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Environmental Accounting Disclosures and Financial Performance: A Study of selected Food and Beverage Companies in Nigeria (2006-2015)

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Abstract
The response of firms to environmental liabilities has brought about the reconfiguration of corporate performance indices in a larger context under the subtle influence of environmental and social factors, in order to develop a holistic view of an entity's performance. This study investigated the relationship of environmental accounting disclosures and financial performance of food and beverage companies in Nigeria. Specifically, the study examined the relationship between environmental accounting disclosures and return on equity of food and beverage companies in Nigeria. It also examined the relationship between environmental accounting disclosures and return on capital employed of food and beverage companies in Nigeria, among others. Four hypotheses were formulated and tested in line with the objectives of the study. Data for the study were collected through secondary sources and analyzed using Pearson's correlation statistical technique and multiple regression, with the aid of SPSS version 20.00. The study revealed that there is a significant relationship between environmental accounting disclosures and return on equity of selected companies. It also revealed a negative relationship between environmental accounting disclosures and return on capital employed and net profit margin of selected companies. Based on these findings, the researcher recommends among others, that firms should adopt uniform reporting and disclosure standards of environmental practices. This will enhance control and measurement of performance. The study also advocates that firms (especially smaller ones), should be encouraged to disclose their environmental practices in their annual reports in order to

enhance their competitiveness which would subsequently, lead to higher corporate performance.

Keywords: Environmental accounting, Disclosures, Financial performance, Food and Beverage.

Introduction

The increase in global environmental awareness and the campaign for sustainable economic development is redirecting the attention of firms towards environmental sensitivity (Ngwakwe, 2008). The quest for sustainability has caused an emergence of many global institutions enunciating varying norms that guide human interaction with the environment. These standards are influencing business corporations to understand that their strategic position in society has the power to influence behaviour and alter the state of physical, social and economic environment. Environmental accounting describes the effort of accounting standard setters, professional organizations and governmental agencies to get corporations to participate proactively in cleaning and sustaining the environment and to describe fully, their environmental activities in either their annual reports or stand-alone environmental disclosure. Environmental accounting is seen by corporate managers and environmental advocates alike as a necessary complement to improved environmental decision-making in organizations. Whether the goal is pollution prevention, or some broader notion of "corporate sustainability", there is a widespread belief that sound environmental accounting will help firms identify and implement financially desirable environmental innovations (Boyd, 1998).

Although environmental regulation, pressure group activity, and consumer awareness is weak in developing countries, some corporations in these countries are becoming conscious of their international market and are making appreciable effort as regards environmental practices. The result of sampled industries in Nigeria shows that few companies are becoming environmental friendly. However a large number of firms are still apathetic about their environmental and social responsibility. Based on this divide, this study examines the relationship between environmental accounting disclosures and firm financial performance. This study contributes to existing literature by examining this issue within the context of food and beverage companies in Nigeria, to ascertain the level of environmental accounting disclosures and how it relates to firm financial performance.

Statement of the Problem

The response of firms to environmental liabilities has brought about the reconfiguration of corporate performance indices in a larger context under the subtle influence of environmental and social factors, in order to develop a holistic panorama of an entity's performance. This has led to a growing demand from various stakeholders for measurement of a company's environmental practices and subsequent public disclosure of this information. As a result, a new area of accounting has emerged regarding environmental accounting. The interest of accounting in the environment emerged from the reality that management needed financial data on environmental expenditures as a result of the increasing needs of different stakeholders such as; government, investors, lenders, general public, customers, etc to have financial data on environmental performances of different organizations reported in financial

statements (Ali, 2002). Consequently, the absence of comprehensive and verifiable information on environmental practices of companies may signal a practice where companies can pollute the environment and yet appear more economic efficient than others which incur costs to protect the environment.

The researcher's interest is therefore to investigate if food and beverage companies in Nigeria disclose their environmental activities and if so, the relationship with their financial performance.

This study aims at analyzing the relationship between environmental accounting disclosures and firm financial performance. Furthermore, it analyzed the effect of environmental accounting disclosures on firm financial performance.

