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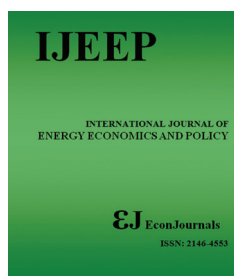
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Website Sustainability Disclosure Analysis: A Case of Publicly-Listed Mining Companies in the Philippines

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ABSTRACT

This study determined whether the mining company's age, size, profitability and location of mining operations caused differences in level of their sustainability disclosure. Additionally, correlation among these variables is tested. The level of sustainability disclosure was measured using content analysis whereas the age, size, profitability and location are from financial statements and databases. The significant difference was tested using Kruskal Wallis while correlation was tested using Spearman Correlation. The result showed that the differences in the level of disclosures are statistically significant in terms of their sizes and that sustainability disclosures and the size is significantly and positively correlated.

Keywords: Website Disclosure, Mining Company, Sustainability

JEL Classifications: Q53, Q56

1. INTRODUCTION

The Philippines is known to be rich in natural resources and in terms of undiscovered minerals like gold and copper, it is one having the biggest deposits (Herrera, 2012). This is also one reason why countries around the archipelago have an interest in some of the Islands of the Philippines like the Scarborough shoal (Jennings, 2017; Placido, 2018). In 2011, the mineral reserves were estimated to be about 7.1 billion tons and 51 billion tons of 13 known metallic and 29 non-metallic minerals respectively (Alyansa Tigil Mina [ATM], 2011a. p. 5). The extent of these natural resources had warrant the Philippine government to draft policies and regulations that will maximize the mining operations in the Philippines. Mining Act of 1995 (RA 7942) is the one that liberalized the mining policy of the Philippines which opened to foreign investments either public or private lands (Alyansa Tigil Mina ATM, 2011a. p. 7). In 2004, Executive Order EO 270-A made the mining industry to be the priority industry in the Philippines (Baguilat, 2011). This served as aggressive promotion to intensify mining operations. Decades after, it seems that mining companies

have enjoyed so much making a profit out of environment. But, some may have forgotten to maintain and save the environment that helped them achieve their business objectives. In a case study made about the sustainability and mining in the developing world like Philippines, Kumah (2006) found that the mining operations (e.g., gold mining) in developing countries does not provide benefit to the communities around it. This maybe the same case in Philippine as evidenced by various accidents, catastrophe and tragedy occurred which may have caused by irresponsible mining (Catindig, 2018; Cellona, 2018; Talabong and Tizon, 2018). Thus, various groups of not only environmentally-inclined are focusing their eyes to mining companies and would like to make sure that they do their fair share in saving the environment (Esguerra, 2018; Torres, Jr., 2018). Since we are not in the mining operations on a daily basis, there must be a way to document and communicate how these companies protect the environment and one is the Sustainability Reporting.

Sustainability Reporting is required by Global Reporting Initiative (GRI) which discloses the triple bottom line namely: Financial,

social and environmental. However, various researchers have raised their concern about the GRI-based sustainability reporting. Gray and Milne (2002) said that in presenting triple bottom line, there will be an essential conflict that will arise between financial and other bottom lines, and for the foreseeable future, financial will always win. They further argued that sustainability reporting requires more complex and detailed analysis of the company's interaction with the ecological systems, resources, habitats and societies and interpreting all this in the view of all other organizations. This argument was supported by Moneva et al. (2006) who claimed that GRI approach for sustainability reporting may lead to concealment of the company's being un-sustainable. With too much focus to prepare sustainability reporting to disclose the specific sustainability issues of the company, there is a risk of losing sight the big picture of what sustainability is. Other researchers have similar arguments which collectively warns that using sustainability reporting will lead to unsound decision making (Aras and Crowther, 2008; Byrch et al., 2007; Crowther et al., 2006; Laine, 2005; McElroy et al., 2008; Morhardt, 2009). This sustainability reporting may result into negatives consequences and conflicts if low quality information are presented there (Murguia and Bohling, 2013).

Therefore, this study has used to analyse the content of corporate websites of mining listed companies in the Philippines as of the end of year 2017. The websites are flexible enough to provide more comprehensive, flexible and at times, interactive way of disclosing their sustainability activities.

The paper aimed to determine whether there is a significant difference in the content of website disclosure about sustainability efforts of mining companies in terms of their size, age, profitability and geographical location. Also, this aimed to determine if correlation exists among size, age, profitability, geographical location and website disclosures.

