

ENVIRONMENTAL MANAGEMENT SYSTEM AND FINANCIAL PERFORMANCE OF ENVIRONMENTALLY SENSITIVE INDUSTRIES IN SOUTH AFRICA

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Abstract:

The influence of the environmental management system (EMS) on corporate financial performance within the African corporate context has persistently remained lacking and inconclusive, attributed primarily to the absence of data. However, this study investigates the influence of EMS on corporate financial performance measured by earnings per share (EPS) of 65 Johannesburg Stock Exchange-listed environmentally sensitive companies from 2014 to 2018. The size was used as a control variable. This study uses SPSS version 28 to discover vast evidence of a favorable association between EMS and EPS. The importance of EMA cannot be underestimated. Therefore, this study provides valuable insights into how companies can wholly apply EMS to upsurge corporate financial performance. It was concluded that the government should regulate the implementation of EMS within companies as a source of climate change mitigation and as a strategy to upswing financial and environmental performance.

Keywords: Environmental Management System, Earnings Per Share, Sustainability, Environmental Performance, Climate Change.

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INTRODUCTION

Globally, there is an agreement that ecological degradation and pollution have reached exceptional levels calling for urgent actions from individuals to organizations. Economic activities influence the environment in different forms. Land and water resources are unfavorably impacted and depleted when used and utilized for economic activities. It demands that organizations re-examine their environmental strategies, such as environmental management systems (EMS). It includes the adoption of ISO 14001.

With the inception of the EMS standard in 1996, its importance has been evidenced by its adoption by many organizations. It has been viewed as an action to promote environmental sustainability (Fuji et al., 2013; Phan & Baird, 2015) as governments are initiating more ISO certifications. As a result, scholars and researchers developed a myriad of interest in identifying the actual significance of EMS in achieving environmental sustainability (see, for example, Fuji et al., 2017; Hariz & Bahmed, 2013; Sutantoputra et al., 2012). It suggests that environmental literature properly documented the link between EMS and environmental performance. In that way, little is known about how EMS affects the financial performance of companies, particularly in emerging markets such as South Africa (Neeveditah et al., 2017; Fuji et al., 2019).

Therefore, considering the above backdrop, this study aims to identify the relationship between EMA and the financial performance of environmentally sensitive industries in South Africa. It is also important because the South African government encourages companies to proficiently

implement ISO standards to manage carbon footprints (Ganda, 2018). Nevertheless, how efficient ISO standards are in augmenting corporate financial performance remains absent in contemporary literature. Therefore, the main objective of this research is to determine the effect of EMA on the financial performance of South African companies listed on the Johannesburg Stock Exchange.

Environmental management system. Various definitions have been put forward for EMS. Jones et al. (2005) define EMS as “the procedure and processes in an organization for the training of personnel, monitoring, summarizing and reporting of environmental performance to different stakeholders.” Neeveditah et al. (2017) and Phan et al. (2018) affirm that internal information is adopted for pollution, waste reduction, and design. In contrast, external information is adopted to indicate sustainability efforts and reinforce the firm's brand. Studies put forward that the ecological commitment of companies was chiefly inspired to secure corporate benefits such as improvement in brand image, "competitive advantage, lower cost of production and lower external costs" (Kasim, 2015). For instance, Khalili and Duecker (2013) discovered that companies could secure a competitive advantage globally by having a proactive environmental approach. In contrast, Gunarathne and Lee (2015) emphasize that environmental commitment ultimately culminates in minimizing costs and producing quality products. Bebbington and Larrinaga-Gonzalez (2008) establish that investing more in sustainable initiatives can contribute to employee motivation and improve corporate performance.

EMS is a form of environmental management and voluntary practice (Singh et al., 2015). EMS assists in augmenting environmental management accounting practices to accomplish the objective of the business. It further implies that EMS is an environmentally friendly operation that assists in safeguarding the natural environment and lessening costs that can be inflicted upon human and company activities. Therefore, by its nature, EMS aims to attain environmental sustainability from company operations. EMS is essential to achieving the Sustainability Development Goals (SDGs). Low et al. (2015) posit that EMS is an innovative system to combat climate change. Adopting EMS contributes to better compliance with ecological requirements in environmentally sensitive industries. Put differently, the implementation of EMS is to advance and expand environmental management accounting practices more proficiently and effectively. Thus, EMS can improve production processes, minimize waste, and decrease ecological pollution within manufacturing sectors (Yang & Zhang, 2017). It can be attained through EMS to analyze the ecological impact in the company, especially the environmentally sensitive sectors in South Africa.

In one recent study, Neeveditah et al., (2017) determined the level of relationship between EMA and financial performance in Mauritian listed companies. The authors discovered an insignificant relationship between EMS and financial performance. In measuring financial performance, return on equity was used. It means that using EMS within the sampled companies in Mauritius is of no significance to corporate financial performance. The findings by Neeveditah et al. (2017) are echoed by Fuzi et al. (2019), who established no direct relationship between EMS and financial performance. It is a significant source of demotivation, as Massoud et al. (2011) argue that companies often do not adopt environmental management practices that generate no immediate financial returns.

