore, in this stage, firms tend reduce earnings persistence. In this context, we expect that these firms, when engaged in environmental reporting, exhibit persistent earnings, thus we posit the second hypothesis:

H2: *Debt is positively related to earnings quality for Portuguese firms.*

Finally, we compare the effect of financial factors to the level of environmental sustainability reporting factor on earnings quality. Especially for firms with high levels of debt, that face more constraints obtaining funds, we expect they are likely to increase their earnings quality in order to improve their ability to capture financing, thus promoting earnings persistence in a manner that outweighs the positive impact of environment sustainability reporting on earnings quality.

3. Method

3.1. Data and Sample Selection

In this study, we selected companies with sustainability reports published in the GRI database in at least one of the years analyzed, whose financial indicators are in the SABI database. In the absence of reports in the GRI database for any of the years analyzed in this study, we looked for sustainability-related reports on the firm's official website. As the sustainability of companies can be disclosed in different reports, in this study, we decided to consider the sustainability reporting disclosed on integrated reports or annual reports [21]. It should be noted that some companies have not produced sustainability-related reports every year.

Thus, data were collected from the sustainability reports, integrated reports, or annual reports of a sample of Portuguese companies over the period from 2016 to 2020, because Portuguese accounting standards changed in 2016 as a result of transposing the Directive 2013/34/EU [51]. Therefore, we consider the five last years available at the time of data collection. Table 1 shows the composition of the sample.

Therefore, the sample for this study consists of 31 companies and 153 observations.

3.2. Sustainable Reporting

The environmental sustainability reporting index (ESReporting) is measured using a disclosure-scoring technique based on Wiseman [52]. This index allows to measure the level of the environmental disclosure in a firm's reports through the use of a dummy variable, in which a given indicator is set to one if a specific item is released and zero if the item is not reported. This technique was widely used in prior studies, namely by [21,53–56]. This index follows the GRI standards. The environmental dimension section is GRI 300, which presents eight categories (from GRI 301 to GRI 308), and we have several indicators in each category, with a total of 32, as reported in Table 2. We used the 32-item checklist to determine the presence or absence in corporate reports of information related to environmental matters.

Table 1. Composition of the sample.

Name	Sector	Listed	Firm	Industry	Listed
Altri	Forest and Paper Products	yes	Jerónimo Martins	Food Industry	yes
APDL	Other (Management of the Port of Leixões)	No	Metro do Porto	Railways	no
APS	Public Agency	No	Metro de Lisboa	Railways	no
Atlântico Europa Bank	Financial Services	No	Millennium BCP	Financial Services	no
Auchan	Retail	No	Mota-Engil	Construction	yes
Bondalti	Chemicals	No	Novo Banco	Financial Services	no
Brisa	Railways	No	REN	Energy	yes
Caixa Geral de Depósitos	Financial Services	No	Santa Casa da Misericórdia de Lisboa	Services/Non-Profit	no
CTT–Correios de Portugal	Logistics	yes	Santander Totta	Financial Services	no
Corticeira Amorim	Forest and Paper Products	yes	Secil	Construction	no
CP–Comboios de PT	Railways	No	Sonae Indústria	Food Industry	no
EDP	Energy	yes	Sonae Sierra	Real Estate	no
EPAL	Water Utilities	No	Sumol + Compal	Food Industry	no
Galp Energia	Energy	yes	The Navigator Firm	Forest and Paper Products	yes
Gestamp Aveiro	Automobiles	No	Vodafone	Telecommunications	no
Hovione	Health	No			

Table 2. Environment sustainability reporting index.

Variable	GRI Standards Categories (Indicators)	
EDISR	Materials (GRI 301: 301-1–301-3) Energy (GRI 302: 302-1–302-5) Water and effluents (GRI 303: 303-1–303-5) Biodiversity (GRI 304: 304-1–304-4) Emissions (GRI 305: 305-1–305-7) Effluents and Waste (GRI 306: 306-1–306-5)	Environmental compliance (GRI 307: 307-1) Supplier Environmental Assessment (GRI 308: 308-1–308-2)

The index is computed using the following equation:

$$\text{ESReporting} = \sum_{n=1}^{e} e_j$$

where

e_j—Number of indicators included on reporting

e—Total number of indicators

When one indicator is disclosed, it is set to 1, otherwise it is 0.