This will cover all the Philippine mining companies listed in the Philippines Stock Exchange as of December 31, 2017 because the audited financial statements for 2018 are not yet available for all the mining companies.

2. THEORETICAL FRAMEWORK

The corporate reporting, be it financial, economic, social and sustainability can be explained by a number of theoretical frameworks. In the point of view of accountant who is the one generally preparing corporate report; this can be explained by Positive Accounting Theory (PAT) (Belkaoui and Karpik, 1989; Milne, 2002; Ness and Mirha, 1991). As compared with normative accounting theory which discusses the things that normally done and included in the report, PAT stating what should be the done and included in the report. However, the theories that is widely used to explain sustainability reporting is legitimacy theory and stakeholders theory (Gray et al., 1995a; Milne, 2002; O' Dwyer, 2003). Legitimacy theory is central to the social contract which states that all companies have contracts with society (Dowling and Pfeffer, 1975; Mathews, 1993; Shocker and Sethi, 1974). This contract is based on the expectations of the society from

the company and such expectations are dynamic which could change overtime (Islam and Craig, 2008). The company is treated as legitimate if it fulfils its responsibility to and expectations of society (Woodward et al., 1996; Deegan and Jeffry 2006). In stakeholder's theory, it divided the whole society having an expectation from the company into different groups called stakeholders. Such theory provides the mechanism that will hold companies to be accountable of their actions and consequently affect items currently accounted for (Lodia, 2002). According to Freeman and David (1983) stakeholder of the firm is defined as "any identifiable group or individual who can affect the achievement of an organization's objectives." The corporate behaviour on the other hand, is explained by institutional theory (Oliver, 1991). This provides explanation why particular organization practices have been adapted by organization (Deegan, 2009).

3. REVIEW OF RELATED LITERATURE

A number of past studies have been made about the use of the web to communicate the sustainability efforts of a company (Adams and Frost, 2004; Andrew, 2003; Campbell and Beck, 2004; Cooper, 2003; Cormier and Magnan, 2003; Coupland, 2005, 2006; Craven and Otsmani, 1999; Jones et al., 1999; Patten, 2002; Patten and Crampton, 2004; Rikhardsson et al., 2002; Unerman and Bennet, 2004; Williams and Pei, 1999). The most recent researches with the use of the web is from Carvalho et al. (2018), Gill et al. (2008), Joseph (2010), Joseph et al. (2014), Joseph and Taplin (2011), and Lodia (2002; 2012; Lodhia 2014). The methodology used in analysing web disclosures varies. According to Joseph and Taplin (2011), there are two ways to measure the disclosures. First is the checking the disclosure abundance and the second one is checking the disclosure occurrence. The disclosure abundance or content analysis is way of measuring the quantity or volume of disclosures listed in the list (Mcmillan, 2000; Milne and Adler, 1999; Smith and Taffler, 2000). For example, we are looking for a disclosure about the word "sustainability." Disclosure abundance measurement is made by counting the number of times the word "sustainability" was used or the number of sentences it was used. The prior literature used the number of sentences as a common unit of measurement for disclosure abundance (Buhr, 1998; Hackston and Milne, 1996; Haseldine et al., 2005; Thompson and Zakaria, 2004; Walden and Schwartz, 1997; Williams and Pei, 1999; Yapa et al., 2005). Disclosure occurrence measures not the times the term was used but only determining if the term was used, even once. The literature called this as disclosure index. The value of measurement can either be 0 if not used and 1 if used regardless if how many times it was used (Campbell et al., 2006; Cormier and Gordon, 2001; Esrock and Leichty, 1998; Patten and Crampton, 2004; Unerman and Bennet, 2004).

Carvalho et al. (2018) studied the level of sustainable development information disclosed in the corporate website of certified Portuguese organizations. Their results showed that the sampled companies have clearly demonstrated to their stakeholders the sustainability development they are doing by incorporating them on their strategy statements and policies. However, the company websites are not properly used fully to disclosure these sustainability development efforts to all its stakeholders. More than

the website use to disclose sustainability, this result was consistent with Murdin et al. (2019) who found out that Nickel Mining Company in Indonesia does not fully optimized the environmental disclosure analysis.

