Influence of Environmental Audit on the Performance of Large Manufacturing Firms in Kenya

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Abstract

The large manufacturing firms in Kenya have recently recorded a decline in performance. The study thus examined the influence of environmental audit on performance of large manufacturing firms in Kenya. The specific objectives were to examine the influence of environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency on performance of large manufacturing firms in Kenya. The study utilized descriptive and explanatory research designs. The target population was 499 and a sample size of 336 was obtained using the Yamane formula. The study used questionnaires to collect the data. The findings of the study showed that environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency can explain 41.3% of the variations in the performance of large manufacturing firms in Kenya. The regression results showed that environmental checks and verification strategies are positively and significantly related to performance of large manufacturing firms in Kenya (β=0.193, p=0.000). Environmental management plans strategies was found to be positively and significantly related to performance of large manufacturing firms in Kenya (β=0.536, p=0.000). Environmental monitoring frequencies was found to be positively and significantly related to performance of large manufacturing firms in Kenya (β =0.190, p=0.000). The study concluded that environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency are significant in determining performance of large manufacturing firms in Kenya. The study recommended that large manufacturing firms should apply environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency as one of the strategies to achieve and reinforce performance. The environmental audit be cemented in the organization policy since it contributes to the performance of large manufacturing firms in Kenya.
Keywords: *Environmental Audit, performance, large manufacturing firms, Kenya*

1.0 Background Of the Study

The manufacturing sector is among the priority sectors identified by Vision 2030, earmarked to catalyze Kenya's leap to a higher middle-income economy. Performance of these enterprises is a great concern not only to firms but the entire society due to their anticipated significance in the contribution to economic growth in Kenya. The performance can be measured using both financial and non-financial indicators (Tasneem, Muhammad & Basit, 2016). The financial indicators comprise the net profits, return on assets (ROA), return on equity (ROE), return on investments (ROI), and net profit margin, while non-financial indicators include market share, customer base, growth, customer satisfaction, production efficiency, customer service, among others (Ntiamoah, Egyiri & Kwamega, 2014). Non-financial performance measures, though subjective, serve as complements to the financial measures (Muloli, 2020). The study measured the performance using both financial and non-financial indicators. The financial indicator was ROA, while the non-financial indicators included customer base and market share.

Hsu (2017), Somjai, Fongtanakit and Laosillapacharoen (2020), Kibogy (2017), Makori and Jagongo (2013), Emuebie, Olaoye and Ogundajo (2021) and Green, Zelbst, Bhadauria and Meacham (2012) indicates that environmental audit is significant in influencing the performance of an organization. According to Lee, Park, Song and Yook (2017), an environmental audit identifies a company's full extent of its environmental impacts. It determines whether the company complies with applicable laws, regulations, and expectations of its stakeholders to enable it to understand how to sustain or improve its environmental performance (Butcher, 2014). Environmental auditing is a means of assessing environmental performance. Auditing is instrumental in disclosing environmental responsibility for different industrial or commercial entities and at all levels, whether micro, meso, or macro. Thus, accounting became used to achieve goals like measuring and evaluating potential or actual environmental impacts of projects and organizations (Enofe, Chijioke, Uyioghosa & Otivbo, 2013). The manufacturing sector has great potential on promoting economic growth and competitiveness in a country like Kenya.

Although Kenya is the most industrially developed country in East Africa, the manufacturing sector constitutes merely 10 percent of the industrial sector's contribution to GDP (RoK, 2018). According to the World Bank (2014), sluggish growth in the manufacturing sector is pulling down economic growth in Kenya and is also losing grip on the East Africa Community market where it was dominant, due to inefficiencies and the unpredictable operating environment. The share of manufactured goods imported by EAC from Kenya declined from 9 percent in 2009 to 7 percent in 2013 (WB, 2015). The large manufacturing firms were 499 in number by the year 2017 (KAM, 2017). Over 80 percent of these large-scale enterprises are based in Nairobi while the rest are located in other major towns and regions including Coast, Nyanza, Nakuru, Eldoret, Athi River, Nyeri and Thika (KAM, 2017). However, statistics from World Bank show that Kenyan manufacturers have registered stagnation and declining profits for the last five years due

to an unpredictable operating environment (WB, 2015). The growth in the manufacturing industry has declined to 3.3 percent in 2011 as compared to 4.4 percent in the year 2010 mainly due to a challenging operating environment (KNBS, 2019).