Therefore, this indicator provides a rank from 1 to 32, from the case where a firm reports only one item to the opposite case, where a firm reports all items in all of the categories.

3.3. Earnings Persistence

We used earnings persistence as a proxy for earnings quality. To test the hypotheses, we estimated the three regressions below using panel data with fixed effects after rejecting the null hypothesis of the Hausman test. Besides, in regressions (2), (3), and (5), we applied the generalized method of moments (GMM) model in order to address potential econometric issues (Nickell bias and endogeneity) resulting from the use of a dynamic panel model, given that we used an explanatory variable that is a lagged variable of the dependent. Therefore, we added instrumental variables that correspond to the two lagged explanatory variables.

In the first test, we analyzed the effect of ESReporting on accounting persistence by estimating the following regressions:

$$PTI_{t+1} = \beta_0 + \beta_1 ESReporting_{i,t} + \varepsilon_{t+1} \quad (1)$$

PTI is the pre-tax income scaled by total assets and ESReporting is the environmental sustainability index based on GRI standards, computed as explained in Section 3.2.

If $\beta_1 > 0$, then the increase in ESReporting produces a positive effect on the pre-tax income (PTI) in the next period.

Then, we estimate the following regression:

$$PTI_{t+1} = \beta_0 + \beta_1 ESReporting_{i,t} + \beta_2 PTI_{i,t} + \beta_3\, Debt_{i,t} + \varepsilon_{t+1} \quad (2)$$

In this equation, PTI and ESReporting are as defined in regression 1. Debt represents a firm's total liabilities scaled by its total assets.

The signs we expect are $\beta_1 > 0$ and $\beta_3 < 0$, because more environmental sustainability reporting is supposed to improve the pre-tax income (PTI) in the next period, while more debt tends to reduce future earnings because of a higher financial cost. In addition, the coefficient that provides earnings persistence is β_2 and it is expected to be positive, because a higher current income increases the income in the next period.

Then, we estimate the following regression that allows to test our first hypothesis:

$$PTI_{t+1} = \beta_0 + \beta_1 ESReporting_{i,t} \times PTI_{i,t} + \beta_2 Debt_{i,t} + \varepsilon_{t+1} \quad (3)$$

The coefficient that provides an incremental impact of ESReporting on earning persistence is $\beta_{1.}$ To support our first hypothesis, this coefficient is expected to be positive, because an increase in ESReporting enhances earnings persistence, even after controlling for debt.

Regarding the impact of debt, we begin by estimating the following regression:

$$PTI_{t+1} = \beta_0 + {}_t + \beta_1 Debt_{i,t} + \varepsilon_{t+1} \quad (4)$$

In this regression, PTI is the pre-tax income scaled by total assets and debt is total liabilities scaled by total assets. If $\beta_1 > 0$, then an increase in debt reduces the pre-tax income in the next period.

$$PTI_{t+1} = \beta_0 + \beta_1 Debt_{i,t} \times PTI_{i,t} + \beta_2 ESReporting_{i\ i,t}\ \varepsilon_{t+1} \quad (5)$$

In this regression, all of variables are as defined previously. To confirm our second hypothesis, then $\beta_1 > 0$, meaning that a higher level of debt increases earnings persistence in order to capture creditors' confidence, even after controlling for ESReporting.

In addition, we compare the estimated coefficient of debt in regression (5) (β_1) with the estimated coefficient of ESReporting in regression (3) (β_1) to investigate which one is higher.

4. Results and Discussion

4.1. Descriptive Statistics

Table 3 provides a summary of the descriptive statistics for the continuous variables used in the regressions. On average, the coefficient of ESReporting is 0.5674, with a low dispersion. The pre-tax income (PTI) represents 4.92% of the assets, on average. However, in this variable, the dispersion is higher. Debt represents almost 70% of assets, which is consistent evidence for the firms included in the sample given the low value of standard deviation. On average, the size of firms is higher than 6 million Euros, although with a considerable dispersion.

Table 3. Descriptive statistics.

Variable	Obs.	Mean	Std.	Median	Min	Max
ESReporting	153	0.5674	0.2905	0.6923	0.0	0.9808
PTI	153	0.0492	0.1127	0.025	−0.297	0.6809
Debt	153	0.6934	0.7648	0.6205	0.0	4.8868
Assets	153	6,148,892	16,398,842	853,125.9	142,067.3	85,451,613

Source: Authors' calculations.