Objectives of the Study

The main objective of this study is to investigate whether the environmental practices of selected food and beverage companies in Nigeria are related to its financial performance. Other objectives are to examine the relationship that exists between environmental accounting disclosures and return on equity (ROE), return on capital employed (ROCE), net profit margin (NPM) of selected food and beverage companies in Nigeria and to investigate the effect of environmental accounting disclosures on earnings per share (EPS) of selected food and beverage companies in Nigeria .

Drawing from the above objectives, this study will attempt to answer the following questions:

1. What relationship exists between environmental accounting disclosures and return on equity (ROE) of selected companies?

2. What relationship exists between environmental accounting disclosures and the return on capital employed (ROCE) of selected companies?

3. What relationship exists between environmental accounting disclosures and net profit margin (NPM) of selected companies?

4. What is the effect of environmental accounting disclosures on earnings per share (EPS) of selected companies?

In the course of this study, the following hypotheses were formulated:

Ho$_1$: There is no significant relationship between environmental accounting disclosures and return on equity of selected food and beverage companies in Nigeria.

Ho$_2$: There is no significant relationship between environmental accounting disclosures and return on capital employed of selected food and beverage companies in Nigeria.

Ho$_3$: There is no significant relationship between environmental accounting disclosures and net profit margin of selected food and beverage companies in Nigeria.

Ho$_4$: There is no significant effect of environmental accounting disclosures on earnings per share (EPS) of selected food and beverage companies in Nigeria.

 The study focused exclusively on selected food and beverage firms. These companies must have filed their annual report within the last ten years (2006-2015) for them to be selected. This criterion places a limit on the number of firms qualifying for the study. The study is therefore based on 10 selected food and beverage companies in Nigeria. Food and beverage companies

were chosen for this study because of the environmental and social effects which some of their operations have on the environment.

Conceptual Review
Definition of Environmental Costs
Environmental costs are costs incurred by companies in order to protect the environment, prevent environmental problems and minimize damages to the environment. They are those costs incurred in compliance with, or prevention of breach of environmental laws, regulations and company policies. However, the true environmental costs to a firm can be far broader, including costs of resources both those directly related to production and those involved in general business operations, waste treatment and disposal costs, the costs of poor environmental reputation and the cost of paying an environmental risk premium.

The U.S. Environmental Protection Agency (1996) defines environmental costs as those costs that have a direct financial impact on a company (internal costs), and costs to individuals, society and the environment (external costs). Any activity conducted by enterprises in their environments leads to the emergence of environmental costs. Some of the environmental costs arise as a result of actions taken to protect the environment and occur as a result of the use of environmental resources. Another part of these costs arises due to environmental pollution caused by these companies. Environmental costs can be divided into three different groups: reduction costs, operating costs and damage costs (Otlu and Kaya, 2010).

Categories of Environmental Costs
Environmental costs can be categorized into costs that directly impact on a company's bottom-line, which are referred to as private costs and costs to individuals, society, and the environment for which a company is not accountable, which are called societal cost. Private costs can further be classified into; conventional costs, potentially hidden costs, contingent costs and image and relationship costs. This classification creates both a decision-oriented information base for the environmental management system and for the planning, control and supervision of material and energy flows (Lethmate and Doost, 2000).

i. Conventional Costs: The costs of using raw materials, utilities, capital goods, and supplies are usually addressed in cost accounting and capital budgeting. However, the environmental portion of these costs are not usually considered as environmental costs. It is important to factor these costs into business decisions, whether are not they are seen as environmental costs.

ii. Potentially Hidden Costs: These are environmental costs that may be potentially hidden from managers because of their infrequent nature and/or because of their collection in company overhead accounts (EPA 742-R-95-003, 1995). Different types of environmental costs that may be potentially hidden from managers are; upfront environmental costs, regulatory and voluntary environmental costs and back-end environmental costs.

iii. Contingent Costs: These are costs that may or may not be incurred at some point in the future. Examples include the costs of remedying and compensating for future accidental

releases of contaminant into the environment (example, oil spills), fines and penalties for future regulatory infractions. Because these costs may not currently need to be recognized for other purposes, they may not receive adequate attention in internal management accounting systems and forward-looking decisions.

iv. Image and Relationship Costs: These costs are incurred to affect subjective (though measurable) perceptions of management, customers, employees, communities and regulators. These costs have also been termed "corporate image" and "relationship" costs. This category can include the costs of annual environmental reports and community relations activities, costs incurred voluntarily for environmental activities (example, tree planting), and costs incurred for recognition programs. These costs themselves are not intangible, but the direct benefits that result from relationship or corporate image expenses often are.

v. Societal Costs or External Costs: These are the costs a business impacts on the environment and society for which business is not legally accountable. They include environmental degradation and adverse impacts on human beings, their property and their welfare which cannot be compensated through the legal system.

