



Original Research

An Analysis of the Financial and Non-Financial Environmental Disclosures of Selected Environmentally Sensitive Philippine Publicly Listed Companies

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Abstract: One of the most challenging global problems today is environmental sustainability, which countries and companies, at a micro level, are pressured to address. The study aimed to analyze the financial and non-financial environmental data disclosed in the sustainability reports of selected environmentally sensitive Philippine publicly listed companies (PLCs) relative to the Sustainability Reporting Guidelines of the Securities and Exchange Commission (SEC). Content analysis of PLCs' reports was employed, with both descriptive and inferential statistics applied on the different data sets gathered. The study showed that the release of the SEC memo raised the level of environmental data disclosed by the Subject Companies for the period 2017-2021. Also, results showed a significant, positive association between firm size and reported environmental data, while leverage, return on equity, and the holding sector showed significant, negative relationships. The study is expected to add to the currently sparse written works on the environmental reporting in the Philippines, and also in other countries.

Keywords: *Environmental Disclosures, Financial Disclosures, Non-financial Disclosures, PLCs, Publicly Listed Companies, Sustainability Reports*

Introduction

"Climate change is no longer a distant threat; it is already impacting daily life in many parts of the world, and businesses are beginning to feel the impact" (Deloitte Touche Tohmatsu Limited 2021, 4). Thus, organizations and companies must commit to address the issue of global climate change. One way to do this is by disclosing their environmental initiatives and efforts to the public as a way of disclosing the environmental impact of the company (Chaklader and Gulati 2015). These disclosures will not only ensure transparency, but they will also hold companies accountable for their performance relative to achieving long-term environmental sustainability (Verawaty, Jaya, and Widianingsih 2018). As companies consume natural resources and leave carbon footprints in the process, it is but reasonable that they take responsibility for the ensuing externalities from their business operations on the environment (Wisuttisak and Wisuttisak 2016).

To assess if companies are successful in achieving sustainability, we need to look into accountability through sustainability reporting (Mandigma 2017), which includes disclosures

on the performance and impact of the company on economic, environmental, and social issues (Global Reporting Initiative n.d.; Qiu et al. 2016, as cited in Hardiningsih et al. 2020). The Global Reporting Initiative (GRI) is the most used and leading standard for reporting sustainability efforts globally (KPMG 2020). Thus, it serves as a tool to measure the Triple Bottom-Line concept. The Triple Bottom-Line, also known as sustainability (Alhaddi 2014; Hardiningsih et al. 2020), is initially defined by Elkington (1997) as profit, people, and planet, representing the aspects of sustainability i.e., economic, social, and environmental.

According to the Philippine SEC (2019b), less than 22 percent of PLCs in the Philippines have published their sustainability report in 2017. This may be construed to mean that Philippine companies are less interested in disclosing their sustainability efforts. Consequently, the Philippine SEC released in 2019 the Sustainability Reporting Guidelines for PLCs, to increase awareness, transparency, sense of responsibility, and accountability of the companies on creating a sustainable environment. This new memorandum is expected to assist companies in appraising their contributions toward the attainment of universal sustainability targets. Moreover, the SEC guidelines align with four globally accepted frameworks for reporting non-financial information and sustainability (SEC 2019a). Furthermore, the SEC guidelines are aligned with the Philippines's Code of Corporate Governance for PLCs, specifically Principle 10, which calls for the disclosure of material and reportable non-financial and sustainability data on the social, environmental, and economic features of the organization (SEC 2019a).

Building upon the preceding discussions, this study undertook an analysis of the financial and non-financial environmental data disclosed in the reports of selected environmentally sensitive Philippine PLCs. Additionally, the following specific objectives were addressed:

1. To assess the level of reported financial and non-financial environmental data by the subject PLCs in their relevant reports for the period 2017-2021, relative to GRI Standards.
2. To evaluate the effectiveness of the SEC's Sustainability Reporting Guidelines for environmentally sensitive PLCs in promoting sustainability.
3. To ascertain the association of environmental disclosure with key independent variables such as:
 - a. Sector,
 - b. Firm Size,
 - c. Firm Age,
 - d. Financial Leverage,
 - e. Profitability.

Theoretical Background

This study draws upon two pivotal theories to underpin its framework: Legitimacy Theory and Stakeholder Theory. The first theory, Legitimacy Theory, claims that institutions should work inside the limits and norms of the society where they exist (Dowling and Pfeffer 1975) and that the disclosure of their social responsibility initiatives poses a good image to prove their sense of responsibility to stakeholders (Gavancha and Paiva 2020). The second theory, Stakeholder Theory, argues that the company activities should benefit all those members (i.e., stakeholders) who are involved or affected by its business operations (Freeman 1984; Freeman 2010). In addition, this theory suggests that the company's success is dependent on its ability to balance its stakeholders' interests (Hardiningsih et al. 2020). Both theories converge in highlighting the motivations for companies to incorporate environmental data within their publicly available documents.

Climate change poses an irrefutable and global threat, causing irreversible damage to both the environment and humanity at large (Kouloukoui et al. 2019). Meanwhile, different stakeholders including environmentalists, government, public authorities, customers, funding agents, and society in general, were concerned about the impact of organizations on the environment (Vogt et al. 2017). Thus, companies responded to the concerns and increasing scrutiny of their stakeholders by communicating their sustainability efforts through public disclosures (Wahyuningrum, Sri, and Budihardjo 2018). Indeed, many investors and other stakeholders considered environmental disclosures in making important judgements or decisions (Mohamed 2015). As a result, in response to stakeholder needs and recognizing its escalating significance and popularity, the scope of environmental disclosures has substantially broadened on a global scale (Wang and Bernell 2013; Mohamed 2015). It is expected to provide business leaders with useful decision-making tools that can strengthen their position in the industry (Mandigma et al. 2016).

For over a decade, there have been multiple studies and research on the analysis of environmental disclosures worldwide (e.g., Sulaiman, Abdullah, and Fatima 2014; D'Amico et al. 2014; Chaklader and Gulati 2015; Mohamed 2015; Welbeck et al. 2017; Chandok and Singh 2017; Vogt et al. 2017; Kouloukoui et al. 2018; Verawaty, Jaya, and Widianingsih 2018; Wahyuningrum, Sri, and Budihardjo 2018; Kalash 2020; Fajarini and Triasih 2020; Hardiningsih et al. 2020). Some studies established a positive relationship between company performance and environmental disclosures (Aggarwal 2013; Haninun, Lindrianasari, and Denziana 2018). However, despite these global studies, there are only a few research studies that focused on this topic in the Philippines (Briones 2020; Tubay and De Leon 2020; Omeir, Empleo, and Mandigma 2023).