Further statistics from the Kenya Association of Manufacturers have shown that certain firms announced plans to shut down their plants and shift operations to Egypt as a result of reduced profits (KAM, 2017). Cadbury Kenya announced that it will close down its manufacturing plant in Nairobi by the end of October 2014 (RoK, 2017). In the full-year to September 2013 results, Eveready's net profit fell 58.7 percent to $493,237 from $784,783 the previous year. Its production capacity dropped to 50 million units annually down from a previous high of 180 million per year mainly caused by contingencies (RoK, 2017). Manufacturers in the region lose over $330 million annually and the government loses $67 million in potential tax revenue due to unforeseen uncertainties. Hence, the study sought to examine whether environmental audits can influence the performance of large manufacturing firms in Kenya.

1.1 Statement of the Problem

The manufacturing sector is among the priority sectors identified by Vision 2030, earmarked to catalyze Kenya's leap to a higher middle-income economy. However, the sector's contribution to the GDP has stagnated with a growth of 3.1 percent, significantly lower than the overall economic growth of 5.0 percent (World Bank, 2019). For instance, East African Breweries Limited (EABL), a prominent East African brewing company, has been experiencing low profits and reduced market share in recent years, with a 15% and 7% drop in the profits and market share in 2016/2017 year compared to 2015 (Baraza, 2017). Moreover, East African Portland Cement reported a net loss of Ksh 3.4 billion in 2019 and 2.8 billion in 2020 (East African Portland Cement, 2020;2021). In addition, tata chemicals Magadi limited reported a loss of ksh. 134,000,000 in 2020 (Tata Chemicals Magadi Limited, 2021).

Further statistics from the Kenya Association of Manufacturers indicated that certain firms announced plans to shut down their plants and shift operations to Egypt due to reduced profits (KAM, 2017). The cement volume exported from the manufacturing firms decreased by 62.8 percent from 388.4 thousand tonnes in 2017 to 144.3 thousand tonnes in 2018 (KNBS, 2019). Also, cement production decreased by 2.6 percent to 6,069.9 thousand tonnes in 2018 from 6 230.3 in 2017 and the imports increased from 14.7 thousand tonnes in 2017 to 23.0 thousand tonnes in 2018 (KNBS, 2019). The decline in the performance of some of these large manufacturing firms could be due to flawed corporate environmental responsibility, thus forming the basis of the current study.

Based on the reviewed studies, the knowledge gap exists that formed the basis of conducting the current study. For instance, Makori and Jagongo (2013) looked at only environmental accounting while the current examined the influence of environmental audit on performance, thus a conceptual gap. A study by Menike (2020) was done in food, beverage and tobacco sector companies listed on the Colombo Stock Exchange, thus

presenting a contextual gap because the current study was done in manufacturing firms. Another study by Mwangi and Mwiti (2015) presented a conceptual gap because it only focused on voluntary financial disclosures. Nederhand and Klijn (2019) carried out a study on stakeholder involvement in public-private partnerships, and thus contextual gap.

A study by Somjai, Fongtanakit and Laosillapacharoen (2020) utilized a descriptive research design, thus a methodological gap since the current study used both descriptive and explanatory research design. The explanatory research design is used to examine the relationship between variables. In addition, Kibogy (2017) used a descriptive research design, thus a methodological gap. Ntiamoah, Egyiri and Kwamega (2014) conducted the study in the banking sector, thus presenting a contextual gap. Furthermore, Muloli (2020) conducted the study in banks, thus a contextual gap. Thus, based on the reviewed studies, a knowledge gap existed in conceptual, contextual and methodological and this formed the basis of the current study.

1.2 Research Objectives

i. To examine the influence of environmental checks and verification strategies on performance of large manufacturing firms in Kenya
ii. To determine the influence of environmental management plans strategies on performance of large manufacturing firms in Kenya
iii. To establish the influence of environmental monitoring frequency on performance of large manufacturing firms in Kenya

1.3 Research Hypotheses

i. H_{01}: Environmental checks and verification strategies has no significant influence on performance of large manufacturing firms in Kenya
ii. H_{02}: Environmental management plans strategies has no significant influence on performance of large manufacturing firms in Kenya
iii. H_{03}: Environmental monitoring frequency has no significant influence on performance of large manufacturing firms in Kenya

2.0 Literature Review

The discussions under the literature review are illustrated in sections.

