

THE DETERMINANTS OF CORPORATE ENVIRONMENTAL DISCLOSURE IN SUB-SAHARA AFRICA: AN EMPIRICAL STUDY OF INDUSTRIAL ENTERPRISES FROM CAMEROON

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Abstract: Environmental policies are increasingly being considered by industrial enterprises operating in Cameroon. This concern is materialized via the publication of environmental information (environmental disclosure) usually in stand alone reports (CSR reports) or other reporting media. The goal of this study is to find out the explanatory factors for the dissemination of environmental information in a country which is yet to have a consistent accounting regulatory framework regarding environmental reporting. In order to achieve this objective, a quantitative research strategy was conducted with the aim of finding out the internal and external factors explaining the practice of environmental disclosure by industrial enterprises. The data for this quantitative study which was analysed with the help of the logistic regression was obtained through questionnaires administered to 50 respondents (top management) from a sample size of 50 industrial enterprises. The logistic regression suggests that profitability, industry type, pressure from primary stakeholders (government) and pressure from secondary stakeholders (the media) appeared to be the main determinants susceptible of explaining the practice of environmental disclosure by industrial enterprises in Cameroon, not forgetting dispersed ownership, leverage and firm's size which also revealed to be explanatory factors of environmental disclosure even though it degree of predictability is moderate as suggested by the logistic analysis.

Keywords: Corporate social responsibility (CSR), environmental information, Industrial enterprises, logistic regression and quantitative research

INTRODUCTION

The practice of environmental disclosure is gradually gaining ground in developing countries especially African countries of the sub-Sahara. This considerable progress regarding environmental considerations in Africa effectively took its origin from Rio de Janeiro's Earth Summit of 1992. Following this world summit, many African countries began adopting environmental policies and putting in place structures in charge of sustainable development. A case in point is Cameroon, which created the Ministry of Environment, Nature Protection and Sustainable Development in the year 1992.

The explanatory factors for the dissemination of environmental information have received wide attention in Europe and North America such that there is currently widespread literature on the determinants of environmental disclosure. Unlike in Europe and North America where the literature on the determinants of environmental reporting is quite abundant, in Africa, there exists few empirical understanding about the impact of these factors on the dissemination of environmental information. Globally, factors like firm's size, profitability, industry type, leverage, ownership structure, and firm's age, the existence of units in charge of corporate social responsibility (CSR), pressure from primary and secondary stakeholders are considered as drivers of environmental disclosure in some African contexts as demonstrated by the studies of Osemene and Olaoye (2009); Makori and Jagongo (2013); Niresi and Velnampy (2014), Dongmo (2017) and Dongmo and Ndjetchu (2018). According to Belal (1999), environmental disclosure can be considered as the procedure of communicating externally the environmental impacts of an enterprise's economic activities via annual reports or stand-alone sustainability reports (cited by Atang and Eyisi, 2020). The firm's communication on the environmental impact of its activities usually encompasses information related to environmental indicators such as material, energy,

emission, bio-diversity, water, effluent and waste, environmental compliance and supplier's environmental assessment; which corresponds to the environmental dimension of the Global Reporting Initiative.

With in the Sub-Sahara region, researchers have contradictory results relating to factors susceptible to account for the practice of environmental disclosure. For instance, following the work of Atang and Eyisi (2020), the study of Dibia and Onwuchekwa (2015) on the explanatory factors of environmental disclosures in Nigeria, based on a sample of 15 companies from the Oil and Gas sector drawn from the Nigerian Stock Exchange, revealed that there is a significant relationship between firm size and corporate environmental disclosures. But according to them, the relationship amongst profit, leverage, audit firm type and environmental disclosure are insignificant. Still within the Nigerian context, the work of Atang and Eyisi (2020) on the determinants of environmental disclosures of listed manufacturing firms shows that profitability, auditor type, board composition and firm size jointly influence the environmental disclosure of manufacturing firms in Nigeria.

The major weakness of these studies relies on the fact that the unit of analyses were listed firms which by virtue of their exposure to the financial markets are supposed to show some degree of transparency and accountability by incorporating both financial elements and environmental issues in their annual reports, unlike in the context of Cameroon, where the industrial sector is dominated by unlisted firms.

Within the OHADA sub region in which Cameroon is a member, the disclosure of information related to CSR in reports is extremely low (Toko and Souleymanou, 2013), cited by Guimezap (2021). Mostly accounting and financial data are published in these reports. Based on the work of Guimezap (2021), the consideration of externalities of enterprises in Accounting is a reality in Northern African countries, by means of environmental accounting, this practice remains almost non-existent in OHADA Accounting System (Ndjetcheu, 2016), especially in an era where the OHADA legislator is yet to provide an accounting framework that will regulate the production of CSR reports.

Faced with this situation, Ngantchou (2015) tried to look at the possibility of reconciling the traditional accounting with corporate social and environmental accounting and according to him; the achievement of this will start with the re-conceptualisation of the enterprise. That is, the relation shareholder/managers ought to be extended by taking into consideration both the primary and secondary stakeholders. However, his studies failed to focus on the disclosure of environmental information carried out by enterprises especially when previous studies (Etoundi, 2010 & 2014; Biwole, 2014) had already revealed that in Cameroon, CSR is practiced by enterprises at the operational level as well as the reporting level because of pressure mounted on them by international norms and regulations.