Various studies have considered the influence of firm attributes as determinants of environmental disclosures. These attributes include, but are not limited to, company size, industry type, company age, profitability, financial leverage, audit type, liquidity, country of

domicile, foreign influence, and company ownership, among others (D'Amico et al. 2014; Mohamed 2015; Chandok and Singh 2017; Welbeck et al. 2017; Kouloukoui et al. 2019; Fajarini and Triasih 2020; Tubay and De Leon 2020). To provide further depth on the analysis of environmental disclosure in the Philippine setup, multiple company attributes that are used in previous studies were also applied. This allowed for a comparison of results from these studies as well as to examine their influence on the level of the reported environmental data. In this study, factors that were analyzed are industry type, firm size, age, financial leverage, and profitability. Each firm attribute was examined to assess its influence on environmental disclosure.

Industry Sector

Companies can be categorized into various industries. This study will concentrate only on the environmentally sensitive divided into 5 sectors. As supported by Stakeholder Theory, the quality of the firm's reported environmental data is influenced by the sector in which it operates and is due to the degree of environmental involvement and pressure from their key stakeholders (Sinclair-Desgagné and Gozlan 2003, as cited in D'Amico et al. 2014; Verawaty, Jaya, and Widianingsih 2018). There are mixed findings on the relationship between industry type and environmental disclosures. Studies by Ohidoa, Omokhudu, and Oseroghoand (2016), Omnamasivaya and Prasad (2016), Welbeck et al. (2017), and Fajarini and Triasih (2020) showed that environmentally aware companies report more environmental data than less sensitive firms. Meanwhile, various authors (e.g., D'Amico et al. 2014; Kouloukoui et al. 2019; Hidayah, Badawi, and Nugroho 2019; Kalash 2020), stated that industry type has no significant relationship with environmental disclosures.

Firm Size

Company size refers to the total assets, sales, or stock market value a firm has (Fajarini and Triasih 2020). Eibert and Parket (1973), as cited in Mohamed (2015), first investigated the relationship of company size to social responsibility and concluded that larger companies feel that they are scrutinized by regulators and the public; hence, they try to report their social responsibilities more. This is supported by the Legitimacy Theory, which suggests that larger companies are pressured to disclose more information since they have more stakeholders and social expectations from the public (Kouloukoui et al. 2019). Several studies (e.g., D'Amico et al. 2014; Lu and Abeysekera 2014; Mohamed 2015; Ohidoa, Omokhudu, and Oserogho 2016; Welbeck et al. 2017; Vogt et al. 2017; Chandok and Singh 2017; Hermawan et al. 2018; Kouloukoui et al. 2019; Fajarini and Triasih 2020; Kalash 2020; Tubay and De Leon 2020) claim a positive association between company size and reported environmental data. However, Omnamasivaya and Prasad (2016) and Hidayah, Badawi, and Nugroho (2019) indicate a negative relationship between company size and environmental disclosure.

Conversely, Verawaty, Jaya, and Widianingsih (2018) and Kouloukoui et al. (2018) suggest that firm size has no impact on reported environmental data.

Age

The Legitimacy Theory states that the older the company, the higher the possibility that it has taken higher involvement in social responsibility because of its awareness of the associated benefits (Mohamed 2015). Older firms will presumably report environmental data to satisfy stakeholders' expectation and to legitimize and justify their community activities (Welbeck et al. 2017). Multiple studies show that firm age has no significant relationship with environmental disclosure (D'Amico et al. 2014; Mohamed 2015; Fajarini and Triasih 2020; Tubay and De Leon 2020). Meanwhile, only a few studies show that firm age has a positive relationship with environmental disclosure (Chandok and Singh 2017; Welbeck et al. 2017; Wahyuningrum, Sri, and Budihardjo 2018). Contrary to other findings, Omnamasivaya and Prasad (2016) state that corporate age has a negative relationship with the Environmental Accounting Disclosure Index.

Financial Leverage

Financial leverage or firm indebtedness represents the level of debt owed by the corporation to third parties (Kouloukoui et al. 2019). It measures how much debt financing a firm has contracted (Fajarini and Triasih 2020). Companies tend to disclose more information to be transparent in the eyes of their creditors (Kouloukoui et al. 2019). There are mixed findings on the impact of financial leverage on disclosure of environmental data. Sulaiman, Abdullah, and Fatima (2014), D'Amico et al. (2014), Omnamasivaya and Prasad (2016), and Kalash (2020) show that highly leveraged companies tend to provide more environmental reports to meet and satisfy the expectations of their creditors. Kouloukoui et al. (2019), on the other hand, state that highly leveraged firms tend to show less environmental data. Corollary to this are the findings of Lu and Abeysekera (2014), as cited in Kouloukoui et al. (2019), which suggest that companies with a low level of debt have disclosed more environmental information to increase company image and to receive a favorable assessment of their financial risks by creditors. Contrary to the aforementioned findings, multiple studies show that financial leverage has no significant relationship with environmental disclosures (Chaklader and Gulati 2015; Ohidoa, Omokhudu, and Oserogho 2016; Chandok and Singh 2017; Fajarini and Triasih 2020).

Profitability

Profitability measures the ability of the company to generate profit (Fajarini and Triasih 2020). Various tools are used by authors to measure profitability, such as but not limited to the following: net income; operating profit margin; stock returns; return on equity (ROE);

return on assets (ROA); return on investment (ROI); earnings per share (EPS); and net profit margin (D'Amico et al. 2014; Sulaiman, Abdullah, and Fatima 2014; Chaklader and Gulati 2015; Mohamed 2015; Vogt et al. 2017; Chandok and Singh 2017; Welbeck et al. 2017; Wahyuningrum, Sri, and Budihardjo 2018; Verawaty, Jaya, and Widianingsih 2018; Kouloukoui et al. 2019; Fajarini and Triasih 2020; Kalash 2020; Tubay, and De Leon 2020). More profitable businesses are expected to disclose environmental data to meet public expectations, safeguarding their financial performance (Kouloukoui et al. 2019). Omnamasivaya and Prasad (2016), Wahyuningrum, Sri, and Budihardjo (2018), and Kouloukoui et al. (2019) suggest that there is a significant positive relationship between profitability with environmental disclosure.

Both the Legitimacy Theory and the Stakeholder Theory state that highly profitable companies are easier to respond to expectations from society and their stakeholders because they have more resources to prevent these kinds of pressures (Verawaty, Jaya, and Widianingsih 2018). This is supported by Hardiningsih et al. (2020), which claims that sustainability disclosures improve the financial performance of companies because stakeholders respond positively to these companies. On the contrary, Akbaş (2014), and Chandok and Singh (2017) state that profitability has a negative association with environmental disclosure; this is because companies that are highly profitable does not feel the need to disclose environmental information since they have already obtained financial success (O'Donovan 2002, as cited in Verawaty, Jaya, and Widianingsih 2018). Conversely, numerous studies have failed to demonstrate a relationship between profitability and environmental disclosure (D'Amico et al. 2014; Sulaiman, Abdullah, and Fatima 2014; Chaklader and Gulati 2015; Mohamed 2015; Vogt et al. 2017; Welbeck et al. 2017; Verawaty, Abdullah, and Fatima 2018; Fajarini and Triasih 2020; Kalash 2020; Tubay and De Leon 2020).