Table 4 presents the correlation matrix. While ESReporting is positively related to pre-tax income (PTI), debt is negatively associated. However, the association is higher for debt. The correlation between these two independent variables is small, thus we do not expect multicollinearity problems.

Table 4. Correlation matrix.

Variables	PTI	ESReporting	Debt	Assets
PTI	1			
ESReporting	0.0841	1		
Debt	−0.4541	−0.0940	1	
Assets	−0.1374	0.2141	0.0706	1

Source: Authors' calculations.

4.2. Regression Analysis and Discussion of Results

Table 5 documents the results of the estimations of our five regressions. Given that, in regression (2), (3), and (5), we used the lagged dependent variable as the independent variable, we estimated these regressions with GMM, which implies the use of instrumental variables. We follow the usual procedure that consists of the two lagged independent variables. The regression with the best adjustment is (2); more specifically, it exhibits the highest adjusted R square, Durbin–Watson, and J-statistic.

The coefficient β_1 is not statistically significant for regression 1, which is a univariate regression, where the dependent variable is income before taxes and the explanatory variable is the environment sustainability reporting index. Our results suggest that the environmental indicator (ESReporting) has no statistically significant impact on firms' earnings in the next period. Therefore, we do not have statistical evidence that an increase in ESReporting increases/decreases earnings in the next year. This result may be due, on one hand, to the low number of firms issuing environment sustainability reporting in the Portuguese case and/or, on the other hand, to the opposite effects that investments in environmental sustainability practice have on future earnings. In fact, in the short term, earnings are supposed to decrease, but in the long term, this may increase sales because consumers are sensitive to environment protection, and then earnings are expected to increase.

Table 5. Effect of financial and non-financial information on earnings persistence.

Regressions	Expected Sign	(1)	(2)	(3)	(4)	(5)
β_1	(+)	−0.0127 (−0.3899)	−0.0250 (−0.6704)	1.4733 *** (7.6237)	−0.0598 *** (−5.6837)	0.4421 *** (5.3802)
B_2	(+)		0.9552 *** (10.4773)	0.0029 (0.2126)		−0.0595 (−1.0096)
B_3	(+)		0.0111 (1.0592)			
R-squa.		0.0165	0.6959	0.4590	0.2283	0.2405
R-squa adjusted		−0.017	0.678027	0.4339	0.2020	0.2051
Durbin–Watson		0.3468	3.050	2.6210	0.4586	0.4642
F-statistic		0.4925			8.6558 ***	
J-statistic			0 ***	4.784 **		32.4858 ***
Instrument rank			6	6		6
No. Obs.		122	91	91	122	91

(1) $PTI_{t+1} = \beta_0 + \beta_1 ESReporting_{i,t} + \varepsilon_{t+1}$; (2) $PTI_{t+1} = \beta_0 + \beta_1 ESReporting_{i,t} + \beta_2 PTI_{i,t} + \beta_3\ Debt_{i,t} + \varepsilon_{t+1}$; (3) $PTI_{t+1} = \beta_0 + \beta_1 SReporting_{i,t} \times PTI_{i,t} + \beta_2 Debt_{i,t} + \varepsilon_{t+1}$; (4) $PTI_{t+1} = \beta_0 + {}_t + \beta_1 Debt_{i,t} + \varepsilon_{t+1}$; (5) $PTI_{t+1} = \beta_0 + \beta_1 Debt_{i,t} \times PTI_{i,t} + \beta_2 ESReporting_{i\ i,t}\ \varepsilon_{t+1}$; *** and ** represent statistical significance at a level of 1% and 5%, respectively. Source: Authors' calculations.

In the second regression, when the three explanatory variables are included, we obtain the best quality model to explain income before taxes in the next period, with an R square close to 0.7. The estimated coefficient of environment sustainability reporting is still not statistically significant, and neither is that of debt. However, pre-tax income (PTI) in the previous year and debt are statically significant at 1%. As expected, the pre-tax income in the previous year has a positive impact on pre-tax income in the current year.

In regression (3), we analyze the impact of ESReporting on earnings quality. For that purpose, the interaction term between pre-tax earnings in the previous year and the sustainability indicator (ESReporting), β_1, is the coefficient of interest, which is statistically significant at the 1% level and has a positive sign, as expected, even after controlling for debt. Therefore, this result is consistent with Badia et al. [3], Khuong et al. [13], and Cho et al. [43], and it supports our H1. Therefore, a higher level of environmental sustainability reporting has a positive impact on the persistence of earnings. In turn, firms that are committed to environmental sustainability reporting practices tend to act in a more transparent and ethical manner, thus they tend to exhibit higher earnings quality. In addition, debt is still not statistically significant to explain the earnings in the next period, thus not supporting the expected negative impact.