In Cameroon specifically, the only work as far as the determinants of sustainability reporting is concerned is that of Dongmo and Ndjetcheu (2018), who noticed that even in the absence of a coercive regulatory framework for sustainability reporting activities, companies in Cameroon disclose economic, social and environmental information. This observation pushed them to examine the determinants of the voluntary sustainability reporting carried out by enterprises with in the OHADA sub-region. However the loopholes in their study reside in the fact that very little attention was given to the environmental aspect of CSR. That is, the qualitative analysis of Dongmo and Ndjetcheu (2018) focused more on the economic and social aspects of CSR. Secondly, their work did not only lay emphasis on two aspects of the triple bottom line (economic and social) but it was expanded to all sectors of the economy given that enterprises from the service sector constituted up to 38 percent of the sample size. Whereas the previous studies show that firms found in the industrial sector are more prone to make sustainability disclosures.

As a response to the above drawbacks; Dongmo and Viet (2021) went ahead to reduce the scope by investigating on the factors which account for the environmental reporting of industrial companies operating in the OHADA sub-region. The work of Dongmo and Viet (2021) distinguishes itself from the previous study of (Dongmo and Ndjetcheu, 2018) due to the fact that the empirical analysis focused only on industrial enterprises. But, the sample size used by Dongmo and Viet (2021) cut across many countries of OHADA zone unlike the current study. Equally, the findings of the study of Dongmo and Viet (2021) may have been influenced by the social and economic realities that prevail in other countries (as the sample was made up of Central and West African countries), which may not be similar to that of Cameroon.

Our current study is different from the studies of Dongmo and Ndjetchou (2018) and Dongmo and Viet (2021) given that it concentrates only on one aspect of the triple bottom line; which is the environmental dimension, keeping the economic and social dimensions constant. In addition, our research work focuses solely on industrial enterprises operating in Cameroon, due to the sensitivity of the activities of industrial enterprises on our environment while isolating enterprises from the service sector. Hence, faced with this situation where the OHADA legislator is yet to provide an accounting regulatory framework governing the publication of environmental information and couple with the fact that the government of Cameroon via the ministry of the Environment and Sustainable Development has put forward laws aimed at protecting the environment and fostering sustainable development; and given that these laws do not make the disclosures of environmental information or the production of CSR reports compulsory, one may be tempted to ponder over the *raison d'être* of the dissemination of environmental information by industrial enterprises. This brings us to pose our research question as thus: **What are the explanatory factors that account for the level of the willful environmental disclosure of industrial enterprises in Cameroon?** Or better still, **which are the motivating factors explaining the level of the willful dissemination of environmental information by industrial enterprises operating in Cameroon?**

The principal goal of this research is to examine the determinants of the voluntary disclosure of environmental information by industrial enterprises operating in Cameroon. That is, we seek to find out the factors that explain the production of information related to protection and conservation of the environment.

In order to achieve this objective, this work is will comprise four main sections. The first section handles the theoretical framework which underpins this study. The second section presents the development of hypotheses which is immediately follow by the research method employed and the last section will relate to the presentation and discussion of result.

THEORETICAL FOUNDATION OF THIS STUDY

The theoretical framework which comprises legitimacy theory, stakeholder theory and political economic theory is the theoretical perspective retained for this study because the three theories are the most mobilised theories in sustainability reporting. We consider these theories as integrated theories owing to the similarities that exist amongst these theories.

Lyubenova (2019) considers stakeholders as “any identifiable group or individual who can affect the achievement of an organisation’s objectives or who is affected by the achievement of an organisation’s objectives” From the perspective of stakeholder theory, enterprises disseminate environmental information because they want to meet the demands and expectations of various stakeholders usually based on their attributes (such as power, urgency and legitimacy) possessed by stakeholders.

From the perspective of legitimacy theory, enterprises engage in environmental disclosure because they want to legitimise their existence in the society in which they operate, as the organisational relationship between the firm and society is governed by the so called “social contract”. Following this social contract, enterprises provide environmental information because they intend to demonstrate that they respect their own part of the contract and that its activities coincide with the value systems of society, enabling enterprises to maintain their status reputation in society (Onwuka (2021).

According to Gray et al. (1996) political economy theory suggests that enterprises do not operate in isolation but with in a social, political and economic framework in which human life takes place. The authors posit that political economy theory is made up of classical political economy and bourgeois political economy. Ibrahim (2014) holds that the bourgeois political economy theory combines stakeholder theory and legitimacy theory. Referring to the study of Ibrahim (2014), Deegan and Unerman (2011) suggest that stakeholder theory and legitimacy theory are derived from the understanding of the bourgeois political economy because according to them, legitimacy theory considers the world to be pluralistic in which a firm is concerned with negotiating with all parties in the society. Still in line with the bourgeois perspective, stakeholder theory sees the world from point of view of the management of the organisation.