Research Hypotheses and Hypothesized Model

To support objectives two (2) and three (3), the following null hypothesis were tested:

- Ho1. There is no improvement in the amount of reported environmental data by PLCs after the release of the SEC Sustainability Reporting Guidelines. Furthermore, to accomplish objective three (3) of this study, the following null research hypotheses were tested:
- Ho2a. The sector to which the firm belongs is not significantly associated with the amount of environmental disclosure.
- Ho2b. The firm size is not significantly associated with the amount of environmental disclosure.
- Ho2c. The firm's age is not significantly associated with the amount of environmental disclosure.

- Ho2d. The firm's financial leverage is not significantly associated with the amount of environmental disclosure.
- Ho2e. The firm's profitability is not significantly associated with the amount of environmental disclosure.

Figure 1 shows the conceptual framework that assisted in the framing of this study (Mandigma 2022). The hypotheses are vividly shown in the figure thus, the caption is Hypothesized Model.

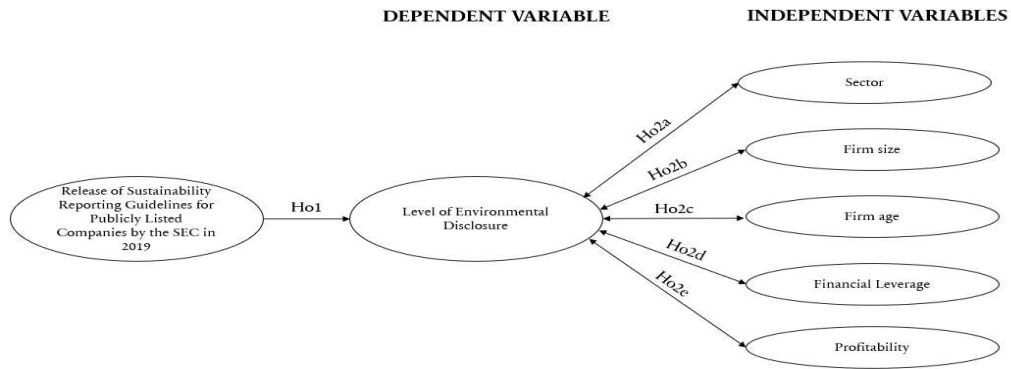


Figure 1: Hypothesized Model

Methods

This study used the descriptive-correlational research design. Content analysis of PLCs' reports was employed, particularly, qualitative content analysis (Badoc-Gonzales, Tan, and Mandigma 2021), in determining the level of environmental disclosure. There are 273 publicly listed companies in the Philippines as of August 27, 2021.¹ The sample size was computed through a stratified random sampling technique. The following steps were applied:

- Step 1: Through the directory in the PSE edge website, the researchers were able to easily extract information on the industry classification per company. There are twenty-four subsectors that are grouped into nine major sectors. For the purpose of this study, "subsector" is used as the industry classification of the companies.
- Step 2: From twenty-four industry classifications, the researchers narrowed down the list by excluding (i) Other services, (ii) SME and/or Small, Medium & Emerging Board, and (iii) ETF–Equity industries because of (1) the difficulty in identifying the environmental sensitivity of the aforementioned industries and/ or (2) the

¹ PSE edge website: <https://edge.pse.com.ph/companyDirectory/form.do>. Accessed April 8, 2021.

immateriality in its count. The final population size is now 257 publicly-listed companies.

- Step 3: The Raosoft sample size calculator² was used with a 5 percent margin of error, 95 percent confidence level, 50 percent suggested response distribution, and 257 population size. The recommended sample size with Raosoft was 155 companies, or an equivalent of approximately 60 percent of the population size. From this, the equivalent sample size per industry classification was computed, rounded to the nearest integer, hence the use of stratified sampling technique.
- Step 4: The target population is the environmentally sensitive industry from the PSE website classification which is based on the sectors' sensitivity to the environment. This classification is supported by several studies notably by Kalash (2020), Fajarini and Triasih (2020), Welbeck et al (2017), and D'Amico et al. (2014). The aforementioned industry classification is also aligned with the study by Farooque, Ahulu, and Kotey (2014). Thus, five industry classifications were chosen as environmentally sensitive in this study.
- Step 5: After identifying the number of companies per industry, random sampling was applied in determining what companies were used in the study. To ensure that the chosen companies are a general representation of the population size, the companies included in the Philippine Stock Exchange Composite Index (PSEi) were made sure to be included. These are the Top 30 publicly listed companies based on full market capitalization and are selected to represent the general movement of the Philippine stock market.

In addition, the following criteria were considered for the purpose of determining the Subject Companies of the study:

- a. Have publicly available Relevant Reports (i.e., sustainability reports/annual reports) for the Covered Period at the time the researchers gathered data (30 August 30, 2023 to 13 September 13, 2023). Therefore, those companies who have Relevant Reports that are not available or no longer available on the PSE edge website or company website did not pass the criteria. Furthermore, companies should consistently have Relevant Reports from 2017 to 2021.
- b. For comparability purposes, companies with Relevant Reports that are reported or consolidated with their international counterparts did not pass the criteria.
- c. To address the issue of the sustainability reporting of holding companies and their subsidiaries or operating companies, only those companies with separate Relevant Reports for the Covered Period were included.

² <http://www.raosoft.com/samplesize.html>

Finally, of the recommended sample size of 155 publicly listed companies, only twenty companies are qualified to be “Subject Companies.” Table 1 shows a summary of the steps in estimating the sample size.

Table 1: Distribution of Sample Size Based on Industry

<i>Industry Classification</i>	<i>Original Count</i>	<i>Population Size</i>	<i>Recommended Sample size</i>	<i>Sensitive Industry Classification</i>	<i>Subject Companies</i>
	Step 1	Step 2	Step 3	Step 4	Step 5
1.Holding Firms	41	41	25	✓	7
2.Electricity, Energy, Power, Water	14	14	8	✓	4
3.Banks	16	16	10		
4.Property	39	39	24	✓	4
5.Mining	20	20	12	✓	3
6.Food, Beverage, Tobacco	26	26	16	✓	2
7.Telecommunications	3	3	2		
8.Other Financial Institutions	13	13	8		
9.Media	6	6	4		
10.Electrical, Components & Equip't	7	7	4		
11.Transportation Services	12	12	7		
12.Construction, Infra, Allied Services	12	12	7		
13.Information Technology	10	10	6		
14.Casinos & Gaming	9	9	5		
15.Retail	7	7	4		
16.Chemicals	6	6	4		
17.Hotel & Leisure	5	5	3		
18.Oil	4	4	2		
19.Education	4	4	2		
20.Other Industrials	3	3	2		
21.Other Services	8	Excluded	0		
22.Small, Medium, Emerging	5	Excluded	0		
23. SME	2	Excluded	0		
24.ETF-Equity	1	Excluded	0		
Total	273	257	155		20

In line with the study of Farooque, Ahulu, and Kotey (2014), this research also used twenty companies as its sample size. These twenty companies met the criteria set for the sample selection outlined in the current study. Further, considering that companies are required to have sustainability reporting only in 2019, and the study is focused on the environmental disclosures of PLCs from 2017 to 2021, this low sample size is justifiable.