2.1 Theoretical Review

The study was based on the stakeholder theory. Stakeholder theory, developed by Edward Freeman (1984) is a replica of corporate social responsibility. Corporate environmental responsibility is an obligation on firm proprietors to discard any waste properly and securely. Alternately, stakeholder theory attends to those living in the neighboring manufacturing communities or poisoned environment and consider business morals by demanding the privilege to clean air and water (Jamali, 2008). In large manufacturing firms, stakeholders may include customers, company employees, creditors, suppliers, local community and those living next to the firm (Orlitzky, Siegel & Waldman, 2011). Government entities, competing firms, shareholders and the firm's management are the

other stakeholders. Shareholders, workers, customers, suppliers, and community are the cardinal stakeholders (Epstein & Buhovac, 2014). In the current study, the theory explains the influence of environmental audit on the performance of large manufacturing firms in Kenya. Environmental audit identifies environmental problems and there may be widely differing reasons for undertaking them. These include compliance with legislation, pressure from suppliers and customers, requirements from insurers or for capital projects, or to demonstrate environmental activities to the public (Rehan & Raju, 2012). Thus, the theory was regarded relevant to inform the study.

2.2 Conceptual Framework

Orodho (2012) defines conceptual framework as graphical or diagrammatical model that represents relationships between variables in the study. It is a road map the study intends to follow for examining answers to the problems raised by the research questions. According to Kothari (2011), a variable is a measurable characteristic that assumes different quantitative values among the subjects. Figure 1 illustrates the relationship between variables.

Independent Variables

Environmental checks and verification strategies
- Auditing environmental awareness
- Environmental regulation policies
- Engagement in compliance audits

Environmental management plans strategies
- Environment audit plan
- Budgetary for environmental audit expenditures
- Adhering to environmental auditing laws

Environmental monitoring frequency
- Creation of environmental initiatives
- Identification of environmental problems
- Environmental monitoring programs

Performance of large manufacturing firms
- Net profits
- Establishment of branches
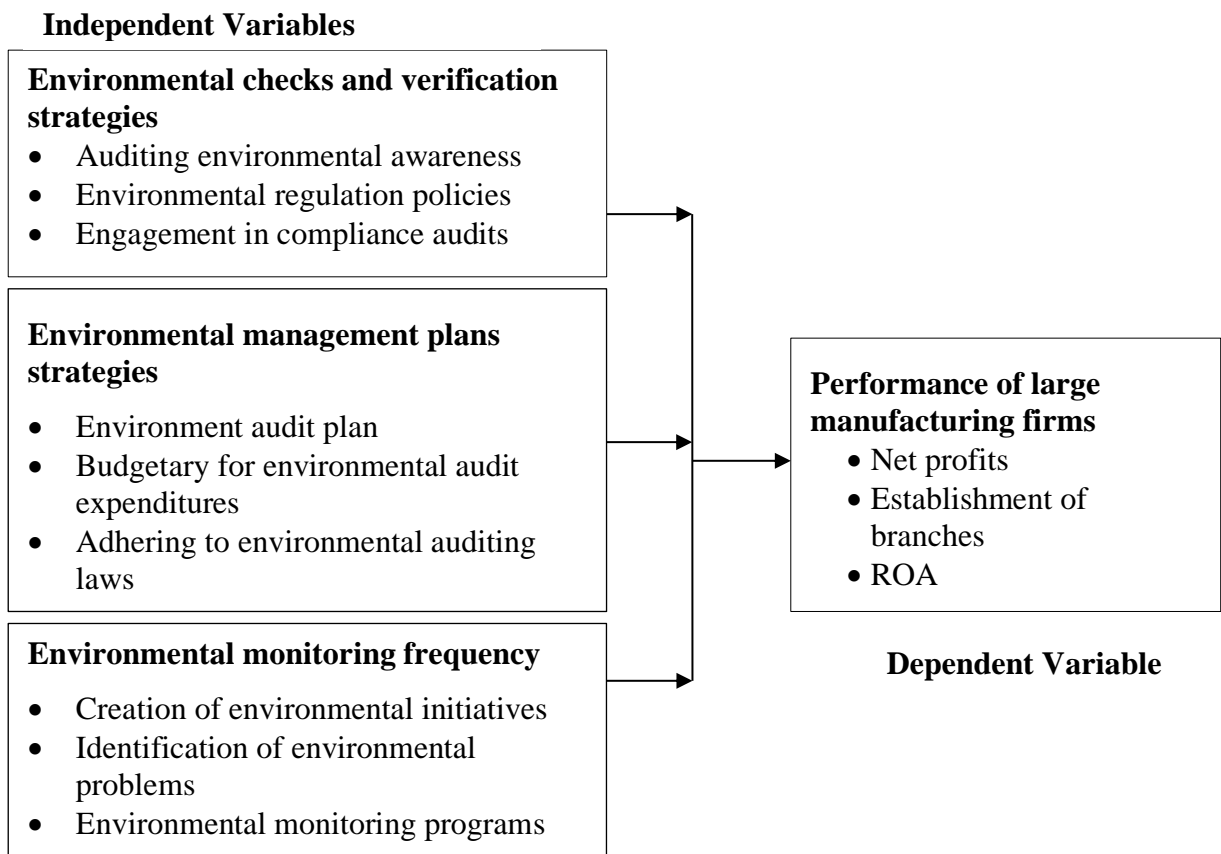- ROA