Hypotheses related to the internal determinants of environmental disclosures

A considerable amount of literature has examined different factors affecting environmental disclosure. Since much of the previous research findings are inconsistent and contradictory, there is still insufficient clarity as to which determinants have positive, negative or any impact at all on the corporate decisions regarding CSR reporting. Environmental disclosure determinants have been grouped into internal and external factors. Regarding internal factors, there is profitability, capital dispersion, leverage of the enterprise, the size of the firm and the existence of structure in charge of sustainable development.

Profitability also considered as economic performance by some researchers (Lyubenova, 2019) measures the ability of the firm to maximize profit in order to increase the value of funds' provider Onwuka (2021). Profitability usually measure in terms of return on assets (ROA), return on equity (ROE) in environmental disclosure studies appears to be one of the most verified determinants of environmental disclosure. Even though empirical investigations concerning the influence of profitability on the firm's ability to disclose environmental information have mixed findings, the dominant outcome is that profitability positively and significantly influences the extent of environmental disclosure, as reveal by the studies of Barakat et al., 2015; Ortas et al., 2015; Tagesson et al., 2009; Roberts, 1992 and Elfeky, 2017. Other researcher such as Ghazali (2007) and Wuttichindanon (2017) found out that economic performance is not a significant determinant of corporate environmental disclosure. This present study anticipates a positive correlation between profitability and environmental disclosure. As a result, the following first sub-hypothesis is adopted:

H11: Firms' profitability positively influences the disclosure level of environmental information.

Making use of the stakeholder theory, many researches have studied how dispersed or concentrated ownership affect the quality of companies' environmental disclosures, and most of them have found a positive relationship between dispersed ownership and the level of disclosures (Huang and Kung, 2010; Lu and Abeysekera, 2014; Roberts, 1992; Ullman, 1985). Keim, (1978) holds that a more dispersed ownership structure would lead to broader and more diverse demands from shareholders on the company. Disperse corporate ownership heightens pressure for management to disclose social and environmental information to assure transparency with regard to various corporate activities (Ullman, 1985). Based on previous studies, this research formulates it second sub-hypothesis as:

H12: There is a positive effect of dispersed ownership on the level of environmental disclosure.

Thirdly, Leverage (or gearing, corresponds to the liability of the enterprise) is another determinant highly mobilized to explain the disclosure of environmental information. The trend of result general shows that enterprises with a high debt ratio tend to disclose more environmental information because they are exposed to high agency cost Onwuka (2021). As such, managers of companies with a high gearing ratio are inclined to more voluntary disclosure order to meet creditors' requirements and remove suspicions of aberrant actions (Lyubenova, 2019). Previous accounting scholars have found a positive correlation between the level of indebtedness of the firm and the dissemination of environmental information (Belkaoui and Karpik, 1989; Roberts, 1992 and Juhmani, 2014). Based on that, we suggest that highly leveraged Cameroonian companies would tend to report more on their environmental activities in order to satisfy the expectation of funds' providers. Therefore, the following third sub-hypothesis will be tested:

H13: Leverage level positively influences the disclosure level of environmental information.

The size of the firm is commonly considered as one of the main determinants of corporate environmental disclosure. As Onwuka (2021) suggest that large enterprises tend to disseminate more environmental information in order to satisfy the demand and expectation of varied stakeholders. According to Reverte (2009), cited by Lyubenova (2019), larger companies have a greater impact on the society and are more likely to become subject to scrutiny from stakeholder groups since they are more visible and due to that, large enterprises tend to make huge environmental disclosure in their CSR reports in order to avoid regulation and minimise the potential political cost (Lyubenova, 2019). Several studies from other contexts have convergent findings regarding the influence of firm's size on environmental, which is significant and positively correlated such as the works of Hackston and Milne, 1996; Brammer & Pavelin, 2004, Tagesson et al., 2009; Baldini et al., 2018; Da Silva Monteiro and Aibar-Guzman,

2010 and Lyubenova, 2019. Hence, the following forth sub-hypothesis is formulated:

H14: Firm's size has a positive incidence on the level of environmental disclosure.

Regarding the presence of a structure linked to corporate social responsibility or sustainable development, arguments in favour of an influence of the presence of a structure in charge of CSR and the dissemination of environmental information have been put forward by Cowen et al (1987) who believe that managers who have chosen to set up such an entity within the company will wish to report on its work within the framework of the company's broadcasts. Going in the same direction, Oxibar (2007) found a positive relationship between the presence in the company of a structure linked to CSR or sustainable development and the volume of publication of environmental information. Hence, we will test the following fifth sub-hypothesis:

H15: The presence of a structure linked to CSR or Sustainable development impacts positively environmental disclosure level

Hence, this brings us to formulate the first main hypothesis of our research as follows:

H1: Internal factors have an incidence on the level of environmental disclosure

Hypotheses related to the external determinants of environmental disclosures

The external determinants regularly used to explain the presence of environmental disclosure are the industry type, international operation, pressure from primary stakeholders and pressure from secondary stakeholders.