In contrast, Kumar and Dua (2021), in 459 listed companies in India, discovered a positive relationship between financial performance (return on equity and return on assets) and EMS by applying a dynamic panel regression. Various variables such as research and development, asset age, sales growth and age of the firm were used as control variables. This finding by Kumar and Dua (2021) provides evidence that EMS can effectively source favorable financial performance. This study is supported by Agyemang et al. (2021) in China, that found a positive relationship between

financial performance and ISO certification. It is also because customers now mostly prefer buying environmentally conscious products.

Using a questionnaire survey on 155 small businesses in the Czech Republic, Petera et al. (2021) identify a positive relationship between financial performance and EMS. It further echoes earlier arguments by the researchers that a favorable improvement in financial performance originating from the adoption of EMS further inspires managers to maintain the use of EMS. However, Petera et al.'s study (2021) lacks objectivity as the study is based on the subjective insights of managers. The findings by Petera et al. (2021) are further corroborated by Mungai et al. (2020). The nexus between waste management and voluntary management systems based on ISO 14001 disclosed a positive relationship. Similarly, this study lacks objectivity as it was based on the subjective views of respondents.

A closer analysis of the extant literature points out that the relationship between EMS and financial performance produced mixed and inconsistent findings and therefore remains inconclusive. It calls for further studies to analyze the association between EMS and financial performance (Zopf & Guenther, 2015). Considering the above discussion, it hypothesized H1: There is a significant positive relationship between EMS and earnings per share. Based on the description above, the authors chose the study's title, "Environmental Management System and Financial Performance of Environmentally Sensitive Industries in South Africa".

METHODS

An ex-post facto research design and content analysis data were used in gathering data from annual integrated reports, annual financial statements and sustainability reports from 2014 to 2021. Therefore, an ex-post facto research design will be applied to identify the relationship between EMS and the financial performance of environmentally sensitive industries listed on JSE. The study covered 65 JSE listed companies from environmentally sensitive sectors such as the manufacturing, mining and construction.

Data collection. Annual integrated reports, annual financial statements and sustainability reports of the sampled companies were used to gather the study's data. In South Africa, the King Code III and IV demand detailed and extensive reporting of environmental and social information by the listed companies in their annual reports. Therefore, the logic behind choosing the sample is the availability and accessibility of annual reports. In addition, data from the listed companies on JSE is extensively audited (Ganda, 2018).

A total of 210 reports were analyzed for the eight years of applying content analysis. Content analysis can be defined as a "method for conducting research where there is the qualification of the content under study" (Font et al., 2016). In this paper, content analysis has been used to count the number of times elements of EMS have been revealed in the annual reports. These activities are therefore utilized as units to quantify the EMS of companies under study. Hsu et al. (2019) asserted that units utilized for content analysis are reflected as wholes that may be separated and viewed as independent components.

To begin with, as data collected from annual reports to quantify EMS were in the form of numbers, they were changed into dummy variables. Gaurangkumar (2015) affirms that a dummy variable is simulated and developed so that it may characterize two or more discrete groupings. So, applying content analysis to change the subjective data to quantitative data, the researchers established key search words per each indicator to track whether the indicator was disclosed or not to allocate a score to every single result. For objectivity, the researchers utilized a dichotomous scale between 0 and 1 (Nag et al., 2016; Quéré et al., 2018). During data gathering, a score of 0 was assigned

when the indicator was unreported, and a score of 1 was assigned when the indicator was stated in the annual reports.

Measurement of variables: Financial performance. This research used financial performance as the dependent variable. This paper utilized the accounting-based measure of financial performance, namely earnings per share (EPS). As per Raza et al. (2012), EPS indicates the "amount of earnings allocated to shareholders." EPS was selected as a financial performance proxy because listed companies on JSE are required to disclose their EPS publicly. More importantly, EPS is utilized for strategic pronouncements such as stock valuations. EPS is essential for investors to evaluate how other investors in the company are getting. EPS can be calculated by dividing the profit or loss assignable to ordinary shareholders by the weighted mean amount of ordinary shares issued.

Measurement of variables: Environmental management system. EMS is considered the independent variable of the study. Five factors – pollution control, recycling, waste minimization, energy consumption reduction, and carbon footprint reduction – were used to measure EMS. It was deemed operationalization of EMS when these variables were reported in the annual reports of the sampled enterprises. Neeveditah et al. (2017) also applied a similar approach in assessing the association between EMS and financial performance. Data were evaluated by applying the multiple regression model. A regression analysis was conducted by applying the software SPSS version 28.

Control variable. It is critical to establish if other essential factors have an impact on the dependent variable (Prajogo et al., 2014). Therefore, these factors must be verified before the independent variable makes another description of the results available. In this study, size was used as the control variable by compiling the total assets of the sampled companies. Neeveditah et al. (2017) argue that the size of a company determines whether a company can use an EMS.