Dependent Variable

Figure 1: Conceptual Framework

2.3 Empirical Review

Moreover, Hsu (2017) investigated the effect of environmental checks on corporate financial performance for the steel industry. The study used a-share steel industry listed companies in Shanghai Stock Exchange from 2010 to 2014. The study result showed there is a significant effect of environmental checks on firm performance. Environmental checks and verification strategies are part of a long-term process of evaluation and checking. They need to be repeatable processes which are readily replicated by (if necessary) different teams of people such that results are comparable and reflect changes in both quantifiable and qualitative data. According to Ienciu, Cardos and Muller (2017), environmental audit and checks represents a basic pillar for ensuring an accurate image on the environmental impact of a company. In their view, environmental audit and checks represents an evaluation of how environmental aspects are managed within a company, with the purpose of improving environmental management and securing a certain level of credibility for the environmental information provided. Therefore, environmental audit and checks can be performed either for internal reasons, representing an instrument for evaluation, control, and improvement of environmental management, or for external reasons, in order to ensure a reasonable level of assurance that environmental information evidences a clear and complete image regarding the company's environmental impact.

In addition, another study was conducted by Tasneem, Muhammad and Basit (2016) indicated that environmental reporting/checks has a positive and significant effect on the performances of the manufacturing firms in the USA. Likewise, Suryani and Dianawati (2018) examined the effect of environmental commitment on the financial performance of manufacturing companies listed in the Indonesia Stock Exchange (IDX). This study shows that environmental commitment has a positive and significant effect on financial performance. A study was conducted by Somjai, Fongtanakit and Laosillapacharoen (2020) to determine the impact of environmental management accounting on firm performance. The study utilized the descriptive research design. The unit of analysis included multinational manufacturing firms in Indonesia. The study results showed that environmental management accounting have a positive and significant effect on firm performance. It was revealed by the study that the constructs of environmental management accounting can include the firms having the vision that fully embraces sustainability, setting protection and restoration of the environment as a strategic priority, adhering to the government regulations and encouraging and rewarding a corporate culture that fosters environmental values.

Mayya (2015) explained that environmental auditing is a management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management, and equipment are performing. It aims at contributing to safeguarding the environment by facilitating management control of environmental practices and assessing compliance with company policies, which would include meeting regulatory requirements. In other words, environmental auditing is carried out by companies to assess environmental performance and improve the effectiveness of

environmental policies. The role of management in ensuring environmental performance stands out as a core issue in the discourse of corporate environmentalism. The study conducted by Rehan and Raju (2012) showed that environmental management strategies have a significant influence on the organizational performance. Environmental management strategies identify environmental problems and there may be widely differing reasons for undertaking them. These include compliance with legislation, pressure from suppliers and customers, requirements from insurers or for capital projects, or to demonstrate environmental activities to the public The benefits may include ensuring compliance, not only with laws, regulations and standards, but also with company policies and the requirements of an Environmental Management Systems (EMS) standard. Guided by the legislation and compliance procedures, the environment is considered in terms of air, land and water.