At present, valuing societal costs is both difficult and controversial; nevertheless, it is essential for any environmentally friendly organization to determine external impacts and to the extent possible, value societal costs in order to integrate them into its planning and decision-making.

Theoretical Framework
Stakeholders Theory
The basic proposition of the stakeholders theory is that the firm's success is dependent upon the successful management of all the relationships that a firm has with its stakeholders- a term originally introduced by Stanford research institute (SRI) to refer to those groups without whose support the organization would cease to exist (Freeman 1983). Freeman's stakeholders' theory asserts that, managers must satisfy a variety of constituents (example, employees, customers, suppliers, local community and so on) who can influence the firm's outcomes. According to this view, it is not sufficient for managers to focus exclusively on the needs of stockholders, or the owners of the business. This implies that it can be beneficial for the firm to engage in certain environmental activities that non-financial stakeholders perceive important, because without this, these groups might withdraw their support from the business.

In developing the stakeholder theory, Freeman, (1983) incorporates the stakeholders' concept into categories:

(i) A business planning and policy model, and

(ii) A corporate social responsibility model of stakeholder management.

In the first model, the stakeholder analysis focuses on developing and evaluating the approval of corporate strategy decisions by groups whose support is required for the firm's continued existence. The stakeholders identified in this model include the owners, customers, public groups and suppliers. Although these groups are not adversarial in nature, their possibly conflicting behavior is considered a constant on the strategy developed by management to best match their firm's resources with the environment (Deegan and Gordon, 1966). In the second model, the corporate planning and analysis extends to include external influences which may

be adversarial to the firm. These adversarial groups may include the regulatory environmentalist and/or special interest groups concerned with social issues (Guthrie and parker, 1990). The second, model enables managers and accountants to consider a strategic plan that is adaptable to change in the social demands of non -traditional stakeholders groups. The stakeholders' theory proposed an increased level of environmental awareness which creates the need for companies to extend their corporate planning to include the non-traditional stakeholders like the regulatory adversarial groups in order to adapt to changing social demands (Trotman, 1999). The main concern of the stakeholders' theory in environmental accounting is to address the environmental cost elements and valuation and its inclusion in the financial statements.

This study is anchored on stakeholders' theory, as its concern is to encourage business managers to carry out environmental practices which the non- financial stakeholders consider very important so as to maximize stakeholders' value as well as minimize environmental costs.

Empirical Review

Topics of environmental accounting and reporting have received substantial interest from academic researchers for the past three decades (Rajapakse, 2003; Surman & Kaya, 2003; Thompson & Zakarai, 2004; O'Donovan & Gibson 2000). The results of different studies measuring the relationship between corporate financial performance and corporate social and environmental disclosure show mixed results.

Klassen and McLaughlin (1996) proposed a theoretical model aimed at establishing a linkage between strong environmental management and improved future financial performance. Using empirical methods, Klassen and McLaughlin (1996) discovered that significant positive financial returns were measured for strong environmental management while significant negative financial returns were measured for weak environmental management.

Bewley and Li (2000) appealed to voluntary disclosure theory to examine the environmental disclosures of Canadian manufacturing firms. They used the Wiseman index to measure the 1993 annual report disclosures of 188 firms and industry membership to proxy for pollution propensity. They found that firms with a higher pollution propensity and greater media coverage of their environmental performance are more likely to disclose general environmental information, a result also consistent with the socio political theories. Similarly, Hughes *et al*. (2001) examined environmental disclosures made by U.S. manufacturing firms in 1992 and 1993 using a modified Wiseman index to measure disclosures in the president's letter, MD&A, and notes sections of the annual report, and the CEP rankings to proxy for environmental performance. They found that firms rated as poor by the CEP generally make the most disclosures.