Regression (4) is a univariate regression that allows to test the relation of debt and future earnings. The estimated coefficient of debt is negative and statistically significant, which suggests that an increase in debt produces a negative impact on future earnings, thus supporting the results of regression (2) and (3). In fact, when debt increases, the financial costs are also higher, which implies a decrease in earnings in future years, which is consistent with the arguments of Francis [20].

In regression (5), we analyze the association between debt and earnings persistence, which is given by the interaction term between debt and pre-tax income (PTI) in the previous period, β_1. This estimated coefficient is statistically significant at the 1% level and positive, as expected, even after controlling for environment sustainability reporting. This is consistent with the need of firms to capture creditors' confidence to obtain more funds when their level of debt is higher. In fact, earnings persistence is interpreted by stakeholders as a sign of earnings quality, and it gives firms the ability to create future cash flows and then to fulfill all of their commitments. Therefore, this result is consistent with prior studies [28,45–49] and supports our H2.

Finally, we compare β_1 from regression (3), which is the interaction term of the environment indicator and earnings in the current year, with β_1 of regression (5), which gives the interaction term of debt and earnings in the current period. As the estimated coefficient is higher in regression (3) with the same level of significance (1%) in both regressions, we conclude that the impact produced by environmental reporting is higher than the effect of debt. As Portuguese firms exhibit a high level of leverage, we expected that this variable would produce a stronger impact on earnings persistence in order to respond to the stakeholders' demand for earnings persistence. However, our results suggest that a higher level of environment sustainability reporting produces a positive impact on earnings persistence. Therefore, both debt and environment sustainability reporting may be seen as corporate governance mechanisms to control management earnings activities, but the latter has a higher positive impact on earnings persistence, which is a sign that mangers should take this into account when they define their operational strategies.

5. Conclusions

In this study, we analyze the effect of both environmental sustainability reporting and a financing factor on earnings quality. In prior literature, it was not clear whether they mitigate or enhance earnings management activities.

Therefore, based on the sample of Portuguese firms, we find empirical evidence that environmental sustainability reporting is statistically significant for earnings persistence and leads to its increase. Thus, our results led to the acceptance of the first research hypothesis of this study. Therefore, this study suggests that, if environmental sustainability reporting reflects more transparency, it will contribute to improving financial reporting quality.

Furthermore, our results show that debt tends to improve earnings persistence, which may be because of the high level of debt that Portuguese firms have, possibly giving firms an incentive to capture creditors' and investors' confidence in order to be able to obtain further funding. This evidence supports the second research hypothesis.

The results also show that, while both environmental sustainability reporting and debt are predictive variables of earnings persistence, the former seems to have a greater impact than the latter.

Given that earnings are both a fundamental indicator of firm performance and allow to better anticipate future cash flows to estimate firms' values, this work brings a great contribution in three ways: first, by collecting empirical evidence that both ESReporting and debt are important for improving earnings quality because they enhance earnings persistence, which is a fundamental characteristic to anticipate firms' ability to generate future cash flows; second, by suggesting that the environment sustainability reporting and the level of debt may be mechanisms to reduce earnings management activities, and making them useful for several firms' stakeholders to make their decisions; and third, by showing that the impact of environment sustainability reporting tends to be higher than that produced by debt, which is a strong signal for managers when making their strategic decisions.

The main limitation of this study is the size of the sample, which includes a reduced number of Portuguese listed companies, some with low levels of environmental disclosure. To bring more consistency to the results, for future research, we propose to extend the sample to other Portuguese or European Union companies. We also suggest developing a study for a more recent period and the use of the GRI standards indicators in the calculation of the ESReporting, as it is expected that, with the introduction of the GRI standards and the European Directive (Directive 2014/95/EU) [57], the level of disclosure of non-financial information has increased from 2018.