In another content analysis for Malaysian Authorities made by Joseph (2010), she noted that 92.1% of the samples are not promoting environmental issues in their websites. This means that they are not using fully their websites to communicate such issues. Further, 97.1% are not reporting financial environmental information. This construed as lack of transparency on that aspect. On the aspect of social issues, 90.6% are not promoting this on their websites while 99.3% did not disclose their partnerships with NGOs. These entities maybe having a hard time converting to monetary terms their environmental and social efforts which contributed to not disclosing such information. Surprisingly, 92.1% did not report financial information under economy category despite the fact that this is normally expressed in monetary terms. Clearly, there is a lack of information disclosure provided by their respective websites. This study was extended to Malaysian Hotel websites by Joseph et al. (2014). Their results showed that in average, only 14.7% disclosure of sustainability information was made by these hotels. This indicate that hotels in Malaysia are just starting to use the websites for sustainability communication. The large portion of sustainability information disclosed is under the economic category followed by social then lastly environment. This is in contrary with Gill et al. (2008) who have performed web content analysis for North American, European and Asian Firms. In the process, their team had developed a software purely dedicated only to perform such web content analysis. The results of this automated content analysis found that information disclosed about social, environmental and economic factors are not balance. All of them, even coming from different continents of the world has a larger focused on environmental indicators as compared to others. Their finding is similar with Collison and Lorraine (2003) who noted that there is a lack of direction and substance across there three sustainability indicators.

3.1. Research Gaps

Lodia (2010) has argued that web-based sustainability communication should not focus only on the content analysis of the disclosures. To address this, this paper will extend beyond knowing the level of disclosures provided but to know how company disclosures differs from each other in terms of size, age, profitability and geographical location; and also to know if this disclosure is correlated to any variables. Variables such as size and profitability were adopted from Tagesson et al. (2009) who studied the determinants of social disclosures in corporate websites while geographical location is from Carvalho et al. (2018). Both of these studies used regression as methodology because their data used are parametric in nature.

Also, coming from the conclusion of Carvalho et al. (2018) which was made very recently, still, the companies are not maximizing the potential of World Wide Web in communicating its sustainability actions. Thus, this paper through the use of different set of samples will increase and further support the current literature and eventually influence companies to use properly their websites as avenue of communication by knowing its drivers.

3.2. Conceptual and Operational Framework

Hypotheses

Using the operational framework in Figure 1, the following hypotheses will be tested:

- H_{o1} – There is no significant difference in the website disclosure in terms of company size
 H_{a1} – There is a significant difference in the website disclosure in terms of company size
 H_{o2} – There is no significant difference in the website disclosure in terms of company age

Figure 1: Operational framework

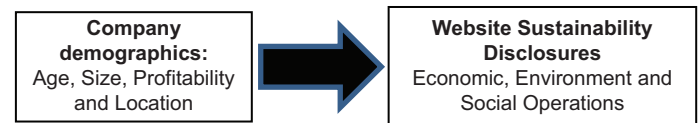


Table 1: Disclosure checklist

No.	A. Environment
1	General statement or policy - energy efficiency, water, waste, green product, biodiversity, etc.
2	Any mention about environment in the mission statement, vision, objectives, and other forms e.g., logo, motto or theme
3	Any strategy related to environment issue e.g., recycling, environment control, landscape, beautification, energy saving etc.,
4	Environmental activities or programs for example, Recycling and other Green Initiatives
5	Promotion of environmental issues e.g., news etc.,
6	Stakeholders engagement on environmental issue by forum twitter, Facebook
7	Award
8	Individual department
9	Contact information
No.	B. Social
1	General statement or policy e.g., occupational, safety and health policy
2	Any mention about social in the mission statement, vision, objectives and in other forms e.g., logo, motto or theme
3	Any strategy related to social issue e.g., health, staff training, safety etc.,
4	Community engagement
5	Committee
6	Promotion of social issues via news
7	Stakeholders engagement on social issue by forum, twitter, Facebook
8	Local employment/job opportunities
9	Award
10	Individual department
11	Contact information
No.	C. Economy
1	General statement or policy - e.g., commitment towards investors, stakeholders, partners, owners
2	Any strategy related to economy issue
3	Economy activities or programs
4	Economy services
5	Promotion of economy issues
6	Stakeholders engagement on economy issue by forum, Twitter, Facebook
7	Financial information
8	Award
9	Individual department
10	Contact information.