Emuebie, Olaoye and Ogundajo (2021) examined the impact of environmental monitoring on the performance of Nigerian consumer goods-producing companies. The study used regression analysis while the sample constituted 16 out of 20 companies listed in the consumer goods sector. The study found that environmental monitoring, such as environmental disclosure quality and accounting information had a significant effect on return on assets. The study concluded that environmental monitoring has a significant impact on the performance of manufacturing companies in Nigeria. A study was conducted by Menike (2020) to examine the impact of environmental disclosure on the firm performance of food, beverage, and tobacco sector companies listed on the Colombo Stock Exchange. The data were collected from the annual reports of twenty-six (26) companies for the period from 2012 to 2019. The results show that environmental accounting disclosure has a significant positive impact on return on assets. Moreover, a study was conducted by Green, Zelbst, Bhadauria and Meacham (2012) to examine the effect of environmental collaboration and monitoring on organizational performance. Data was collected from 159 manufacturing managers through an online survey. The study findings showed that environmental collaboration and monitoring practices significantly improve performance.

3.0 Research Methodology

The study adopted a descriptive and explanatory research designs. Positivistic philosophy approach was adopted for the study, which rely on relevant theories to setup the research hypotheses. The study used large-sized firms in Nairobi City County as the case study. The rationale for picking only the large manufacturing firms was because 89% of the total GDP contribution by manufacturing firms in Kenya is from large manufacturing firms (KNBS, 2019). The population of the large sized registered members as per the directory was 499. A sample size was 336 respondents from middle level management and top-level management drawn from finance, procurement, operations, human resources and production departments. A simple random sampling technique was used to get the sample size. The analysis of the data was done using descriptive and inferential statistics.

4.0 Research Results and Discussion

The study results are outlined in sections.

4.1 Response Rate

The study targeted a sample of 336 respondents. Out of the 336 questionnaires given out during data collection, 315 filled ones were received back, with twenty-one (21) not returned. This translated to 93.8% response rate which was good for analysis as shown in Table 1. According to Kothari (2004), a response rate of above 50% is adequate for a descriptive study, 60% is good, 70% is very good and 80% is excellent. Based on this assertion from a renowned scholar, the researcher used the returned questionnaires to analyze and non-response questionnaires were not considered.

Table 1: Response Rate

Item	Frequency	Percent
Returned questionnaires	315	93.8
Unreturned questionnaires	21	6.2
Total	336	100.0

4.2 Reliability of Research instrument

Cronbach Alpha was used to determine the reliability of the questionnaire. The Cronbach Alpha of environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency was found to be above 0.7 as shown in Table 2 This indicated that the instruments were adequately reliable for the measurement. Taber (2018) suggests that Cronbach's alpha values of items included in the study should not be lower than 0.7. while Rahi (2017) recommends a Cronbach alpha should exceed 0.7. The closer Cronbach's alpha coefficient is to 1, the higher the internal consistency and reliability. Therefore, the variables were considered reliable in the study as their Cronbach's alpha coefficients were more than 0.7.

Table 1: Reliability Results

Variable	Cronbach alpha	Comments
Environmental checks and verification strategies	0.817	Reliable
Environmental management plans strategies	0.843	Reliable
Environmental monitoring frequency	0.834	Reliable
Performance	0.896	Reliable

4.3 Factor Analysis

4.3.1 Factor Analysis for Environmental Audit

Factor analysis was conducted on the statements on a variable environmental audit (environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency). This was done by subjecting the statement to dimension reduction in SPSS, where any sub-variable with an eigenvalue less than 0.5 is dropped. The results presented in Table 3 shows that the statements under variable environmental audit had eigenvalues greater than 0.5. Therefore, all the statements under variable environmental audit were utilized during the final data collection, analysis and presentation. The rule of thumb is that the statements with eigenvalues less than 0.5 are dropped during the analysis.

Table 3: Factor Analysis for Environmental Audit

Statements on Environmental Audit	Factor Loadings
Our organization emphasizes on auditing environmental awareness	0.749
The organization management have budgetary provisions for environmental audit expenditures and investments	0.670
There exist environmental regulation policies in our organization	0.782
The organization engages in environmental compliance audits regularly	0.804
Environmental auditing promotes creation of environmental initiatives	0.790
The organization adheres to environmental auditing laws designed to identify environmental problems	0.709
Creation of environmental initiatives raises environmental awareness	0.772
The organization's staffs are keen on identification of environmental problems	0.696
Our organization has an environmental monitoring program	0.810

4.3.2 Factor Analysis for performance of large manufacturing firms

Factor analysis was conducted on the statements on the dependent variable, performance. This was done by subjecting the statement to dimension reduction in SPSS, where any sub-variable with an eigenvalue less than 0.5 is dropped. The results presented in Table 4 shows that the statements under variable performance had eigenvalues greater than 0.5. Therefore, all the statements under variable performance were utilized during the final data collection, analysis and presentation.