Al-Tuwaijri *et al*. (2004) employed simultaneous equations approach to investigate the relations among environmental disclosure, environmental performance and economic performance. They used proxy for environmental performance using the percentage of total waste generated recycled as identified using the TRI database and measure environmental disclosure using a content analysis in four categories, potential responsible parties' designation, toxic waste, oil and chemical spills, and environmental fines and penalties, disclosures which are largely non-

discretionary. Based on these proxies, Al-Tuwaijri *et al*. (2004) documented a positive association between environmental performance and environmental disclosure.

Salama (2005) used regression analysis to measure the impact of environmental performance on financial performance. The findings showed that a positive relationship existed between environmental performance and firm financial performance.Montabon, Sroufe, and Narasimhan, (2007) in their paper examined the relationship between environmental management practices and firm performance. They established that a significant and positive relationship exists between environmental management practices and measures of firm performance. Enahoro, (2009) used T-test statistics, Pearson product moment correlation and regression analysis and observed that environmental accounting disclosure does not take the same pattern among quoted firms in Nigeria.

 Bassey, Sunday & Okon (2013) on the other hand used Pearson's product moment correlation analysis of oil and gas companies in the Niger Delta region of Nigeria. They observed that environmental cost has satisfied relationship with firm's profitability. Adediran and Alade (2013) used multiple regression analysis of 14 randomly selected companies quoted on the Nigerian Stock Exchange 2010. Their findings show that environmental accounting has a positive relationship with net profit margin, dividend per share and a negative relationship with return on capital employed and earnings per share.

It has been observed that most of these researchers adopted content analysis. Content analysis is presently the most widely used technique for analysis of narratives in annual financial reports (Shil & Iqbal, 2005). Since this method is mostly used by researchers, this study adopted content analysis in examining the level of environmental accounting disclosure of selected food and beverage firms in Nigeria and how this relates to their financial performance using multiple regression models and Pearson's Correlation statistical technique.

Research Methodology

The research design used in this study is ex-post facto research design as it analyzed already existing information over a number of years. Ex-post facto research deals with the determination, evaluation and explanation of past events essentially for the purpose of gaining a better and more reliable prediction of the future (Amahalu et al, 2015). The research methods involved an initial scrutiny of the companies' annual reports to observe the incidence of environmental practices. The companies making environmental disclosures were rigorously examined and analyzed. For this purpose, all sections of the annual report were carefully examined to note the presence of any environmental disclosure. Given the time and resource constraints, the nature of the study tends to be mainly exploratory and descriptive. Although there are a number of ways in which environmental accounting reports may be made, like many other studies (for example, Gray et al., 1995; Guthire and Parker, 1990; Roberts, 1990 and Adams, 2004), this study will only take account of the disclosures made in the annual reports because this is the most authentic and reliable document produced by the companies annually.

The environmental practices information were obtained from the annual reports using content analysis. Content analysis was adopted because it is one of the most suitable, systematic,

objective and quantitative method of data analysis technique employed in prior research studies in measuring a company's social environmental disclosure in annual audited reports (Wiseman, 1982; Deegan & Gordon, 1996; Hackston and Milne, 1996; Krippendorff, 2004; Onyali, Okafor and Egolum, 2014).This study is to examine how environmental accounting disclosures (measured by the environmental disclosure index) is related to financial performance (measured by ROCE, ROE, NPM and EPS) of selected food and beverages firms in Nigeria.

Data Presentation and Analyses
Table 1   Descriptive Statistics of Environmental Accounting Disclosures

	N	Minimum	Maximum	Mean	Std. Deviation
Environmental Accounting Disclosures	100	.00	15.00	4.4900	3.42744
Valid N (listwise)	100				

Source: SPSS Version 20; 2016

The table above shows the descriptive statistics of the practice of environmental accounting disclosures as measured by the environmental disclosure checklist in the studied food and beverage companies for ten years from 2006 to 2015. The minimum value, 0 indicates that some of these companies did not practice environmental accounting disclosure at all. Some were found to score as high as 15 (the maximum value) out of the 20 items contained in the disclosure list. From this, it can be stated that companies that practice most practice at 75% level (15 divided by 20). The mean value stood at 4.49 depicting that in the food and beverage sector generally, companies have a score of only 4.49 of 20 showing 22.45% adoption.