- H_{a2} – There is a significant difference in the website disclosure in terms of company age
- H_{o3} – There is no significant difference in the website disclosure in terms of company's profitability
- H_{a3} – There is a significant difference in the website disclosure in terms of company's profitability
- H_{o4} – There is no significant difference in the website disclosure in terms of geographical location
- H_{a4} – There is a significant difference in the website disclosure in terms of geographical location
- H_{o5} – There is no significant correlation exist among website disclosure, company size, company age, company profitability and geographical location
- H_{a5} – There is a significant correlation exist among website disclosure, company size, company age, company profitability and geographical location.

3.3. Method of Data Collection and Analysis

This case study of mining listed companies in the Philippines will be quantitative in nature. The population consists of 20 companies under the mining sector in the Philippines for 2017 as listed in the Philippine Stock Exchange website. No sampling technique will be used as the researcher will test all of those 20 companies.

Disclosure abundance or widely known as content analysis was used to measure the disclosure level of websites (Buhr, 1998; Hackston and Milne, 1996; Haseldine et al., 2005; Thompson and Zakaria, 2004; Walden and Schwartz, 1997; Williams and Pei, 1999; Yapa et al., 2005). Gill et al. (2008) explained that content analysis can be further classified into automated and manual. Automated is using a software application that was built to do such content analysis. This is preferred because manual is generally taking too much time and this is prone to errors because of fatigue, misapplication and normal human nature. Nevertheless, the researcher used manual content analysis because of the cost involved and the expertise needed in making a software application.

The content analysis checklist used here is the one used by Joseph et al. (2014) with minor revision to put it in the context of responsible mining. This is shown in Table 1 below. The score of each line item will be aggregated to derive the score of each group (environmental, social and economic).

The company size and profitability is measured using the natural logarithm of total assets and natural logarithm of net income respectively, and as both reported in the financial statements. The company age is based on the number of years the company is in existence while geographical location is the place where the mining operation is located. Both are gathered directly from the public websites of the regulatory agencies such as Securities and Exchange Commission, Philippine Stock Exchange, the company's Notes to Financial Statements and database such as Compustat.

Before testing the significant difference among the website disclosures, the researcher has tested the normality of distribution of the data using Shapiro-Wilk normality test. This enabled the researcher to determine which statistical tool to use in testing the significant difference. As a result Kruskal-Wallis Test was used. This is a non-parametric tests used to test significant differences of observations that are not normally distributed. In addition, cluster analysis was used to have a reasonable grouping for size, age and profitability before testing the significant difference. Not doing the cluster analysis will result into 20 groups to be compared because size, age and profitability are continuous variable. In testing the correlation among the variables, Pearson Correlation was used because the data is non-parametric. The list of publicly-listed mining companies used here is shown in Table 2.

4. RESULTS AND DISCUSSION

Table 3 below showed the descriptive statistics of the continuous variables. In average, the companies studied are in operation for almost 48 years with 6 years old being the youngest and 115 years

Table 2: List of publicly-listed mining companies in the Philippines

Observation no.	Name of the company	Ticker in Philippines stock exchange
1	Abra Mining and Industrial Corporation	AR
2	Apex Mining Co., Inc.	APX
3	Atlas Consolidated Mining and Development Corporation	AT
4	Atok-Big Wedge Co., Inc.	AB
5	Benguet Corporation	BC
6	Century Peak Metals Holdings Corporation	CPM
7	Coal Asia Holdings Incorporated	COAL
8	Dizon Copper-Silver Mines, Inc.	DIZ
9	Geograce Resources Philippines, Inc.	GEO
10	Global Ferronickel Holdings, Inc.	FNI
11	Lepanto Consolidated Mining Company	LC
12	Manila Mining Corporation	MA
13	Marcventures Holdings, Inc.	MARC
14	NiHAO Mineral Resources International, Inc.	NI
15	Nickel Asia Corporation	NIKL
16	Omico Corporation	OM
17	Oriental Peninsula Resources Group, Inc.	ORE
18	Philex Mining Corporation	PX
19	Semirara Mining and Power Corporation	SCC
20	Untied Paragon Mining Corporation	UPM

old the eldest. The average size of companies is P15,060 million in terms of total assets with P32 million as lowest asset and 74,403 as highest. In terms of operation, the companies are earning P833 million in average with some incurring net losses with the lowest on record of P1968 million. Surprisingly, the minimum number of disclosures are zero. At first glance, it's a mystery how could a company website will not contain any information? Unfortunately, this came from the two companies whose website is not functioning. The location of the mining operations of these companies are varying and located into not less than eight regions of the Philippines. Some are operating in just one region and others are in multiple locations as can be seen in Table 4. This also showed that majority of mining companies are operating in multiple locations.