Author Contributions: Conceptualization, C.P., A.M. and A.L.; methodology, D.S., C.P. and A.M.; software, C.P. and A.M., validation, C.P. and A.M.; formal analysis, C.P., A.M. and A.L.; resources, D.S. and A.M.; data curation, D.S. and A.M.; writing—original draft preparation, C.P. and A.M.; writing—review and editing, C.P., A.M. and A.L.; visualization, C.P. and A.M.; supervision, C.P. and A.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Monteiro, A.P.; Pereira, C.; Barbosa, F.M. Environmental disclosure on mandatory and voluntary reporting of Portuguese listed firms: The role of environmental certification, lucratively and corporate governance. *Meditari Account. Res.* 2021; *ahead-of-print*. [CrossRef]
2. Kim, Y.; Park, M.S.; Wier, B. Is earnings quality associated with corporate social responsibility? *Account. Rev.* **2012**, *87*, 761–796. [CrossRef]
3. Badia, F.; Bracci, E.; Tallaki, M. Quality and Diffusion of Social and Sustainability Reporting in Italian Public Utility Companies. *Sustainability* **2020**, *12*, 4525. [CrossRef]
4. Khatib, S.F.; Abdullah, D.F.; Elamer, A.; Hazaea, S.A. The development of corporate governance literature in Malaysia: A systematic literature review and research agenda. *Corp. Gov. Int. J. Bus. Soc.* **2022**, *22*, 1053. [CrossRef]
5. Khatib, S.F.A.; Abdullah, D.F.; Elamer, A.A.; Abueid, R. Nudging toward diversity in the boardroom: A systematic literature review of board diversity of financial institutions. *Bus. Strategy Environ.* **2021**, *30*, 985–1002. [CrossRef]
6. Pereira, C.; Monteiro, A.P.; Barbosa, F.; Coutinho, C. Environmental sustainability disclosure and accounting conservatism. *Int. J. Adv. Appl. Sci.* **2021**, *8*, 63–74.
7. Prior, D.; Surroca, J.; Tribó, J.A. Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. *Corp. Gov. Int. Rev.* **2008**, *16*, 160–177. [CrossRef]
8. Monteiro, A.P.; Rua, O.L.; Figueira, J.C.; Leite, E. Practices and mechanisms to mitigate the negative effects of accounting-based earnings management: An empirical study from the professionals' perspective. *Int. J. Adv. Appl. Sci.* **2021**, *8*, 15–28.
9. Healy, P.; Wahlen, J. A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Account. Horiz.* **1999**, *13*, 365–383. [CrossRef]
10. Cerqueira, A.; Pereira, C. The effect of economic conditions on accounting conservatism under IFRS in Europe. *Rev. Econ. Perspect.* **2020**, *20*, 137–169. [CrossRef]
11. Dechow, P.; Ge, W.; Schrand, C. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *J. Account. Econ.* **2010**, *50*, 344–401. [CrossRef]
12. Schipper, K.; Vincent, L. Earnings Quality. *Account. Horiz.* **2003**, *17*, 97–110. [CrossRef]
13. Khuong, N.V.; Rahman, A.A.A.; Meero, A.; Anh, L.H.T.; Liem, N.T.; Thuy, C.T.M.; Ly, H.T.N. The Impact of Corporate Social Responsibility Disclosure and Accounting Comparability on Earnings Persistence. *Sustainability* **2022**, *14*, 2752. [CrossRef]
14. Istianingsih; Trireksani, T.; Manurung, D.T.H. The impact of corporate social responsibility disclosure on the future earnings response coefficient (ASEAN banking analysis). *Sustainability* **2020**, *12*, 9671. [CrossRef]
15. Mahjoub, L.B.; Khamoussi, H. Environmental and social policy and earning persistence. *Bus. Strategy Environ.* **2013**, *22*, 159–172. [CrossRef]
16. Valipour, H.; Moradbeygi, M. Corporate debt financing and earnings quality. *J. Appl. Financ. Bank.* **2011**, *1*, 139–157.
17. Alipour, M.; Ghanbari, M.; Jamshidinavid, B.; Taherabadi, A. The relationship between environmental disclosure quality and earnings quality: A panel study of an emerging market. *J. Asia Bus. Stud.* **2019**, *13*, 326–347. [CrossRef]
18. Gerged, A.M.; Al-Haddad, L.M.; Al-Hajri, M.O. Is earnings management associated with corporate environmental disclosure? Evidence from Kuwaiti listed firms. *Account. Res. J.* **2020**, *33*, 167–185. [CrossRef]
19. Paiva, I.S. Contracting debt and the quality of financial reporting in private firms. *Contaduría Adm.* **2018**, *63*, 1073–1090.
20. Francis, J.; LaFond, R.; Olsson, P.M.; Schipper, K. Costs of equity and earnings attributes. *Account. Rev.* **2004**, *79*, 967–1010. [CrossRef]
21. Khuong, N. Abdul Aziz Abdul Rahman, Pham Quoc Thuan, Nguyen Thanh Liem, Le Huu Tuan Anh, Cao Thi Mien Thuy, & Huynh Thi Ngoc Ly. Earnings Management, Board Composition and Earnings Persistence in Emerging Market. *Sustainability* **2022**, *14*, 1061. [CrossRef]
22. Cerqueira, A.; Pereira, C. Earnings Management and Stock Market Reaction. In *International Financial Reporting Standards and New Directions in Earnings Management*; IGI Global: Hershey, PA, USA, 2019. [CrossRef]
23. Hanlon, M. The persistence and pricing of earnings. accruals. and cash flows when firms have large book-tax differences. *Account. Rev.* **2005**, *80*, 137–166. [CrossRef]
24. Blaylock, B.; Shevlin, T.; Wilson, R. Tax avoidance. large positive temporary book-tax differences. and earnings persistence. *Account. Rev.* **2012**, *87*, 91–120. [CrossRef]
25. Kang, T.; Krishnan, G.V.; Wolfe, M.C.; Yi, H.S. The Impact of Eliminating the 20-F Reconciliation Requirement for IFRS Filers on Earnings Persistence and Information Uncertainty. *Account. Horiz.* **2012**, *26*, 741–765. [CrossRef]