The covered period for the study is five years. Since the SEC's Sustainability Reporting Guidelines for PLCs was released in 2019, the covered period will include two years prior to 2019 (2017 and 2018), the release year (2019), and two years after 2019 (2020 and 2021), for a total of five years. Before the release year of 2019, some companies were already preparing sustainability reports or sustainability notations in their yearly documents, thus it is worth including the two earlier years in the analysis.

Twenty companies within the five sectors of the environmentally sensitive industry, which have a complete five-year annual and/or sustainability reports, constituted the sample of this study and they are as follows:

1. Holding firms: Aboitiz Equity Ventures, Inc., Ayala Corporation, DMCI holdings, Inc., LT Group, Inc., Metro Pacific Investments Corporation, SM Investments Corporation, and Lopez Holdings Corporation
2. Electricity, Energy, Power & Water: First Gen Corporation, First Philippine Holdings, Corporation, Manila Water Company, Inc., and Pilipinas Shell Petroleum Corporation
3. Property: Ayala Land, Inc., Cebu Holdings, Incorporated, SM Prime Holdings, Inc., and Belle Corporation
4. Mining: Nickle Asia Corporation, Philex Mining Corporation, Semirara Mining and Power Corporation
5. Food, Beverage & Tobacco: Century Pacific Foods, Inc., and Roxas Holdings, Inc.

The names of the sample companies were not disclosed in the results and discussion section of this article for ethical reasons. Thus, the study analyzed a total of twenty companies with five years of annual and/or sustainability reports, for an aggregate of 100 documents. These 100 reports were scrutinized relative to financial and non-financial environmental disclosures, intending to yield 100 data sets for statistical manipulation.

The researchers manually evaluated the contents of the annual/sustainability reports (Badoc-Gonzales, Mandigma, and Tan 2020) of the Subject Companies for the Covered Period and checked the existence of the environmental disclosures through the lens of the GRI Standards that was launched in 2016 but only took effect in 2018, which is available for free on the GRI website.³ For the purpose of the study, aside from the thirty environmental

³ <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>. Accessed May 16, 2021.

disclosure items in the 2016 GRI Standards, disclosure on management approach per major category or topic was also included in the disclosure checklist, resulting in a total of thirty-eight disclosure items. These thirty-eight disclosure items were narrowed down to eight major categories or topics as follows: materials, energy, water, biodiversity, emissions, effluents and waste, environmental compliance, and supplier environmental assessment. A tripartite disclosure index or categorization was employed in determining the level of environmental disclosure of the Subject Companies for the Covered Period. This is aligned with and adopted from the study of Bhattacharyya (2014), where a score of two (2) is given if it has any disclosures of figures or tables of data (quantitative), one (1) if it discloses a short mention or discussion of the topic (qualitative), and zero (0) if it has no disclosure.

The tools employed are frequencies, percentages, mean, and standard deviations for the descriptive statistics, as well as RM-ANOVA and regression analysis for the inferential statistics. The data sets were also subjected to some tests of residuals to assess normality of data, presence of outliers, and collinearity between independent variables.

To test the hypothesis that there is no significant increase in the levels of environmental disclosures of the PLCs from 2017 to 2021, a one-way repeated-measures Analysis of Variance (RM-ANOVA) was necessary. Since this parametric test requires that the data come from a normally distributed population, the levels of disclosures from 2017 to 2021 were tested for normality using the one-sample Kolmogorov-Smirnov test. In this test, the null hypothesis is “the distribution is normal.” Hence, if the p-value associated with the test statistic is greater than 0.05, the null hypothesis is not rejected, that is, there is a significant departure from normality.

In conducting the RM-ANOVA, another assumption that needed to be satisfied is the assumption of sphericity or homogeneity-of-variance-of-differences. This assumption implies that the population variances of all possible difference scores are equal. SPSS version 20 computes Mauchly’s test of sphericity to verify if this assumption is satisfied. If the value of χ^2 is statistically significant, that is, with a p-value less than 0.05, the assumption of sphericity is violated. Since this assumption is violated, the epsilon values were used to adjust or correct the numerator and denominator degrees of freedom. In this study, the Huynh-Feldt correction was used because the highest epsilon value is greater than 0.75 (Field 2009).

For the independent variables firm size, age, leverage, ROA, and ROE, the means, standard deviations, minimum values, maximum values were presented to provide a descriptive summary. To determine if there is a significant relationship between the independent variables and the levels of environmental disclosures, preliminary tests to assess normality of data, presence of outliers, and collinearity between independent variables were conducted. The set of data that was gathered involved panel data involving twenty-six firms and five years. The normality of data was assessed using Jarque-Bera statistic, while the presence of outliers was determined by computing the standard scores and by examining the time-series plots. The presence of collinearity among independent variables was assessed using the values of bivariate correlations and the variance inflation factors or VIFs.

To test the different hypotheses of the relationship of four identified factors, namely firm size, age of the company, level of indebtedness (leverage), and profitability to the level of environmental disclosure, regression analysis was conducted. Since the data collected included both cross-sectional and time-series (or panel), the appropriateness of using either ordinary least squares (OLS) estimation method or generalized least squares (GLS) estimation method was determined using the results of the joint significance of differing group means (if the null hypothesis that the pooled OLS is adequate is rejected, fixed effects method will be used) and the Hausman test (if the null hypothesis that the random effects alternative is consistent is rejected, the fixed effects method will be used). Additionally, if White’s test indicates the presence of heteroskedasticity, the fixed effects method with robust standard errors will be utilized.

Results and Discussions

Objective 1

These are the companies that have their own sustainability reports or Relevant Reports and are consistently submitting reports from 2017 to 2021. Following the method by Bhattacharyya (2014), the extent to which the 20 Subject Companies disclose environmental data was computed and graphically presented using a line graph in Figure 2.