The result of the normality test in Table 5 showed that none of the disclosure variables are normal and only the company age is normally distributed. The data were transformed with the objective of getting the values normalized. However, they remained not normally distributed and thus, Kruskal Wallis Test was used.

Testing the significant differences of economic, environmental and social disclosures in terms of age, size and profitability would bring a non-sense comparison as the age, size and profitability are continuous variable and will result into voluminous number

Table 3: Descriptive statistics

Variables	Mean	Std. dev.	Min.	Max.
Economic disclosures	5.65	7.07	0.0	26.0
Environmental disclosures	7.00	10.03	0.0	40.0
Social disclosures	14.0	24.2	0.0	100.0
Company age	47.7	27.9	6.00	115.0
Company size	15,060.6	23,004.5	31.5	7,4402.9
Profitability	833.5	3,275.6	-1,968.0	14,209.1
No. of observations				20

Table 4: Frequency distribution

Geographical location	Count	Percentage
Region III	2	10
Region V	1	5
Region VI	1	5
Region XI	2	10
Region XIII	3	15
Region XV	3	15
Region XVII	2	10
Multiple regions	6	30
Total mode	20	100 Multiple regions

Table 5: Normality test

Variables	P value	Remarks
Economic disclosures	<0.001	Not normal
Environmental disclosures	<0.001	Not normal
Social disclosures	<0.001	Not normal
Company age	0.50	Normal
Company size	<0.001	Not normal
Profitability	<0.001	Not normal

of groups for comparison. Hence, cluster analysis was used to group these variables and such resulting groupings or cluster will be tested for differences. The result of the cluster analysis is shown in Tables 6-8 for size, profitability and age respectively. It can be seen that cluster analysis resulted into two groups for each variable.

The groupings per size are small (P32 million-P17,024 million) and large (P39,679 million-P74,403 million). For profitability,

Table 6: Cluster analysis – size

Observation no.	Company ticker	Cluster/Group	Percentage in total
1	AR	1	80
2	APX	1	
4	AB	1	
5	BC	1	
6	CPM	1	
7	COAL	1	
8	DIZ	1	
9	GEO	1	
10	FNI	1	
11	LC	1	
12	MA	1	
13	MARC	1	
14	NI	1	
16	OM	1	
17	ORE	1	
20	UPM	1	20
3	AT	2	
15	NIKL	2	
18	PX	2	
19	SCC	2	
Group 1 – Small size		31.5-17,024.0	
Group 2 - Large size		39,678.8-74,402.9	

Table 7: Cluster analysis – profitability

Observation no.	Company ticker	Cluster/Group	Percentage in total
1	AR	1	95
2	APX	1	
3	AT	1	
4	AB	1	
5	BC	1	
6	CPM	1	
7	COAL	1	
8	DIZ	1	
9	GEO	1	
10	FNI	1	
11	LC	1	
12	MA	1	
13	MARC	1	
14	NI	1	
15	NIKL	1	5
16	OM	1	
17	ORE	1	
18	PX	1	
20	UPM	1	
19	SCC	2	
Group 1 – Low profits		-1,968.0-2,770.3	
Group 2 – High profits		14,209	

there are low profits group (–P1,968 million–P2,770 million) and high profits group (P14,209 million). Finally in age, younger (6–29 years) and older (38–115 years).