The activities of industrial enterprises usually have negative impacts on the environment given that the transformation of raw material into semi-finished or finished products entails the production of substances that are dangerous to terrestrial and aquatic organisms. This explains why Onwuka (2021) suggested that enterprises in environmentally sensitive industries such as chemical, construction, plantation, transportation, mining and resources, petroleum, and industrial product have more pressure to disclose environmental information than those in the less sensitive industries especially enterprises in the service sector. In line with the above argument previous studies such as those of Dong and Burritt, (2010) and Dongmo & Ndjetcheu (2018) depict the existence of a positive influence of industry type on environmental disclosure. The following sixth sub hypothesis is therefore tested:

H21: Industry type has a positive impact on the disclosure level of environmental information.

Industrial enterprises based in Cameroon which equally operate abroad or sell their products internationally tend to be exposed to more societal demand than enterprises that operate only at a national level. This argument is reinforced by Cahaya and Hanifa (2016), cited by Iqro (2018), who posit that an enterprise which has international operation has more complicated social problems because the problems may contradict between countries and as a result will communicate with bigger number of stakeholders than companies operating at national level (Cahaya and Hanifa, 2016). The work of Iqro (2018) shows that previous study have found a positive and significant influence between international operation and corporate environmental disclosure and a case in point is that of Cahaya et al. (2017) and Dongmo and Ndjetcheu (2018). For this study, we formulate the following seventh sub hypothesis

H22: The extent of the firms' international operation influences positively the level of environmental disclosure.

According to Clarkson (1995), stakeholders can be classified into primary and secondary stakeholders. The primary stakeholder is considered as the group whose presence is essential for a company's existence; and without its presence, the company can't survive (Gunawan and Yudani, 2017). According to Clarkson (1995), shareholders or investors, employees, consumers, suppliers together with public stakeholders such as community and government, are categorized as primary stakeholders. As it is not possible to examine all the stakeholders in one study like this, we decided to limit the number of stakeholders to those who can exercise the strongest power on

the firm. For this study we shall choose from each group one category of stakeholder.

Concerning the primary stakeholder group, being consistent with Roberts (1992), this study choose a representative stakeholder from the primary stakeholder group namely; government, given that it has the ability to intervene via legislations and regulations. Watts and Zimmerman (1978) argue that corporations use socially responsible activities to reduce the risk of governmental intrusions that may affect firm value. Hence, government can be viewed as a powerful stakeholder whom the management needs to satisfy. The work of Dongmo and Ndjetcheu (2018) shows that pressure from primary stakeholders positively affect the level of sustainability disclosures, given that enterprises may perform more environmental disclosure in order to avoid sanctions from the government. The studies of Tilt (1994) and that of Deegan and Gordon (1996) predict the same outcome. Base on those studies, we formulate our eighth sub-hypothesis as:

H23: Pressure from primary stakeholders influences positively the level of environmental disclosures.

Secondary stakeholders are those who affect and are affected by a company's existence, but it is not directly involved with a company's activities and their presence is not essential to the survival of a company (Gunawan and Yudani, 2017). According to Clarkson (1995), media and special interest groups are included in this group as they have the capacity to mobilise public opinion either to support or resist the company's activities. As for the secondary stakeholder group, our choice falls on the media, as previous studies have shown a positive association between the media and the level of environmental disclosure. Brown & Deegan (1998) claim that in the case of negative media exposure companies tend to disclose more and positive information in order to counteract the potential implications. In terms of stakeholder theory, media visibility is one of the factors affecting the relationship between companies and their stakeholders. According to Brammer and Pavelin (2008), higher levels of media visibility are likely to cause greater pressure from social and political stakeholders who expect social responsiveness from the company, which is usually materialized through more environmental disclosure. Thus, consistent with the concepts of legitimacy and stakeholder theory, the following ninth sub-hypothesis is formulated:

H24: Pressure from secondary stakeholders has a positive incidence on the level of environmental disclosures.

Following the above development, we can formulate our second main hypothesis as indicated below:

H2: The external factors have an influence on the level of environmental disclosure

In order to test the hypotheses presented above; we need to put in place a research method and strategy which will help us to confirm or refute the hypotheses.

RESEARCH METHOD

We adopted a quantitative strategy, the sampling technique used is the non- probability, judgmental (purposive) sampling, which is a technique in which an experienced individual selects the sample based on his or her judgment about some appropriate characteristic required of the sample members (Zikmund, 2003), cited by Tegofack and Kamgang (2021). The sample size pertaining to our quantitative analysis comprises 50 industrial enterprises (environmental information through management reports, sustainability reports, company newspapers, and websites of the companies) implanted in Cameroon especially in the coastal industrial region given that the majority of industrial enterprises are established in this region especially in the city of Douala and it environs. In order to collect data, questionnaires are administered to 50 respondents made up of top management of selected industrial enterprises that regularly disseminate environmental information. Concerning the analyses of data obtained from the questionnaires, we used the software package SPSS 21. The statistical tools employed to test the explanatory model of the level of environmental disclosure is the ordinal logistic regression.

Several reasons could explain our choice for Cameroon. Besides our belonging to Cameroon, three other motivations underlie the choice of this geographical area as a field of investigation. Firstly, Cameroon presents itself as a favourable ground for the expansion of CSR activities due to the considerable growth of

industrialisation in Cameroon. Secondly the economy of Cameroon maps well the economies of other African countries as Cameroon, as it is generally considered as Africa in miniature because of its location near the centre of the continent and its diverse population which has over 200 different linguistic groups. Also, the bilingual status of the country favours direct foreign investment.