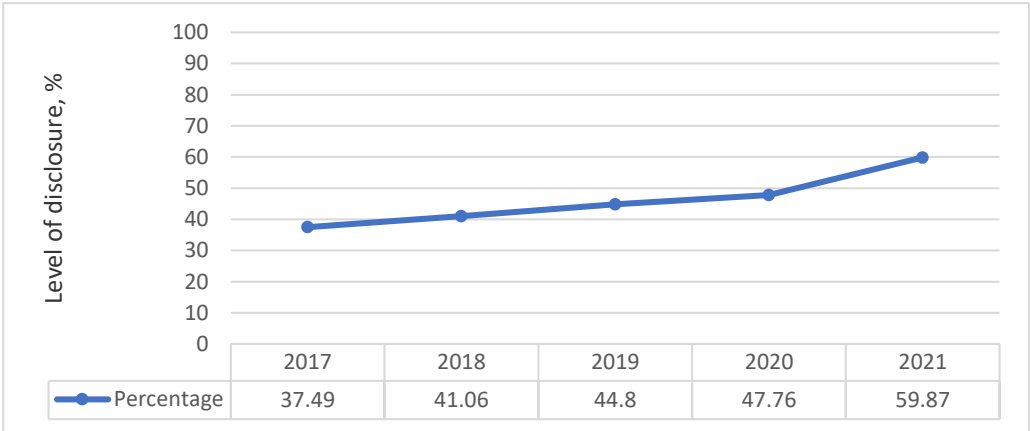


Figure 2: Average Level of Environmental Disclosure of PLCs (2017–2021)

A consistently increasing trend can be observed in Figure 2 in terms of the average level of environmental disclosures among the 20 Subject Companies. From an average of 37.49% in 2017, the level of environmental disclosure rose to 41.06% in 2018, 44.8% in 2019, and 47.76% in 2020. Very slight increases can be observed from 2017 to 2020 yearly. However, there was a notable shift in 2021, two years after the SEC guidelines were introduced, marked by a sudden and significant increase in the extent of environmental data presentation. The

discussion on the increases for the Covered Period is presented better in the succeeding section (Objective 2).

Table 2: Descriptive Summaries of the Level of Environmental Disclosures ($n = 20$)

<i>Years</i>	<i>Min %</i>	<i>Max %</i>	<i>Mean %</i>	<i>SD %</i>
2017	9.20	69.70	37.49	15.55
2018	15.80	68.40	41.06	15.29
2019	14.50	73.70	44.80	15.89
2020	27.60	73.70	47.76	13.29
2021	28.90	81.60	59.87	13.15

Table 2 provides the descriptive summaries of the line graph in Figure 2. Looking at the maximum level, results show a range of 68.40 percent to 81.60 percent, which is relatively high and above average considering that not all disclosures require quantitative discussion (score of 2) and are applicable to all companies. Meanwhile, the minimum level of environmental disclosure of the Subject Companies ranges from 9.20 percent to 28.90 percent. Companies with the lowest level of environmental disclosure per year do not adopt GRI Standards in their sustainability reporting.

The results show the level of environmental disclosures for the 20 Subject Companies from 2017 to 2021 relative to GRI Standards. The rationale behind the inclusion of this research objective is that it is important to know the reporting practice of the Philippine companies relative to a globally accepted sustainability reporting standard. Table 2 shows that the mean level ranges from 37.49 percent to 59.87 percent, which is relatively low. However, it is important to note that not all disclosure items enumerated in the 2016 GRI Standards, the instrument used in the study, are applicable to all Subject Companies from different industries (e.g., disclosure on significant spills is not always applicable for holding firms). Furthermore, not all disclosure items require a quantitative discussion, which is equivalent to a score of 2 for this study. These two limitations have a potential impact on the mean level for the Covered Period and are worth considering for future research. Thus, the result of this research objective suggests that government agencies and local/ international regulatory bodies should work on aligning sustainability reporting standards on a per-industry basis for a more relevant and comparable sustainability reporting practice of companies. An industry-specific sustainability reporting standard captures a more relevant picture of the sustainability practice of a company.

Objective 2

To evaluate effectiveness of the Guidelines, it must be determined if there is a significant improvement in the reported environmental data of the 20 Subject Companies from 2017 to

2021. A one-way repeated measures analysis of variance (RM-ANOVA) was deemed appropriate in this task. This parametric statistical inferencing technique compares several means when those means have come from the same subjects or participants (Field 2009). In this study, each of the 20 Subject Companies’ level of environmental disclosures for the Covered Period was assessed and compared to determine whether a statistically significant change in the disclosure levels has occurred over the five-year period.

Prior to running the statistical analysis using the software (SPSS version 29), it was necessary to check if the different assumptions of one-way RM-ANOVA were satisfied to ensure the validity of the results for the target population of PLCs. To determine if the assumption of normality of the dependent variable, that is, the levels of environment disclosures, was satisfied, the one-sample Shapiro-Wilk test was used because the data were less than 2,000. All the p-values were more than 0.05, hence, the null hypothesis indicating the condition of normality is not rejected. Therefore, it is concluded that the disclosure levels from 2017 to 2021 are normally distributed in the target population, and the data can be used for employing one-way RM-ANOVA.

Another important assumption is the sphericity assumption or homogeneity-of-variance-of-differences. This premise indicates that the variances of all possible difference scores are equal. SPSS version 29 computes Mauchly’s test of sphericity (see Table 3) to verify if this assumption is satisfied. Mauchly’s test, $\chi^2(9) = 21.202$, $p = 0.012$, as shown in Table 2, indicates the violation of the sphericity assumption. Since this assumption is violated, the epsilon values were used to adjust or correct the numerator and denominator degrees of freedom. Specifically, the Huynh-Feldt correction was used because the highest epsilon value is the highest at 0.705 (Field 2009).

Table 3: Mauchly’s Test of Sphericity^a (Measure: Disclosure Level)

Within Subjects Effect	Mauchly’s W	Approx. Chi- Square	df	Sig.	Epsilon ^b		
					Greenhouse- Geisser	Huynh- Feldt	Lower- bound
Year	.296	21.202	9	0.012	0.609	0.705	0.250

The Mauchly’s Tests has the null hypothesis that “the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.” Where:

- a. Design: Intercept; Within Subjects Design; Year; and
- b. May be used to adjust the degrees of freedom for the averaged tests of significance.

Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Table 4 presents the main table of repeated measures ANOVA aimed to draw evidence for statistical significance of mean difference among the target population for the 5 years of environmental disclosures. For simplicity purposes, some rows from the SPSS version 29 output were removed from the table.

Table 4: Tests of Within-Subjects Effects (Measure: Disclosure level)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Year	Huynh-Feldt	0.587	2.822	0.208	14.101	.000	0.426
Error (Year)	Huynh-Feldt	0.791	53.611	0.015			

Results in Table 4 indicate that at the 5% level, “the null hypothesis of no difference in the mean level of environmental disclosures from 2017 to 2021, $F(2.822, 53.611) = 14.101$, $p=0.000$ ”, is rejected. It is concluded that there is at least one year where the mean level of environmental disclosure is statistically different from the rest. Additionally, Table 3 indicates that the value of partial eta squared suggests that approximately 42.6% of the variance in the level of environmental disclosures can be attributed to time (or years).

As per the results in Table 4, there is sufficient statistical evidence to conclude a significant difference (or higher levels) in the mean environmental disclosure in at least one year compared to others. To find out in which year is the mean level of environmental disclosure significantly higher compared to other years, pairwise comparisons of mean disclosure levels were done. Results of this comparison test are presented in Table 5.