Table 4: Factor analysis for performance of large manufacturing firms

Statement on performance	Factor Loadings
The organization assets have been increasing	0.796
The organization equity has been growing	0.842
The organization net profits have been on the rise	0.769
The organization has established/opened new branches in the last five years	0.813
The organization's customers have been loyal	0.842
The organization has been achieving its target goals	0.765
The market share of our company has increased consistently over the past 5 years	0.995

The results presented in Figure 2 shows that the ROA of the large manufacturing firms has been fluctuating. The trend illustrates that ROA has been decreasing from 2016 up to 2017. This could be attributed to the fact that Kenya was approaching the general election and thus, investors were not willing to inject their resources into the firms due to the fear of losing. However, from 2018 onward, the ROA has been increasing. This could have been attributed to the peace stability that the country is encountering.
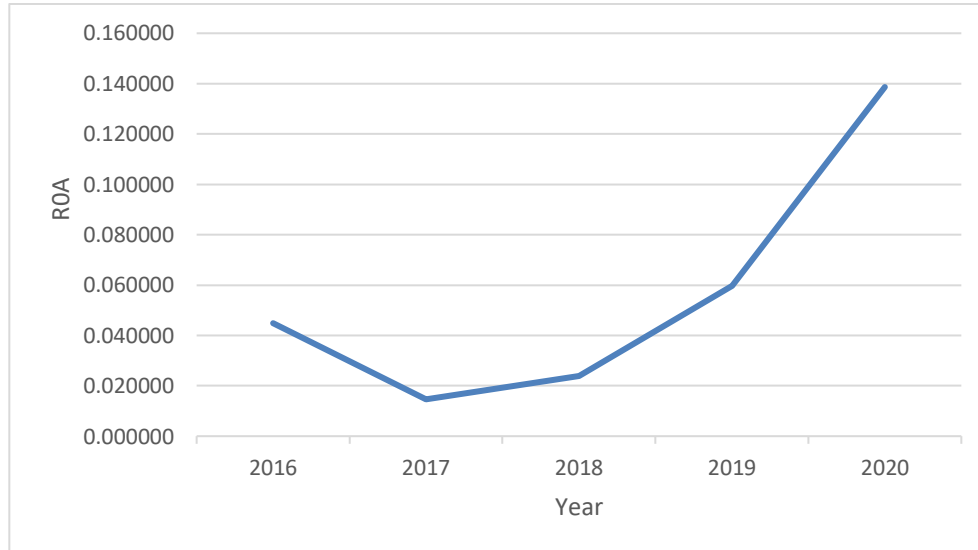

Figure 2: Trend Analysis of ROA

4.4 Correlation Analysis

The correlation analysis shows the movement/association of the variables. The positive correlation indicates variables move in the same direction, while the negative correlation

implies the association among the variables moves in the opposite direction. There is no association when the correlation is zero. The study results of the correlation analysis in Table 5 indicate that a positive and significant association exists between environmental checks and verification strategies and performance of large manufacturing firms (r=.334, p=.000). Also, a positive and significant association exists between environmental management plans strategies and performance of large manufacturing firms (r=.533, p=.000). Further, environmental monitoring frequency is positively and significantly associated with the performance of large manufacturing firms (r=.388, p=000).

Table 5: Correlation Matrix

Variables		Performance	Environmental checks and verification strategies	Environmental management plans strategies	Environmental monitoring frequency
Performance	Pearson Correlation	1.000			
	Sig. (2-tailed)				
Environmental checks and verification strategies	Pearson Correlation	.334**	1.000		
	Sig. (2-tailed)	0.000			
Environmental management plans strategies	Pearson Correlation	.533**	0.076	1.000	
	Sig. (2-tailed)	0.000	0.179		
Environmental monitoring frequency	Pearson Correlation	.388**	.162**	.286**	1.000
	Sig. (2-tailed)	0.000	0.004	0.000	

4.5 Hypotheses Testing

The first hypothesis tested was;