H_o: There is no significant relationship between environmental accounting disclosures (EAD) and return on equity (ROE) of selected food and beverage companies in Nigeria.

Table 2   Correlations for Hypothesis I

		Environmental Accounting Disclosures	Return on Equity
Environmental Accounting Disclosures	Pearson Correlation	1	.239[*]
	Sig. (2-tailed)		.016
	N	100	100
Return on Equity	Pearson Correlation	.239[*]	1
	Sig. (2-tailed)	.016	
	N	100	100

 *. Correlation is significant at the 0.05 level (2-tailed).
Source: SPSS Version 20; 2016

$R_{(0.05,98)} = 0.164$; $r_{cal} = 0.239$

Decision Rule: Accept null hypothesis if r_{cal} is less than $r_{(0.05,\ 98)}$, if not reject null and accept alternate hypothesis.

Since $R_{cal\ (>}\ R_{tab}$, we reject the null hypothesis and accept alternate that, there is a significant relationship between environmental accounting disclosure (EAD) and return on equity (ROE) of food and beverage companies in Nigeria**.**

H$_{o2}$: There is no significant relationship between environmental accounting disclosures (EAD) and return on capital employed (ROCE) of selected food and beverage companies in Nigeria.

Table 3 **Correlations for Hypothesis II**

		Environmental Accounting Disclosures	Return on Capital employed
Environmental Accounting Disclosures	Pearson Correlation	1	.115
	Sig. (2-tailed)		.253
	N	100	100
Return on Capital employed	Pearson Correlation	.115	1
	Sig. (2-tailed)	.253	
	N	100	100

Source: SPSS Version 20; 2016

$R_{(0.05,98)} = 0.164$; $r_{cal} = 0.115$; $r_{cal} < r_{tab}$

Decision Rule: Accept null hypothesis if r_{cal} is less than $r_{(0.05,\ 98)}$, if not reject null and accept alternate hypothesis.

The null hypothesis is accepted since the critical correlation value is higher than the calculated. It is therefore concluded that there is no significant relationship between environmental accounting disclosures (EAD) and return on capital employed (ROCE) of selected food and beverage companies in Nigeria.

H$_{o3}$: There is no significant relationship between environmental accounting disclosures (EAD) and net profit margin (NPM) of selected food and beverage companies in Nigeria.

Table 4   **Correlations for Hypothesis 3**

		Environmental Accounting Disclosures	Net Profit Margin
Environmental Accounting Disclosures	Pearson Correlation	1	.139
	Sig. (2-tailed)		.169
	N	100	100
Net Profit Margin	Pearson Correlation	.139	1
	Sig. (2-tailed)	.169	
	N	100	100

Source: SPSS Version 20; 2016

$R_{(0.05, 98)} = 0.164$; $r_{cal} = 0.169$; $r_{cal} < r_{tab}$

Decision Rule: Accept null hypothesis if r_{cal} is less than $r_{(0.05, 98)}$, if not reject null and accept alternate hypothesis.

The null hypothesis is accepted since the critical correlation value is greater than the calculated. It is therefore concluded that there is no significant relationship between environmental accounting disclosure (EAD) and net profit margin (NPM) of food and beverage companies in Nigeria.

H_{o4}: There is no significant effect of environmental accounting disclosures (EAD) on earnings per share (EPS) of selected food and beverage companies in Nigeria.

Table 5   **Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.405[a]	.164	.156	5.85840

Source: SPSS Version 20; 2016
a. Predictors: (Constant), Environmental Accounting Disclosures

Table 6   **ANOVA**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	660.393	1	660.393	19.242	.000[b]
	Residual	3363.441	98	34.321		
	Total	4023.834	99			

Source: SPSS Version 20; 2016
a. Dependent Variable: Earnings Per Share
 b. Predictors: (Constant), Environmental Accounting Disclosures

Table 7   **Regression Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.752	.969		.776	.439
	Environmental Accounting Disclosures	.754	.172	.405	4.387	.000

Source: SPSS Version 20; 2016

a. Dependent Variable: Earnings Per Share

The Model summary as shown in Table 4.5 indicates a positive relationship between environmental accounting disclosures and earnings per Share of 0.405 as indicated by the R, which is the correlation coefficient of the two variables. The R Square value, 0.164 further revealed that environmental accounting disclosure (EAD) accounts for 16.4% contribution in Earnings per Share of companies. The Adjusted R square, 0.156 depicts that the model formulated has 15.6% predictability.