Table 5: Pairwise Comparisons Test Results

Year I	Year J	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
2017	2018	-0.036	0.021	1.000	-0.101	0.030
	2019	-0.073	0.038	0.686	-0.193	0.047
	2020	-.103*	0.029	0.024*	-0.196	-0.010
	2021	-.224*	0.041	0.000*	-0.353	-0.095
2018	2019	0.036	0.036	1.000	-0.152	0.078
	2020	-0.037	0.031	0.426	-0.165	0.031
	2021	-.188*	0.040	0.002*	-0.316	-0.060
2019	2020	-0.030	0.022	1.000	-0.099	0.040
	2021	-.151*	0.030	0.001*	-0.246	-0.056
2020	2021	-.121*	0.028	0.004*	-0.210	-0.032

^b Based on estimated marginal means

* Denotes that the mean difference is significant at the .05 level.

By looking at the mean differences in Table 5, it seems that there is an increase in the mean level of environmental disclosures among the 20 Subject Companies considered in this study. That is, the mean level in 2018 is 3.6% higher than in 2017; the mean level in 2019 is 3.6% higher than in 2018; the mean level in 2020 is 3.0% higher than in 2019 while the mean level in 2021 is 1.21% higher than in 2020. These increases, however, were not statistically significant at the 0.05 level, as indicated by significance values greater than 0.05 except for the increase in year 2021 from 2020 (5th column of Table 5).

Also, from Table 5, the mean level of environmental disclosures in 2021 is significantly different from all the years before it (2017 – 2020) since all the mean difference is associated with p-values (or significance) which are less than the 0.05 level. Additionally, it is concluded further that the mean level in 2021 is significantly above the mean level in the previous years. The same may be concluded for the year 2020 vis-à-vis year 2017.

The results of this research objective show that (1) companies who have been consistently reporting on their sustainability initiatives (which is the 20 Subject Companies), particularly on environmental sustainability, have an insignificant increase in their mean level of environmental disclosure on a year-to-year basis, and (2) the mean level of environmental disclosure of Subject Companies in 2021 is significantly higher than in 2017 - 2020. Based on the observations of the researcher, the rationale behind the insignificant increase in the mean level of environmental disclosures by the Subject Companies on a year-to-year basis is that most of the Subject Companies have consistently adopted GRI standards in their sustainability report. Hence, these companies, even before the release of the SEC memo, already have a formal standard that guides them in disclosing environmental information for the Covered Period. Meanwhile, some companies have only adopted a formal sustainability standard (i.e., GRI) starting 2019 after the release of the SEC memo. On the other hand, the rationales behind the significant increase in the mean level of environmental information in 2021 are (1) not all of the Subject Companies have adopted GRI standards in reporting sustainability in years 2017–2020, but have already adopted the said standard come 2021 due to the release of the SEC memo and (2) the summation of the insignificant year-to-year increase in the mean level of environmental disclosure from 2017 to 2020. Therefore, based on the findings for this research problem, the null hypothesis 1 (Ho1) of this paper which states that there is no improvement in the amount of reported environmental data by PLCs after the release of the SEC Sustainability Reporting Guidelines is not supported.

Objective 3

This section presents the results of the hypothesis testing produce to determine if there is a significant relationship between the other independent variables, namely, sector, firm size, age of the firm, leverage, and profitability (measured using ROE or ROA), and the criterion variable level of environmental disclosure. Prior to panel data regression analysis, the

correlation coefficients between the predictor variables were assessed to detect the presence of possible collinearity between the predictors.

Table 6 presents the descriptive summaries of the different variables under consideration, while Table 8 shows the correlation coefficients between the different predictor variables. Before conducting the test for coefficient correlation, the data were tested for normality (Table 7).

Table 6: Descriptive Summaries of the Independent Variables

<i>Areas</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
Firm Size 2017	2.06 x10 ⁷	1.02 x10 ⁹	3.33 x10 ⁸	3.34 x10 ⁸
Firm Size 2018	2.55 x10 ⁷	1.20 x10 ⁹	3.71 x 10 ⁸	3.88 x10 ⁸
Firm Size 2019	2.19 x10 ⁷	1.35 x10 ⁹	4.04 x10 ⁸	4.33 x10 ⁸
Firm Size 2020	1.40 10 ⁷	1.41 x10 ⁹	4.23 x10 ⁸	4.59 x10 ⁸
Firm Size 2021	1.27 x10 ⁷	1.35 x10 ⁹	4.51 x10 ⁸	4.86 x10 ⁸
Age 2017	4.00	87.00	37.40	23.31
Age 2018	5.00	88.00	38.40	23.31
Age 2019	6.00	89.00	39.40	23.31
Age 2020	7.00	90.00	40.40	23.31
Age 2021	8.00	91.00	41.40	23.31
Leverage 2017	0.27	0.79	0.51	0.12
Leverage 2018	0.27	0.79	0.52	0.12
Leverage 2019	0.27	0.80	0.52	0.13
Leverage 2020	0.29	0.81	0.53	0.13
Leverage 2021	0.30	0.80	0.51	0.13
ROE 2017	0.01	0.38	0.13	0.08
ROE 2018	0.01	0.30	0.13	0.06
ROE 2019	-0.21	0.22	0.11	0.09
ROE 2020	-0.68	0.18	0.00	0.23
ROE 2021	-0.18	0.36	0.11	0.11
ROA 2017	0.01	0.21	0.07	0.05
ROA 2018	0.00	0.17	0.06	0.04
ROA 2019	-0.09	0.13	0.05	0.04
ROA 2020	-0.27	0.11	0.01	0.09
ROA 2021	-0.07	0.23	0.06	0.07

The test for normality that was used was Shapiro Wilks test because the data is less than 2000. Results are shown below.

Table 7: Normality Test with Shapiro Wilks Test

<i>Areas</i>	<i>Statistic</i>	<i>df</i>	<i>Sig.</i>	<i>Interpretation</i>
Disclosure level	0.980	96	0.152	normal
Firm Size	0.830	96	0.000	not normal
Age	0.937	96	0.000	not normal
Leverage	0.966	96	0.013	not normal
ROE	0.635	96	0.000	not normal
ROA	0.792	96	0.000	not normal

Ho of the normality test is “The data is Normal.” Since the sig value for Disclosure Level is more than 0.05 then we support the null hypothesis and say the data is normal. However, for the predictor variables, the p values are less than 0.05; hence, the data are not normal. Furthermore, since not all of the variable to be used in the correlation are normal, then we are compelled to employ nonparametric correlation, specifically Spearman Rho Correlation (Table 8).