H01: Environmental checks and verification strategies has no significant influence on performance of large manufacturing firms in Kenya

The hypothesis testing was based on the regression results. Under the regression analysis, the model fitness, analysis of variance (ANOVA) and regression coefficient was presented. The results presented in Table 6 indicate that environmental checks and verification strategies is an adequate variable in explaining the performance of large manufacturing firms in Kenya This is supported by the R square of 11.2%. This implies that environmental checks and verification strategies can explain 11.2% of the variations in the performance of large manufacturing firms in Kenya

Table 6: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.334a	0.112	0.109	0.369334

The results in Table 4.7 indicate that the overall model is statistically significant. The results signify that environmental checks and verification strategies is a good predictor of the performance of large manufacturing firms in Kenya This is supported by an F statistic of 39.433 and the reported p-value (0.000), which is less than the conventional probability of 0.05 significance level.

Table 7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.379	1	5.379	39.433	.000b
	Residual	42.695	313	0.136		
	Total	48.074	314			

The regression of coefficients results in table 8 shows that environmental checks and verification strategies and performance of large manufacturing firms in Kenya are positively and significantly related ($\beta=0.244$, p=0.000). This signifies that an increase in the environmental checks and verification strategies by one unit increases performance by 0.244 units, holding other factors constant. Thus, since the p value is less than 0.05, the null hypothesis is rejected. Hence, environmental checks and verification strategies has a significant influence on performance of large manufacturing firms in Kenya. Based on the study results, the regression model specification was;

Y = 5.379+ 0.244X

Where: Y = Performance of large manufacturing firms in Kenya; X = Environmental checks and verification strategies

Table 8: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.161	0.155		20.341	0.000
Environmental checks and verification strategies	0.244	0.039	0.334	6.280	0.000

a Dependent Variable: Performance

The second hypothesis tested was;

H$_{02}$: Environmental management plans strategies has no significant influence on performance of large manufacturing firms in Kenya

The testing of the hypothesis was based on the regression results. Under the regression analysis, the model fitness, analysis of variance (ANOVA) and regression coefficient was presented. The results presented in Table 9 indicate that environmental management plans strategies is an adequate variable in explaining the performance of large manufacturing firms in Kenya This is supported by the R square of 28.4%.

Table 9: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.533a	0.284	0.282	0.331516

The results in Table 10 demonstrate that the overall model is statistically significant. The results indicate that environmental management plans strategies is a good predictor of the performance of large manufacturing firms in Kenya This is supported by an F statistic of 124.426 and the reported p-value (0.000), which is less than the conventional probability of 0.05 significance level.

Table 10: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.675	1	13.675	124.426	.000b
	Residual	34.4	313	0.11		
	Total	48.074	314			

The regression of coefficients results in Table 11 shows that environmental management plans strategies and performance of large manufacturing firms in Kenya are positively and significantly related (β=0.633, p=0.000). This denotes that an increase in environmental management plans strategies by one unit increases performance by 0.633 units, holding other factors constant. Hence, since the p-value is less than 0.05, the null hypothesis is rejected. Therefore, environmental management plans strategies have a significant influence on performance of large manufacturing firms in Kenya. Based on the study results, the regression model specification was;

Y = 1.497+ 0.633X

Where: Y = Performance of large manufacturing firms in Kenya; X = Environmental management plans strategies

Table 11: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	1.497	0.237		6.328	0.000
Environmental management plans strategies	0.633	0.057	0.533	11.155	0.000

a Dependent Variable: Performance

The third hypothesis tested was;

H_{03}: Environmental monitoring frequency has no significant influence on performance of large manufacturing firms in Kenya

The results presented in Table 12 indicate that environmental monitoring frequency is an adequate variable in explaining the performance of large manufacturing firms in Kenya. This is supported by the R square of 15%. This indicates that 15% of the variations in the performance of large manufacturing firms in Kenya can be explained by environmental monitoring frequency

Table 12: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.388a	0.150	0.148	0.361243

The results in Table 13 demonstrate that the overall model is statistically significant. The results indicate that environmental monitoring frequency is a good predictor of the performance of large manufacturing firms in Kenya. This is supported by an F statistic of 55.397 and the reported p-value (0.000), which is less than the conventional probability of 0.05 significance level.