The results of Kruskal Wallis Test are shown in Tables 9–12 for comparing in terms of profitability, size, age and location

Table 8: Cluster analysis – age

Observation no.	Company ticker	Cluster/Group	Percentage in total
6	CPM	1	30
7	COAL	1	
10	FNI	1	
15	NIKL	1	
17	ORE	1	
20	UPM	1	70
1	AR	2	
2	APX	2	
3	AT	2	
4	AB	2	
5	BC	2	
8	DIZ	2	
9	GEO	2	
11	LC	2	
12	MA	2	
13	MARC	2	
14	NI	2	
16	OM	2	
18	PX	2	
19	SCC	2	
Group 1 - Younger		6–29 years	
Group 2 - Older		38–115 years	

Table 9: Result of Kruskal Wallis test based on profitability

Disclosure	Low profits	High profits	Difference	P value	Decision
Economic	103	10	93	0.19	Failed to reject
Environment	132	8	124	0.33	Failed to reject
Social	263	17	246	0.43	Failed to reject

Table 10: Result of Kruskal Wallis test based on size

Disclosure	Small	Large	Difference	P value	Decision
Economic	45	68	23	0.002	Reject the null
Environment	40	100	60	0.003	Reject the null
Social	77	203	126	0.004	Reject the null

Table 11: Result of Kruskal Wallis test based on age

Disclosure	Younger	Older	Difference	P value	Decision
Economic	26	87	61	0.91	Failed to reject
Environment	54	86	32	1.00	Failed to reject
Social	119	161	42	0.41	Failed to reject

Table 12: Result of Kruskal Wallis test based on location

Disclosure	P value	Decision
Economic	0.29	Failed to reject
Environment	0.58	Failed to reject
Social	0.75	Failed to reject

respectively. As shown, only test of difference in terms of size appeared to be statistically significant. This means that the differences in the level of disclosures for environment, economic and social of each publicly-listed companies in the Philippines are statistically different depending on their sizes (small vs. large) as measured by total assets. Thus, null hypothesis number 1 has been rejected. The null hypotheses 2–4 were failed to be rejected which means that the difference in the level of disclosures for environment, economic and social of each publicly-listed companies in the Philippines are not statistically significant.

The result of Spearman correlation test is shown in Table 13 and this is used to test the last hypothesis. It can be seen that the level of disclosures for each category of economic, environment and social are significantly and strongly correlated. The positive sign indicates that as the level of disclosure for each category increases, other category is also increasing. However, correlation test will not tell us how much increase it could be. In addition, each category of disclosure are significantly correlated to the size of the company with size and environment relationship having strong positive relationship and size with economic and social having moderate level of positive relationship. This is consistent with the result of the Kruskal Wallis that differences in level of disclosures among the companies are statistically different as compared by their size.

5. CONCLUSION

This paper has studied the differences of level of economic, environment and social website disclosure of publicly-listed mining companies in the Philippines in terms of age, size, profitability and location. In addition, this determined whether significant correlation exist among the variables. The result showed that the level of differences in disclosure is statistically different in terms of sizes of each company. In correlation, each category of website disclosure such as economic, environment and social are significantly and positively related to each other and these three categories are also significantly and positively related to size.

5.1. Business Implications

Since sizes of mining companies is one cause of level of disclosures, this implied that as the mining companies are getting bigger, they are disclosing much more about their economic, environment, and social activities. Their size which is measured by total assets enabled them to have enough resources to utilize in improving and populating their company websites. This result made the companies, investors and general public aware why some companies are disclosing low level of website information. Looking in accounting point of view, cost of website development can be capitalized or recorded as assets. Therefore, it is crucial to know later on which comes first. Pooling of more assets to enable website development or developing website which will be recorded as an increase in asset? The result of this study is not enough to answer this but hopefully be addressed in future researches.

The result about the significant and positive correlation of economic, environment and social disclosures as well as the size means that the Philippine publicly-listed companies are trying to achieve a balance of disclosing the activities to these different

Table 13: Result of spearman correlation test

Variables	Economic	Environment	Social	Age	Profit	Size
Economic	1.00					
Environment	0.79*	1.00				
Social	0.72*	0.91*	1.00			
Age	-0.12	-0.02	0.17	1.00		
Profit	0.18	0.31	0.25	-0.16	1.00	
Size	0.49*	0.74*	0.65*	-0.14	0.34	1.00

*P values<0.05

categories. This implies that even the level of disclosures for each category differ in volume, they made it a point that they are all going the same way. Of course, the level of increase varies depending on their resources available as measured by its sizes.

5.2. Recommendation for Further Study

This study only covered mining companies as of year-end of 2017. This can be extended by capturing the data for other years as to perform longitudinal analysis of changes in level of disclosures over time. More so, it is encourage extending this other mining companies of other countries or other sectors to enable to gather more samples. Additional samples will help the future researchers to examine data using parametric methodology like regression and will able to provide more insightful results.

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