26. Pirveli, E. Earnings persistence and predictability within the emerging economy of Georgia. *J. Financ. Report. Account.* **2020**, *18*, 563–589. [CrossRef]
27. Chen, C.-Y. Do analysts and investors fully understand the persistence of the items excluded from Street earnings? *Rev. Account. Stud.* **2010**, *15*, 32–69. [CrossRef]
28. Hung, C.-H.D.; Jiang, Y.; Liu, F.H.; Tu, H. Competition or manipulation? An empirical evidence of determinants of the earnings persistence of the US banks. *J. Bank. Financ.* **2018**, *88*, 442–454. [CrossRef]
29. Pope, P.F.; Wang, P. Earnings components, accounting bias and equity valuation. *Rev. Account. Stud.* **2005**, *10*, 387–407. [CrossRef]
30. Skinner, D.J.; Soltes, E. What do dividends tell us about earnings quality? *Rev. Account. Stud.* **2011**, *16*, 1–28. [CrossRef]
31. Ngoc Dang, H.; Thi Thuy Vu, V. Factors affecting earnings persistence: Research in emerging markets. *Contaduría Adm.* **2022**, *67*, 9. [CrossRef]
32. Shad, M.K.; Lai, F.W.; Fatt, C.L.; Klemeš, J.J.; Bokhari, A. Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *J. Clean. Prod.* **2019**, *208*, 415–425. [CrossRef]
33. Bona-Sanchez, C.; Perez-Aleman, J.; Santana-Martin, D.J. Sustainability disclosure, dominant owners and earnings informativeness. *Res. Int. Bus. Financ.* **2017**, *39*, 625–639. [CrossRef]
34. Jo, H.; Harjoto, M.A. Corporate Governance and Firm Value: The Impact of Corporate Social Responsibility. *J. Bus. Ethics* **2011**, *103*, 351–383. [CrossRef]
35. Chih, H.L.; Shen, C.H.; Kang, F.C. Corporate Social Responsibility, Investor Protection, and Earnings Management: Some International Evidence. *J. Bus. Ethics* **2008**, *79*, 179–198. [CrossRef]
36. Hemingway, C.A.; Maclagan, P.W. Managers' personal values as drivers of corporate social responsibility. *J. Bus. Ethics* **2004**, *50*, 33–44. [CrossRef]
37. Jensen, M.C.; Meckling, W.H. Theory of the firm: Managerial behavior, agency costs and ownership structure. *J. Financ. Econ.* **1976**, *3*, 305–360. [CrossRef]
38. Salewski, M.; Zülch, H. The Association between corporate social responsibility (CSR) and earnings quality–evidence from European blue chips. *HHL Work. Pap. Ser.* **2014**, *112*, 1–43. [CrossRef]
39. English, D.M.; Schooley, D.K. The evolution of sustainability reporting utilizing the GRI's latest guidelines and looking to integrated reporting. *CPA J.* **2014**, *84*, 26–35.
40. Fernandez-Feijoo, B.; Romero, S.; Ruiz, S. Effect of stakeholders' pressure on transparency of sustainability reports within the GRI framework. *J. Bus. Ethics* **2014**, *122*, 53–63. [CrossRef]
41. Boiral, O.; Heras-Saizarbitoria, I.; Brotherton, M.C. Assessing and improving the quality of sustainability reports: The auditors' perspective. *J. Bus. Ethics* **2019**, *155*, 703–721. [CrossRef]
42. Cho, S.Y.; Kang, P.K.; Lee, C.; Park, C. Financial reporting conservatism and voluntary CSR disclosure. *Account. Horiz.* **2020**, *34*, 63–82. [CrossRef]