Table 13: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.229	1	7.229	55.397	.000b
	Residual	40.845	313	0.13		
	Total	48.074	314			

The regression of coefficients results in table 14 shows that environmental monitoring frequency and performance of large manufacturing firms in Kenya are positively and significantly related ($\beta=0.342$, p=0.000). This denotes that an increase in environmental monitoring frequency by one unit increases performance by 0.342 units, holding other factors constant. Therefore, since the p-value is less than 0.05, the null hypothesis is rejected. Hence, environmental monitoring frequency has a significant influence on performance of large manufacturing firms in Kenya. Based on the study results, the regression model specification was;

Y = 2.754+ 0.342X

Where: Y = Performance of large manufacturing firms in Kenya; X = Environmental monitoring frequency

Table 14: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.754	0.186		14.84	0.000
Environmental monitoring frequency	0.342	0.046	0.388	7.443	0.000

a Dependent Variable: Performance

4.6 Multiple Regression Analysis

The results presented in Table 15 indicate that environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency are adequate variables in explaining the performance of large manufacturing firms in Kenya This is supported by the coefficient of determination also known as the R square of 41.3%. This means that environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency explain 41.3% of the variations in the performance of large manufacturing firms in Kenya

Table 15: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643a	0.413	0.408	0.3011835

The results in Table16 indicate that the overall model is statistically significant. The results signify that environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency are good predictors of the performance of large manufacturing firms in Kenya. This is supported by an F statistic of 72.99 and the reported p-value (0.000), which is less than the conventional probability of 0.05 significance level.

Table 16: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.863	3	6.621	72.99	.000b
	Residual	28.211	311	0.091		
	Total	48.074	314			

The regression of coefficients results in Table 17 shows that environmental checks and verification strategies and performance of large manufacturing firms in Kenya are positively and significantly related (β=0.193, p=0.000). This signifies that an increase in environmental checks and verification strategies by one unit increases performance by 0.193 units, holding other factors constant. Equally, environmental management plans strategies and the performance of large manufacturing firms in Kenya are positively and significantly related (β=0.536, p=0.000). This means that an improvement in environmental management plans strategies by one unit increases the performance of large manufacturing firms in Kenya by 0.536 units while other factors are held constant. Similarly, environmental monitoring frequency are positively and significantly related to the performance of large manufacturing firms in Kenya (β =0.190, p=0.000). This indicates that an increase in environmental monitoring frequency by one unit would lead to an increase in the performance of large manufacturing firms in Kenya by 0.190 units when other factors are held constant. Based on the study results, the regression model specification was;

$$Y = 0.370+0.193 X_1+0.536X_2+ 0.190X_3$$

Where: Y = Performance of large manufacturing firms in Kenya; X_1 = Environmental checks and verification strategies; X_2 = Environmental management plans strategies; X_3 = Environmental monitoring frequency

Table 17: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.370	0.255		1.453	0.147
Environmental checks and verification strategies	0.193	0.032	0.265	6.025	0.000
Environmental management plans strategies	0.536	0.054	0.451	9.954	0.000
Environmental monitoring frequency	0.190	0.04	0.216	4.705	0.000

a Dependent Variable: Performance

5.0 Conclusion

the study concluded that environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency are significant in explaining the performance of large manufacturing firms in Kenya. The environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency ensures the right thing is done and this increases the customer base. The environmental checks and verification strategies can include auditing environmental awareness, environmental regulation policies and engagement in compliance audits. Besides, the environmental management plans strategies can be based on an environment audit plan, budgetary for environmental audit expenditures and adhering to environmental auditing laws. The environmental monitoring frequency can be determined by the creation of environmental initiatives, identification of environmental problems and environmental monitoring programs.

6.0 Recommendations

It is recommended that large manufacturing firms should apply environmental audit (environmental checks and verification strategies, environmental management plans strategies and environmental monitoring frequency) as one of the strategies to achieve and reinforce their performance. The environmental audit be cemented in the organization policy since it contributes to the performance of large manufacturing firms in Kenya. Environmental audit did not explain 100% of the performance of large manufacturing firms in Kenya. The study suggests further research to be carried out on the other corporate environmental responsibility and how they influence the performance of large manufacturing firms. Since this study focused on large manufacturing firms in Kenya, there is a need to replicate the same in other industries in the private sector and also in public institutions. Moreover, future studies adopt other research designs such as experimental, causal, or descriptive research designs.

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