Measure of dependent and independent variables

The dependent variable which is environmental disclosure (ED) is ordinal in nature. ED is therefore equal to 1 if the company does not opt for the dissemination of environmental information, to 2 if the disclosure is low, to 3 if the dissemination is average, to 4 if it is high and to 5 if it is very high. Hence, environmental disclosure is rated "ED". Thus the enterprises retained as our sample disseminate environmental information with varying intensity.

Explanatory model of environmental disclosure

The explanatory model for the implementation of environmental reporting incorporates the explanatory variables previously developed: internal variables and external variables which eventually result into the final explanatory model proposed as follow:

$$Y = C + \beta_1 ROA + \beta_2 ROE + \beta_3 RTO + \beta_4 DC + \beta_5 LE + \beta_6 TO + \beta_7 A + \beta_8 SD + \beta_9 RIS + \beta_{10} IOP + \beta_{11} PS + \beta_{12} SS + \epsilon_i$$

With:

Y= Ordinal qualitative dependent variable taking the 1, 2, 3, 4 and 5 where 1=nil; 2=low; 3= average; 4=high; 5= very high.

C: Constant,

β_i : Coefficients of variable i in the model.

ROA: profitability measured by the return on assets

ROE: Profitability measured by the return on equity ratio.

RTO: Profitability measured by the profit/turnover.

DC: Dispersion of capital measured by the addition to the percentage of capital held by the State, employees, family and institutional shareholders.

LE: Level of indebtedness measured by the ratio total debts / total assets.

TO: Size of the company measured by the logarithm of turnover.

A: Company size measured by logarithm of assets.

RIS: Reputation index of the business sector of the company.

IOP: Extent of internal operation measured by turnover achieved abroad/total turnover.

SD: Existence of a structure in charge of CSR or sustainable development.

PS: Interest paid to pressure from primary stakeholders measured by content analysis.

SS: Interest paid pressure from secondary stakeholder measured by content analysis.

ϵ_i : Error.

PRESENTATION AND INTERPRETATION OF RESULT

Following the ordinal nature of our dependent variable (ED), the ordinal logistic regression seems to be the appropriate data analysis technique for this study. Thus a regression analysis is conducted to test the impacts of both internal and external factors on the disclosure level of environmental information.

Incidence of internal factors on environmental disclosure level

The result of the ordinal logistic regression carried out on internal factors and their influence on environmental disclosure is presented on the table below. The likelihood ratio test indicates the main-effects model fits greatly in comparison to the saturated model (LR = 141.446, df = 20, p =0.578). The pseudo R² measured using Nagelkerke =.625, depicts that approximately 62.5% variation in the level of disclosure is accounted from the factors in the model. This is used with reservation given that the relationship is not quite linear.

The logistic Regression on the internal factors associated with the level of environmental disclosure

		coefficient	SE	t	p
	(Intercept)	-0.208	1.178	-0.177	0.863
Firms' profitability	ROE	0.907	0.420	2.161	0.054*
	ROA	0.286	0.828	0.345	0.736
	RTO	0.901	1.220	0.739	0.475
Dispersed Ownership	DC1	1.939	0.918	2.112	0.058*
	DC2	2.102	1.033	2.034	0.067*
	DC3	-0.726	0.399	-1.822	0.096*
Leverage	LE1	1.419	0.747	1.900	0.084*
	LE2	1.202	0.728	1.651	0.127
firms' Size	TO1	2.101	1.018	2.064	0.063*
	TO2	0.370	0.423	0.876	0.400
	TO3	-0.092	0.298	-0.308	0.764
Sustainable development	SD1	-1.400	0.665	-2.107	0.059*
	SD2	-1.881	0.738	-2.548	0.027*
	SD3	0.713	0.513	1.390	0.192
Deviance		4.458			
AIC		88.989			
BIC		144.595			
X ²		141.446			0.578
Cox and Snell		.522			
Nagelkerke		.625			
McFadden		.410			

* Statistically significant at $P < 0.05$, ** Statistically significant at $P < 0.01$, *** Statistically significant at $P < 0.001$

For the hypothesis that firms' profitability is positively associated with disclosure level of environmental information, the findings indicated that ROE, ROA and RTO were all positively correlated with the level of disclosure. In this light, we further found that ROE = 0.907, $p = 0.054$, and RTO = 0.901, $p = 0.475$ which were all statistically significant at 10 and 5% respectively with other factors included in the model constant. Thus, return on equity and the profit/turnover ratio are explanatory motive for the disclosure of environmental information. The above result takes us to validate the hypothesis which stipulates that firms' profitability is positively associated with disclosure level of environmental information.

Regarding dispersed ownership, this hypothesis was examined using DC1, DC2 and DC3. The findings revealed that (DC1 = 1.939, $t(40) = 2.112$, $p = 0.058$) and (DC2 = 2.102, $t = 2.034$, $p = 0.067$) are positive and statistically significant predictors of the level of disclosure of environmental information at 10% while DC3 has insignificant negative influence on environmental disclosure. This implies that the company's environmental disclosure can be explained by the percentage of voting rights held by the public and the shareholder structure is an incentive factor for environmental disclosure. Hence the hypothesis stipulating there is a positive relationship between dispersed ownership and the level environmental disclosure is partially supported.