Table 8 Spearman Rho Nonparametric Correlations

<i>Variables</i>	<i>Disclosure Level</i>	<i>Firm Size</i>	<i>Age</i>	<i>Leverage</i>	<i>ROE</i>	<i>ROA</i>
Disclosure Level	--					
Firm Size	0.026	--				
Age	-0.060	0.068	--			
Leverage	-0.055	0.464**	0.283**	--		
ROE	-0.099	-0.019	- 0.413**	- 0.216**	--	
ROA	-0.054	-0.159	- 0.483**	- 0.527**	0.902**	--

** Correlation is significant at the 0.05 level (2-tailed)

As shown in Table 8, log firm size is significantly and positively correlated to leverage ($r = 0.464$) while leverage is significantly and negatively correlated to ROE ($r = -0.216$) and ROA ($r = -0.527$). Age is also significantly and positively correlated to leverage ($r = 0.283$), but significantly and negatively correlated to ROE ($r = -0.413$), and ROA ($r = -0.527$). It is observed that some of the predictors are strongly correlated with each other, that is, ROE and ROA have a positive correlation coefficient of 0.902 which is significant.

Regression Results

To determine if a significant association exists between the actors such as sector, log firm size, age, leverage, ROA, and ROE and the criterion variables level of disclosure, regression analysis was used. Table 9 shows the initial regression results.

Table 9: Regression Analysis (Initial)

Predictors	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i>	Collinearity Statistics	
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			<i>Tolerance</i>	<i>VIF</i>
(Constant)	-0.280	0.297		-0.942	0.349		
Year_2018	0.031	0.043	0.076	0.721	0.473	0.625	1.600
Year_2019	0.058	0.043	0.143	1.354	0.179	0.619	1.616
Year_2020	0.071	0.045	0.175	1.560	0.123	0.549	1.820
Year_2021	0.225	0.044	0.534	5.115	0.000	0.633	1.580
Ln_Firm	0.051	0.018	0.430	2.816	0.006	0.296	3.380
Age	-0.001	0.001	-0.094	-0.890	0.376	0.618	1.619
Leverage	-0.427	0.163	-0.333	-2.618	0.011	0.425	2.356
ROE	0.237	0.381	0.197	0.624	0.535	0.069	14.515
ROA	-1.225	0.891	-0.465	-1.376	0.173	0.060	16.553
Holding	-0.116	0.073	-0.341	-1.601	0.113	0.151	6.602
Power	0.064	0.063	0.152	1.019	0.311	0.311	3.210
Property	0.031	0.062	0.076	0.498	0.620	0.299	3.347
Mining	0.046	0.063	0.101	0.726	0.470	0.354	2.823

**F = 4.704, $p < 0.001$, R-Square = 0.421

The presence of collinearity between predictors was verified further using the variance inflation factors (VIFs). As a result, ROE and ROA were not included together as predictors in a model since the presence of both results to a VIF greater than 10, which indicates the presence of multicollinearity among predictors. This initial model is problematic since there is a multicollinearity and the remedy is to remove the variable with the highest VIF (ROA = 16.553).

The succeeding model has no problem with multicollinearity but has predictors that are not significant (p value > 0.05). To come up with a more parsimonious model we removed insignificant predictors one at a time starting with that with the highest p value.

The final model has no predictors that have multicollinearity issue and p values that are not significant. However, the residuals were assessed for normality using Shapiro-Wilk statistics which shows that the residuals were normally distributed (Shapiro-Wilk = 0.986, sig. = 0.403). The residuals were also evaluated to determine if there were significant outliers using Cooks Distance test, which showed that the maximum value is 0.237 (lower than the threshold of 0.50), representing no problem of severe outliers. Additionally, tests such as Breush-Pagan (p -value = 0.2124) and Harrison-McCabe (p -value = 0.6384) for heteroscedasticity showed that p -values are greater than 0.05, providing statistical evidence of homoscedasticity. The final model is presented in Table 10.

Table 10: Regression Analysis (Final Model)

Predictors	Unstandardized Coefficients		Standardized Coefficients	t	P	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-0.526	0.252		-2.086	0.040		
Year_2021	0.178	0.035	0.421	5.095	0.000	0.995	1.005
Ln_Firm	0.066	0.015	0.556	4.332	0.000	0.412	2.430
Leverage	-0.408	0.132	-0.319	-3.092	0.003	0.639	1.565
ROE	-0.280	0.109	-0.233	-2.571	0.012	0.829	1.207
Holding	-0.172	0.038	-0.503	-4.516	0.000	0.547	1.830

**F = 11.063, p< 0.001, R-Square = 0.375

Association of Sector with Amount of Environmental Disclosure

Holdings is significant among the sector (with negative coefficient), indicating that the sector Holdings has lower disclosure when compared to other sectors. Also, using the variable ‘year,’ we observe that year 2021 is significant with a positive coefficient, indicating that the disclosure in 2021 is significantly higher than in other years. This observation is also in support of the Repeated Measure (RM) ANOVA in research objective No. 2.

Therefore, based on the results in Table 9 for this research problem, the null hypothesis 2a (Ho2a) of this paper which states that “the sector to which the firm belongs is not significantly associated with the amount of environmental disclosure” is supported except for the Holdings sector. This finding may be supported by the Stakeholder Theory, where the quality of environmental data reported by businesses is affected by the its sector classification and the degree of environmental involvement and pressure from their key stakeholders (Sinclair-Desgagné and Gozlan 2003, as cited in D’Amico et al. 2014; Verawaty, Jaya, and Widianingsih 2018).

Association of Firm Size with Amount of Environmental Disclosure

The null hypothesis 2b (Ho2b) of this paper which states that “the firm size is not significantly associated with the amount of environmental disclosure” is not supported. This is in line with the findings of D’Amico et al. (2014); Lu and Abeysekera (2014); Mohamed (2015); Ohidoa, Omokhudu, and Oserogho (2016); Chandok and Sing (2017); Welbeck et al. (2017); Vogt et al. (2017); Hermawan et al. (2018); Fajarini and Triasih (2020); Kalash (2020); Tubay and De Leon (2020) However, this is contradicted by Kouloukoui et al. (2018), and Verawaty, Jaya, and Widianingsih (2018). One way to interpret their finding is through the stakeholder theory which suggests that regardless of the size of the company, stakeholders would still want to know the environmental impacts and initiatives of their business operation. Meanwhile, Omnamasivaya and Prasad (2016) and Hidayah, Badawi, and Nugroho (2019) show that company size has a negative relationship with environmental disclosure. For future

research, other firm size indicators or metrics could be used, such as but not limited to total sales and stock market value.

Association of Firm Age with Amount of Environmental Disclosure

The null hypothesis 2c (Ho2c) of this paper which states that “the firm’s age is not significantly associated with the amount of environmental disclosure” is supported. This is in accordance with the studies of D’Amico et al. (2014); Mohamed (2015); Fajarini and Triasih (2020); Tubay and De Leon (2020). However, this finding is contradicted by the studies of Welbeck et al. (2017); Chandok and Singh (2017); and Wahyuningrum, Sri, and Budihardjo (2018). This is supported by legitimacy theory which claims that the older the company, the higher the possibility that it has taken higher involvement in social responsibility because of its awareness of the benefits (Mohamed 2015). Further to this, company age can be associated with the legitimacy theory under the context that its existence is something that was given and supported by society (Fajarini and Triasih 2020).