The Regression coefficient table, Table 4.7 had the value of the constant in the regression equation as 0.752 and beta coefficient of 0.754 at t=4.387 and sig=p=.000. This also shows significance as sig=p=.000<.05 which is the level of significance adopted for this study. The regression analysis also indicates that Environmental Accounting disclosures accounted for 75.4% of every change in Earnings per Share.

The regression model restated is:

EPS= 0.752 + 0.754EAD + 5.86

In order to make a decision as to the acceptance or rejection of the null hypothesis, the **F** statistic value on the ANOVA table was used.

F_{cal}= 19.242; F_{tab}= $F_{(2,100)}$ = 3.94

$$F_{cal} > F_{tab}$$

Following the decision rule, we reject the null hypothesis and accept the alternate hypothesis that there is a significant effect of environmental accounting disclosures on earnings per share of selected companies. This implies that environmental accounting disclosure (EAD) has a significant effect on the Earnings Per Share of selected companies.

Discussion of Findings and Conclusions

The study concluded that environmental accounting disclosures have not been fully embraced by food and beverage companies in Nigeria. This could be as a result of the lack of viable legislations, non-existence of proper enforcement of environmental laws, cost of implementation and lack of support from top management and directors. Oyadonghan and Gbalam (2013) and a lot of other literature also found the complacency of Nigerian companies in various sectors to adopt environmental accounting practices Beredugo and Mefor (2012)

Also, the study found that environmental accounting disclosure improves certain measures of performance of selected food and beverage companies in Nigeria. Companies with better environmental accounting disclosures had higher Earnings per Share and Return on Equity. The finding in this work is in agreement with the work of Klassen and Mclaughlin (1996); Wingard

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and Vorster (2001); Salama (2005); and Bassey et al (2013). The work of Clarkson et al (2011) also supports this as they found that the adoption of environmental accounting practices lead to increased resources and creation of new wealth. However, Adeniran and Alade (2013) found negative relationship between environmental accounting practices and Earnings per Share.

Environmental accounting disclosures did not have any relationship with Net Profit Margin and Return on Capital Employed. This implies that NPM and ROCE are significantly affected by other factors external to this study. In other words, a company's NPM and ROCE will not be affected even if that company does not practice environmental accounting. This is consistent with the findings of Horvathora (2010) when she analysed companies' environmental accounting practices and their financial performance using Pearson's correlation. However, Adeniran and Alade (2013) found positive relationship for Net Profit Margin and negative relationship between environmental accounting practices and ROCE. Yang et al (2011) also found negative relationship.

The analyses of the data obtained showed that companies with better environmental accounting disclosures had higher Earnings per Share and Return on Equity. This shows that there is a significant relationship between environmental accounting disclosures and earnings per share and return on equity of selected companies. However, environmental accounting disclosures did not have any significant relationship with Net Profit Margin and Return on Capital Employed of selected companies. This implies that NPM and ROCE are significantly affected by other factors external to this study.

Recommendations

Based on the findings of this study, the following recommendations were made;

1. This study revealed that selected companies have put in much effort towards environmental protection. However, the current accounting system does not reflect such efforts for its stakeholders. So, there should be an accounting standard for measuring, treatment and disclosure of firms' environmental practices. This will enhance proper environmental reporting.

2. Firms should adopt uniform reporting and disclosure standards of environmental practices for the purpose of control and measurement of performance.

3. Firms (especially smaller ones), should be encouraged to disclose their environmental practices in their annual reports to enhance their competitiveness which would subsequently lead to high corporate performance.

4. Top management should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing sustainability.

5. Environmental disclosures should be made mandatory on firms so as to give a true and fair view of corporate financial performance and position.

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