With regard to the influence of Leverage on the disclosure level of environmental information, the variables LE1 positively and significantly influence the variable, level of disclosure environmental at 10% (LE1 = 1.419, $p = 0.084$). This shows that there is a positive and significant relationship between leverage and disclosure of information; there by partially validating (given that LE2 is positive but not significant) the hypothesis that leverage influences significantly the disclosure level of environmental information

For the firms' Size, the only variable that has a positive significant effect on the level of disclosure of environmental information was (TO1 = 2.101, $t = 2.064$, $p = 0.063$) at 10% with other variable (TO2) being positive but insignificant while TO 3 was statistically insignificant as such we did not analyze it further. Hence the hypothesis relating to the fact that, there is a positive association between firms' size and the disclosure level of environmental information was weakly supported given one the studied variable showed a positive and significant

incidence on environmental disclosure.

As far as structure in charge of sustainable development is concerned, the study revealed that SD1 with $p = 0.059$ and SD2 = 0.027 were inversely related to environmental disclosure levels. When further examined, it was observed that the relationships were statistically significant except for SD3 when other factors are held constant. Hence the hypothesis stipulating that there is a positive relationship between the presence of a structure linked to CSR or Sustainable development and environmental disclosure level is not supported. Globally, we conclude that internal factors partially have a positive and significant influence on the level of environmental disclosure.

Influence of external factors on the level of environmental disclosure

Logistic regression was performed to ascertain the effects of Industry Type, International Operations, primary Stakeholders, and secondary Stakeholders on the likelihood that firms are classified on a high level of disclosure. The Nagelkerke R^2 was 0.33 which revealed that 33.0% variation of the dissemination of environmental information was accounted from by external factors as shown on the table below:

The logistic Regression on the external factors associated with the level of environmental disclosure

		coefficient	t	p
Industry Type	(Intercept)	-10.505	60.811	0.027
	RIS1	1.041	5.703	0.041
	RIS2	0.298	4.188	0.099
International Operations	IOP1	-0.388	-1.291	0.212
	IOP2	0.263	0.611	0.548
	IOP3	0.108	0.390	0.700
Primary Stakeholders	PS1	2.009	10.033	0.004
	PS2	1.342	0.732	0.035
Secondary Stakeholders	SS1	0.586	1.549	0.137
	SS2	0.806	1.994	0.060
Nagelkerke R2		0.33		
χ^2		27.402		$p < .0005$

The industry type is statistically and positively associated with the level of environmental disclosure at both levels of RIS1 ($p = 0.041$) and RIS2 ($p = 0.099$). Hence the hypothesis predicting that Industry type is positively associated with the disclosure level of environmental information is supported.

The variables relating to international operation IOP1 shows a negative and insignificant effect on the level of environmental disclosure while IOP2 indicates a positive but insignificant effect on environmental disclosure. Thus, the hypothesis stipulating that, there is a positive association between international operations and the disclosure level of environmental information is not supported.

Primary stakeholders (the government) exert a significant influence on the level of disclosure and specifically PS1 ($p = 0.004$) and PS2 ($p = 0.035$). This shows that industrial enterprises in Cameroon disseminate environmental information partly due to pressure mounted on them by the government. Consequently, the hypothesis that predicts that pressure from primary stakeholders influences positively the level of environmental disclosures is supported.

Further more, there was a positive and significant relationship between pressure from secondary stakeholders (the media) and the level of environmental disclosures as depicted by the variable SS2 ($p = 0.060$). The variable SS1 also show a positive but insignificant relationship between environmental disclosure and pressure from secondary stakeholders. As a result the hypothesis stipulating that, pressure from secondary stakeholders influences positively the level of environmental disclosure is supported. Globally, we conclude that external factors partially have a positive and significant influence on the level of environmental disclosure practice by industrial enterprises in Cameroon.

DISCUSSION OF THE FINDING FROM THE QUANTITATIVE ANALYSIS

The aim of the quantitative analysis in this work was to examine the explanatory factors of the dissemination of environmental information by industrial enterprises in Cameroon. The results obtained from the ordinal logistic regression are discussed below starting with the internal determinants and follow suit by the external factors.

Discussion of findings related to internal factors

The results obtained from the regression analysis revealed that the internal factors have a partial impact on the disclosure level of environmental information; with profitability standing out as the main determinant of environmental disclosure. A brief discussion per variable is done below:

Profitability

The result shows that profitability via return on equity and return on assets is positively and significantly correlated to the level of environmental disclosure. This finding goes in line with those of Lyubenova (2019), Barakat et al (2015), Dongmo & Ndjetcheu (2018) and Tagesson et al. (2009). The disclosure of environmental information entails huge cost and for an enterprise to bear this extra cost, it need to be capable of generating enough returns in order to cover cost emanating from environmental activities and disclosure practices. This view is reinforced by Tagesson et al. (2009), who posit that there is a positive relationship between the disclosure of environmental and social information as the company can bear the expenditures related to disclosure. High profitability expressed in terms of high asset turn over gives industrial enterprises the possibility of engaging in environmental activities, which is a reality in Cameroon. For example, enterprises in the brewery sector have been making abnormal profit in recent years. This explains why one the firm (SABC) from the brewery sectors have classified by ASCOMT as the best enterprise in the domain of CSR responsibility in Cameroon for the past three years (2019, 2020 and 2021) because it has resources to invest in CSR activities.