43. Mohammad, A.; Ghanbari, M.; Babak, J.; Aliasghar, T. Does board independence moderate the relationship between environmental disclosure quality and performance? Evidence from static and dynamic panel data. *Corp. Gov.* **2019**, *19*, 580–610.
44. Fields, T.; Lys, V.; Vicent, L. Empirical research on accounting choice. *J. Account. Econ.* **2001**, *31*, 255–307. [CrossRef]
45. Dichev, I.; Graham, J.; Campbell, H.; Rajgopal, S. Earnings quality: Evidence from the field. *J. Account. Econ.* **2013**, *56*, 1–33. [CrossRef]
46. Buchner, A.; Mohamed, A.; Schwienbacher, A. Does risk explain persistence in private equity performance? *J. Corp. Financ.* **2016**, *39*, 18–35. [CrossRef]
47. Cumming, D.; Dai, N.; Haß, L.H.; Schweizer, D. Regulatory induced performance persistence: Evidence from hedge funds. *J. Corp. Financ.* **2012**, *18*, 1005–1022. [CrossRef]
48. Peterson, K.; Schmardebeck, R.; Wilks, T.J. The Earnings Quality and Information Processing Effects of Accounting Consistency. *Account. Rev.* **2015**, *90*, 2483–2514. [CrossRef]
49. Barbosa, F.; Monteiro, A.P.; Pereira, C. Determinants of environmental responsibility disclosure on mandatory and voluntary reporting of Portuguese listed firms. *J. Environ. Account. Manag.* **2021**, *9*, 219–233. [CrossRef]
50. Ewert, R.; Wagenhofer, A. Economic Relations Among Earnings Quality Measures. *Abacus* **2015**, *51*, 311–355. [CrossRef]
51. Directive 2013/34/EU Directive 2013/34/EU of The European Parliament and of the Council of June, 26, 2013 on the Annual Financial Statements, Consolidated Financial Statements and Related Reports of Certain Types of Undertakings, Amending Directive 2006/43/EC of the European Parliament and of the Council and Repealing Council Directives 78/660/EEC and 83/349/EEC. Available online: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:182:0019:0076:EN:PDF (accessed on 14 September 2022).
52. Wiseman, J. An evaluation of environmental disclosures made in corporate annual reports. *Account. Organ. Soc.* **1982**, *7*, 53–63. [CrossRef]
53. Clarkson, P.M.; Li, Y.; Richardson, G.D.; Vasvari, F.P. Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Account. Organ. Soc.* **2008**, *33*, 303–327. [CrossRef]
54. Huang, C.; Kung, F. Drivers of environmental disclosure and stakeholder expectation: Evidence from Taiwan. *J. Bus. Ethics* **2010**, *96*, 435–451. [CrossRef]
55. Kathy Rao, K.; Tilt, C.A.; Lester, L.H. Corporate governance and environmental reporting: An Australian study. *Corp. Gov. Int. J. Bus. Soc.* **2012**, *12*, 143–163. [CrossRef]

56. Pucheta-Martínez, M.C.; Inmaculada, B.O.; Lúcia, L.R. Does stakeholder engagement encourage environmental reporting? The mediating role of firm performance. *Bus. Strategy Environ.* **2020**, *29*, 3025–3037. [CrossRef]
57. Directive 2014/95/EU of the European Parliament and of the Council of October 22, 2014 Amending Directive 2013/34/EU as Regards Disclosure of Non-Financial and Diversity Information by Certain Large Undertakings and Groups. Available online: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32014L0095 (accessed on 21 June 2019).