RESULT AND DISCUSSION

From Table 1, R square is .538 for model 2. It implies that the regression fits data by only 5.38%. Owing to five independent variables, proxies of EMS, the value of adjusted R2 is also considered. According to these results, the EMS proxies appear to have a substantially more predictive ability than the control variable, Size, with an additional 2.4% of EPS changes characterized by the EMS proxies. The variance between R square and adjusted R square was .024, implying that this model might lead to 2.4% of changes in variance to the population except for this sample.

The Durbin-Watson statistic in Table 1 reflects the absence of correlation in the data. Table 1 shows the Durbin-Watson statistic value of 2.165 for the return on equity model. Durbin-Watson statistic falling within the range 1 and 3 shows the non-existence of autocorrelation. As a rule of thumb, Field (2009) endorses that the Durbin-Watson statistic within the range of between 1 and 3 showed a lack of autocorrelation. So, the Durbin-Watson statistic value of 2.165 shows the non-existence of autocorrelation in the data.

Table 1. EPS regression model- Model summary

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate	Durbin- Watson
1	.717 ^a	.514	.533	.03667	
2	.734 ^b	.538	.024	.03669	2.109

Note:

a. Predictors: (Constant), SIZE

b. Predictors: (Constant), POLL, RECY, CARB, ENE, WAR

Source: Author, 2022

Table 2 depicts that the earnings per share model have a solid explanatory power ($p = .000$). Furthermore, Table 2 reflects that CARB ($p = .005$), RECY ($p = .001$), and POLL ($p = .004$) have a significant ability to predict EPS. However, ENE ($p = .761$) and WAR ($p = .089$) have an insignificant capability to forecast EPS. Given these results, H1 is accepted and supported. It means a significant nexus between EMS and financial performance proxied by EPS. Furthermore, the results show that EMS contributes to financial performance based on size.

Table 2. Coefficients of dependent variable: earnings per share

Model	Unstandardized Coefficients		Std. Beta	t	Sig.
	B	Std. Error			
(Constant)	.211	.332		4.11	.000
CARB	.771	.098	.134	1.88	.005
RECY	-.112	.011	.987	-1.12	.001
POLL	.090	.998	.554	.512	.004
ENE	.088	.554	.332	-.991	.761
WAR	.122	.334	.112	-.775	.089
SIZE	.034	.221	.092	.012	.001

a. Dependent variable : Earnings per share

Source: Author, 2022

The impact of adverse environmental effects has been broadly felt across South Africa. As a result, communities and the corporate sector have been under undue pressure to find innovative solutions to avert the growing concerns of adverse environmental impacts. To that end, the environmental management system was developed to be used by companies to address environmental challenges as part of their operations. Given this, the main objective of this study is to investigate the relationship between EMS and financial performance measured by earnings per share of 65 JSE listed environmentally sensitive sectors. EMS was proxied by five indicators: recycling, pollution control, minimizing carbon footprint, reducing energy consumption and waste lessening.

The results of this study indicate that disclosing recycling, pollution control and carbon footprint augments the EPS of the sampled companies. Companies need to critically ensure that recycling, pollution control and carbon footprint reduction are reported in the companies' annual reports to enhance profitability. Conversely, disclosing energy consumption and waste lessening as a measure of EMS has an insignificant relationship with EPS. Overall, the findings reflect that EMS can improve corporate financial performance. It is important in South Africa as such empirical evidence needs to be provided.

Additionally, the results highlight that EMS is central to corporate financial performance. Therefore, companies must critically focus on adopting as a measure to increase both environmental and financial sustainability. Fuzi et al. (2019) support this finding in Malaysia by studying the link between EMS and financial performance in 335 manufacturing companies.

CONCLUSION

This research investigated the relationship between EMS and financial performance measured by EPS of 65 environmentally sensitive industries listed on JSE in South Africa. EMS was proxied by five variables: recycling, pollution control, carbon footprint reduction, energy savings and waste reduction. The objective was tested based on the panel regression model. It was concluded that companies could amplify their financial performance by applying EMS. In other words, this study focused on identifying whether "it pays to be green." The study has various recommendations based on the results and the state of EMS among companies. For example, climate change has been touted

among the most significant challenges of the 21st century, which must be resolved through the combined effort of various actors. However, the lack of economic incentives inhibits the transformation action needed to produce an environment where various initiatives are adopted voluntarily. In this case, regulation can be enacted in South Africa to compel companies to adopt EMS to mitigate climate change and as a source of corporate financial performance. Thus, this study provides empirical evidence of the effect of EMS on profitability. However, future studies can focus on the effect of EMS on climate change.

However, the study only focused on companies listed on the JSE. It limits the applicability of the findings to non-listed companies. Prudently, future studies can study the effect of EMS on the corporate performance of non-listed firms.

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