Dispersion of capital

The extent to which capital is dispersed among many investors tends to significantly influence the level of environmental disclosure though moderately. This finding is consistent with those of Roberts (1992), Ullmann, (1985) and Gamerschlag et al., (2011). This finding is further reinforced by the study of Coluccia et al. (2015), who highlight that organisations with dispersed capital are more sensitive to external pressure to increase the level of disclosure in order to get support from minority shareholders, who otherwise could not obtain this information due to information asymmetry. Hence the disclosure of environmental information by industrial enterprises could be seen as a means of reducing agency cost. The moderate predictability of capital dispersion on the eventual dissemination of environmental information in Cameroon is explained by the fact that a good number of domestically owned enterprises are family owned enterprises where a relative high proportion of capital is found in the hands of family members.

Leverage

The gearing or indebtedness level of industrial enterprises appeared to have a significant and positive incidence on environmental disclosure level even though this relationship tends out to be partially supported. This finding conforms to those of Coluccia et al. (2015) and Khemir (2010). The result obtained in this present study is explained by the fact that industrial enterprises in Cameroon with high leverage may disclose more environmental information to guarantee their creditors that they are not likely to default on any debt agreements. Other researchers consider that enterprises that are highly geared are eventually exposed to high agency cost and the dissemination of environmental information may aim at mitigating this agency cost (Onwuka, 2021). On the other hand, Andrikopoulos and Krikiani (2012), cited by Onwuka (2021) claim that organisations with high gearing ratio may tend to reduce the level of disclosure because the willful dissemination of environmental information entail significant expenditures. Hence the partial support of this factor in the context of Cameroon could be explained by the fact that the contribution of the banking sector (commercial banks) in Cameroon in the promotion of economic activity is relatively low due to the reluctance of economic operators to go towards commercial banks for borrowing. Hence very few industrial enterprises are eligible to contract loans from banks.

Size of the firm

The existence of a positive relationship between the firm's size and environmental disclosure level is partially supported. This finding is consistent with the studies of Wuttichindanon (2017), Dongmo & Ndjetchou (2018) and Lyubenova (2019). The argument that buttresses this finding is that large enterprises are more politically visible and attract more concern from governments, the general public, and other stakeholders. Consequently they are expected to possess greater capabilities and resources to involve in a greater extent of environmental disclosure (Onwuka, 2021). Furthermore this partial validation is supported by the argument held by Cahaya (2006), who suggest that enterprises may disclose less environmental information because they seek to reduce their visibility which has as immediate result a reduction in stakeholders' pressure. Firm's size appeared to be a moderate driver for environmental disclosure in Cameroon because this determinant originates from studies carried out in the western world whose economies is characterised by enterprises which are larger in size than those operating in Cameroon. Thus the few industrial enterprises that disseminates environmental information irrespective of their sizes is because of mimetic consideration, that is they try to copy what is being done by large multinational or subsidiaries operating in Cameroon.

The existence of structure in charge of sustainable development

The existence of a positive relationship between environmental disclosure level and the existence of structure of CSR is not supported as per the result obtained from the analysis. The relationship was instead negatively correlated. This finding contradicts those of Oxibar (2007), Gillet (2010) and Dongmo & Ndjetchou (2018). Even though some industrial enterprises in Cameroon have created a structure linked to CSR with in their organisational setting, many of these enterprises are yet to understand the substance CSR function. This negative relationship may also be interpreted from the fiscal point of view given that the fiscal law in Cameroon gives some tax advantages at the level of the determination of taxable profit to enterprises involve in charitable activities. Hence the creation of structure in charge of CSR activities could be seen as a way for enterprises to take advantage of such provisions rather than due to environmental considerations.

Discussion of findings related to external factors

The results obtained from the regression analysis revealed that the external factors have a partial incidence on the disclosure of environmental information; with industry type and pressure from primary stakeholders (government) standing out as the main determinants of environmental disclosure. A brief discussion per variable is done below:

Industry type

The result shows that industry type is significantly and positively correlated to environmental disclosure level, given that the activities of industrial enterprises has un told consequences on the environment. The finding of this study corresponds to those of Reverte (2009), Cayaha et al. (2017) and Dongmo and Ndjetchou (2018). Referring to the work of Deegan (2002), cited by Onwuka (2021), this is could be explained by the fact that environmentally sensitive industries such as chemical, construction, plantation, mining and resources, and petroleum have more pressure to disclose environmental information than those in the less sensitive industries (banking and consumer products) given that activities of firms in environmentally sensitive industries tend to have a greater impact on the environment (Deegan, 2002; Patten and Trompeter, 2003). Hence, industrial enterprises in Cameroon tend to disseminate more environmental information in order to legitimise their existence in the society; given that by so doing they portray their commitment to respect government regulation regarding environmental issues.