Association of Financial Leverage with Amount of Environmental Disclosure

The null hypothesis 2d (Ho2d) of this paper which states that “the firm’s financial leverage is not significantly associated with the amount of environmental disclosure” is not supported. This is in line with the findings of Sulaiman, Abdullah, and Fatima (2014), D’Amico et al. (2014), Omnamasivaya and Prasad (2016), and Kalash (2020) where highly leveraged companies tend to report enhanced environmental data to satisfy the expectations of their creditors. Kouloukoui et al. (2019), on the other hand, showed a negative association. Further to these contradictory findings, several studies claimed no association between the aforementioned variables (Chaklader and Gulati 2015; Ohidoa, Omokhudu, and Oserogho 2016; Chandok and Singh 2017; Fajarini and Triasih, 2020).

As green financing continues to rise and be a trend (Cai and Guo 2021), and as portfolio managers and research analysts consider environmental, social, and governance issues when investing (CFA Institute 2018), this research finding is important. This implies that the companies are taking necessary actions and initiatives to promote green financing or integrate environmental sustainability into their financing and lending programs. Furthermore, this finding suggests that with the continuous shift on how third parties make investment decisions and analyses, companies are also working on aligning and meeting the demands of these third parties.

Association of Profitability with Amount of Environmental Disclosure

The null hypothesis 2e (Ho2e) of this paper which states that “the firm’s profitability is not significantly associated with the amount of environmental disclosure” is not supported because the panel regression analysis shows significant negative association with profitability

measure ROE. This is corroborated by Makari and Jagongo (2013), Akbaş (2014), and Chandok and Singh (2017). On the other hand, Hardiningsih et al. (2020) opined that sustainability disclosures improve the firms' financial performance because stakeholders respond positively to these companies. Meanwhile, this is contradicted by multiple studies which failed to show any relationship between profitability and environmental disclosure (D'Amico et al. 2014; Sulaiman, Abdullah, and Fatima 2014; Chaklader and Gulati 2015; Mohamed 2015; Welbeck et al. 2017; Vogt et al. 2017; Verawaty, Jaya, and Widianingsih 2018; Fajarini, and Triasih 2020; Kalash 2020; Tubay, and De Leon 2020). This finding can be interpreted as indicating that highly profitable companies may not feel compelled to disclose environmental information, having already achieved financial success (Verawaty, Jaya, and Widianingsih 2018). For future research, other profitability indicators or metrics could be used, such as but not limited to net profit margin, operating income, net income, ROI, EPS, to support or contradict the finding of this study.

Conclusions and Recommendations

The study analyzes the environmental disclosures of Philippine PLCs for a 5-year period from 2017 to 2021. This paper offers an analysis of the environmental disclosures of PLCs, the determination if selected firm attributes (i.e., industry type, firm size, age, financial leverage, and profitability) affect the amount of reported environmental data, and an evaluation of the efficiency of the SEC memorandum on sustainability reporting.

The release of the SEC memo not only resulted in a drastic increase in the sustainability reporting of PLCs starting 2019, but also an improvement on the amount of the reported environmental data of the Subject Firms, with slight increases observed from 2017 to 2020 yearly. However, in 2021, two years after the SEC guidelines, there was an abrupt increase in the level of environmental disclosures. These findings demonstrate the effectiveness of the recently released memorandum by the SEC in promoting sustainability.

Another observation made by the researcher concerns the inconsistency in the reporting practice of PLCs regarding their interpretation of GRI disclosure items. This finding is crucial since the information in the reports will be misleading and will cause misrepresentation to its readers. It also defeats the concept of comparability. Therefore, companies should take the initiative in conducting trainings and seminars on sustainability reporting to familiarize their personnel with the GRI standard. It should be treated in the same manner as financial reporting; wherein consistent and regular trainings are conducted to be updated and knowledgeable on the latest standard and practice.

With regards to the relationship between selected firm attributes (i.e. sector, firm size, age, financial leverage, and profitability) and the amount of environmental disclosure, findings reveal that size has a positive association, unlike financial leverage, profitability in terms of ROE, and the sector Holdings, which are negatively associated with the level of

environmental disclosure. Meanwhile, firm age and the other sector classifications of firms have no significant association with the amount of the reported environmental data. These findings imply that with more attention, potential public scrutiny, and required disclosures imposed by their stakeholders, environmentally sensitive companies must be compelled to disclose more environmental information. As these companies have a more significant environmental impact and pose a greater threat, various local and international agencies should impose multiple pertinent and applicable environmental laws (e.g., DOE Regulations, Philippine Mining Industry Regulations, International Maritime Organization Regulations, etc.). As previously mentioned, for a more relevant and comparable sustainability reporting practice, government agencies and local/international regulatory bodies should work on aligning sustainability reporting standards on a per-industry basis rather than using a single template or standard across all industries.

Meanwhile, the negative association of financial leverage with the amount of environmental disclosure, is crucial for investors, lenders, other financial institutions, and relevant regulatory bodies. This implies that necessary actions and further initiatives should be established by these stakeholders in promoting green financing or integrating environmental sustainability into their financing and lending decisions. Furthermore, this finding suggests that with the continuous shift (i.e., how environmental, social, and governance (ESG) issues were considered) on how third parties make investment decisions and analysis, companies should also work on aligning and meeting the demands of these third parties. Regarding the negative relationship between profitability and environmental disclosure, this may imply that highly profitable companies feel that disclosing environmental information may not be a priority given their financial success.

To conclude, the level of environmental disclosure is driven by multiple factors – both external and internal factors. Stakeholders, such as but not limited to, government agencies, regulatory bodies, investors, and funding agencies all play a crucial role in driving the performance of companies with regards to their sustainability practices. As initially mentioned, with the release of the SEC memo in 2019 on the sustainability reporting guidelines of PLCs, both the sustainability reporting practice and the level of environmental disclosure of PLCs have increased. Due to this regulatory requirement or mandate, PLCs are motivated and compelled to report on their sustainability practices. Another external factor that affects the amount of reported environmental data is the absence of an industry-specific standard. On the other hand, the internal variables that significantly affect the amount of reported environmental data include firm attributes such as industry type, age, and profitability.

Thus, companies should take initiatives in improving and enhancing their sustainability practices. Companies should go beyond what is asked to disclose in the SEC template, by disclosing relevant information from various sustainability standards. Furthermore, to address the issues of inconsistency in the reporting practices of PLCs regarding their interpretation of GRI disclosure items, companies should take the initiative to conduct

trainings and seminars on sustainability reporting, familiarizing their personnel with various sustainability standards. SEC has initiated the uniform interpretation of the GRI Standards that can serve as a guide to companies. As for the measurement tools and metrics used in determining the independent variables in the study, specifically on firm size, age, financial leverage, and profitability, a different set of metrics, ratios or indicators could be used. Lastly, a conscious effort is needed from companies to address issues not only on the environmental facet of sustainability, but on other sustainability aspects as well.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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