International operation

The relationship between international operation and environmental disclosure level is negatively correlated and even insignificant. This finding goes in line with those of Amran and Devi (2007) and Igro (2018) and contradicts that of Dongmo and Ndjetchou (2018). According to these authors, this finding could be explained by the fact that industrial enterprises operating abroad may be facing less pressure from stakeholders. This argument is not far from the reality of Cameroon, given that a good number of industrial enterprise implanted in Cameroon mostly operate in Countries of the CEMAC zone, where sustainability reporting in general and environmental reporting in particular is yet to be regulated. Also Cameroon is the economic power house in the CEMAC zone

and obviously stands out as the country with the highest CSR culture in that zone. Hence stakeholders' demand from abroad regarding environmental disclosure may not be as significant as stakeholders' demand emanating from Cameroon. Also the turnover realised abroad by industrial enterprises especially in the CEMAC zone may not be as important as the turn over made in Cameroon given that Cameroon has a high population compared to countries of that zone, taken individually and consequently a high market for industrial products.

Pressure from primary stakeholders

This study revealed a positive and significant influence of pressure from primary stakeholders (government) on the level environmental disclosure. This finding reinforces the results obtained from previous research works; Tilt (1994), Deegan & Gordon (1996), Cormier and Magnan (2003), but contradicts that of Dongmo & Ndjetcheu (2018). This is because the government of Cameroon has the ability to intervene via legislations and regulations. This implies that the government has the power to sanction industrial enterprises that fail or are reluctant to integrate environmental policy in their management practices. Consequently, industrial enterprises show their commitment toward environmental issues by engaging in environmental friendly activities and disseminating environmental information in order to maintain government's support for continued existence.

Pressure from secondary stakeholders

The study shows a positive and significant effect of pressure from secondary stakeholders (the media) on environmental disclosure level. This finding is consistent with those of Robaa (2016), Hasseldine, et al. (2005), (King, et al., 2005) and Wang, et al., 2013. Brammer and Pavelin (2008) account for this positive effect by suggesting that media exposure of the enterprise would enhance its visibility, thereby raising the reputation of the enterprise in the eyes of the public. This view is further reinforced by King et al., (2005), who posit that enterprises with good brand reputation are more likely to disseminate more environmental information to secure their stakeholders. For example in Cameroon, enterprises that are perceived to have high commitment to CSR regularly have their CSR activities being exposed to the public by the classical media such as radio stations and television stations.

CONCLUSION

The aim of this research was to examine the determinants of the voluntary disclosure of environmental information by industrial enterprises operating in Cameroon. The result of the logistic regression reveals that profitability tends out to be the internal factors that explained the most the urge of industrial enterprises to disseminate environmental information; showing that high profitability expressed in terms of high asset turn over gives industrial enterprises the possibility of engaging in environmental activities which are usually considered as non profit generating activities that enterprises ought to avoid; as highlighted by Friedman (1970). Still regarding internal factors, dispersed ownership, leverage and firm's size appear to be explanatory factors of environmental disclosure even though its degree predictability is moderate. On the other hand, amongst the external factors; industry type, pressure from primary stakeholders (government) and pressure from secondary stakeholders (the media) positively and significantly influence the level of environmental disclosure. Firms operating in environmentally sensitive sectors usually faced high scrutiny and pressure from the government (primary stakeholder), the media (secondary stakeholder), NGOs and civil society actors on the impact of their activity on the environment (Onwuka, 2021). Hence to demonstrate their commitment to sustainable development, industrial enterprises will disseminate environmental information in order to legitimise their existence in the society in which they obtain valuable resources thereby benefiting of the continuous supports of these stakeholders

The contribution of this scientific piece of work is established at two levels; empirical and managerial levels, as discussed in the following paragraphs.

Empirically, the originality of this piece of work resides in the fact that, it is one of the few work so far in our context that have conducted an investigation on the determinants of environmental disclosure and by so doing it contributes in building up the literature in the domain of sustainability reporting. Managerially, industrial enterprises ought to understand the necessity to protect the environment because it is from this environment that they obtain resources; both human resources (employees whose health may also be affected by the unethical activities of industrial enterprise) and material resources (material resources need to be sustained for future

generation) necessary for the effective operation of their activities. Hence the in application of environmental policy may threaten the firm's ability to have access to these resources which seem to be vital for the company's existence.

Regarding the limits, the first limit relates to the determinants that were examined; which for the majority are imported, given that they were initially designed and tested in the western world. The verification of these determinants in our context may seem inappropriate due to the differences that exist between Cameroon and Western European countries. The second weakness concerns the exclusion of firms from other sectors of the economy of Cameroon. Meanwhile some firms from the service sectors also disseminate environmental information in their sustainability reports.

These limits pave the way for future research works. Future works can use the qualitative research strategy in order to derived determinants of environmental disclosure which reflects exclusively the realities of the Cameroon context. Also the verification of the explanatory factors of environmental reporting may also integrate enterprises from the services sectors because environmental information is also communicated by service firms.

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