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DETERMINANTS OF CORPORATE SOCIAL RESPONSIBILITY EXPENDITURE AMONG SELECTED FIRMS IN OIL AND BANKING SECTORS IN NIGERIA

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Abstract

Orientation: Findings have shown that some organizations in Nigeria prefer to be less socially responsible due to the financial implications among others. Analysis of factors that determine corporate social responsibility (CSR) expenditure can shed more light on the reason why this is happening. Objectives: The study investigates the determinants of corporate social responsibility CSR spending among some selected banking and oil firms in Nigeria. Motivation: The continued emergence of different conclusions on the impact of CSR on performances of firms prompted the investigation of factors that influence a firm decision to be socially responsible. Methods: Secondary data approach is used. Nine and seven leading commercial banks and oil/gas firms respectively were selected for the survey. Data on CSR expenditures, return on asset, total asset, leverage, competition, legal environment and inflation are used. Panel data analysis is applied. Results: The results show that all these variables are important determinants of CSR but total asset remains the only factor that exhibit the highest influence on CSR expenditure of the firms. In addition, it was found that there is no significant difference in factors that determine CSR in both banking and oil industries. Significance of the study: The study revealed that the size of organizations is an important factor that affects CSR in both oil and banking sectors therefore, while improving on the efforts to make firms more socially responsible, efforts should be more directed to the smaller firms.

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Introduction

With growing scrutiny of business operations, organizations are increasingly being driven to satisfy the expectations of opinion formers, governments and customers in order to thrive. In essence, businesses adopting CSR principles believe that by operating ethically and responsibly, they have a greater chance of success. Businesses are demonstrating that well managed corporate responsibility actually supports business objectives, especially amongst large corporations where improved compliance, reputation and relationships have been shown to increase shareholder value and profitability.

Again, it has been argued that some firms are more socially responsible than others and that the reason behind this might not be unconnected with the fact that different factors account for a firm being socially responsible. Factors that are responsible for a firm being socially responsible are very important to assessing the gains that a firm can derive from being socially responsible. Apart from the fact that the determining factors play important role in categorizing an organization to belong to CSR group on non-CSR group, these factors are also important in determining the areas of CSR or CSR project the organizations will channel their funds to if they belong to CSR group. All these factors consequently have implications on the level of impact CSR will have on the organization performance. According to Hsiang-Lin Chin *et al.*[1], it is important to assess these factors that account for the decision to belong to CSR group or the areas of CSR to invest before the effect of CSR on an organisation performance can be thoroughly examined.

[1] C. Hsiang-Lin, C. Hsiang-Hsuan and C. Tzu-Yin, "On the Determinants of Corporate Social Responsibility: International Evidence on the Financial Industry", *Journal of Business Ethics*, no. 93, 2010, pp. 115-135.

Again, there has been these debates that firms which activities constitute hazards to their environments are more CSR inclined and hence factors that influence their CSR is different from organizations with services that are less hazardous to their environments.[2] For instance, oil firms that their activities pollute their environments are believed to be more CSR inclined than banks hence factors that determines their CSR might be different. However, these opinions are yet to be empirically tested.

In addition, there have been studies on determinants of CSR in recent periods but most of them made use of firms from developed economies as their case studies.[3] Notwithstanding, few studies on Nigeria such as Adeyemo, Oyebamiji, & Alimi[4] made use of a few quantitative variables as those factors that constitute determinants of CSR neglecting qualitative variables such as legal, geographical and business environments which are well captured in studies outside Nigeria and found to play germane roles in determining CSR expenditure of organisations. Again on methodology, quite a number of the study mainly applied primary data analysis, which has been termed as highly subjective approach especially for a study like this that can be investigated with data from the annual reports and other relevant books of the organisations[5].

Taking all these gaps into consideration the major focus of this study is to investigate the determinants of CSR expenditure among banks and oil firms in Nigeria. The focus on these two sectors is borne out of the fact that they account for almost 70% of CSR projects in Nigeria. This on its

[2] C. Rael, *Effects of Corporate Social Responsibility Spending on a Firm's Performance: A Survey of Banks in Nakuru County*, unpublished MBA Research project, 2012, Kisii University, Kenya.
[3] C. Hsiang-Lin, C. Hsiang-Hsuan and C. Tzu-Yin, *op. cit.*, among others.
[4] S. A. Adeyemo, F. F. Oyebamiji and K. O. Alimi, "An Evaluation of Factors Influencing Corporate Social Responsibility in Nigerian Manufacturing Companies in *International Journal of Academic Research in Economics and Management Sciences*, no. 2(6), 2013, pp. 54-63.
[5] *Ibidem.*

own has contributed immensely to the infrastructural development of the country.[6]

The rest of the paper is divided into literature review, methodology, results and discussion, conclusions and recommendations.

Literature Review

There exist some literatures on determinants of CSR expenditure. These studies are carefully and briefly discussed under this section of the paper. Hsiang-Lin Chin et al.[7] assessed the determinants of corporate social responsibility and particularly investigated whether corporate social responsibility (CSR) is affected by financial and institutional variables. A total of 520 financial firms in 34 countries, between the years 2003 and 2005 were selected. Findings were: (i) firms with larger size are more CSR minded, and the financial performance and CSR are not related; (ii) firms would actually act in more socially responsible ways to enhance their competitive advantages when the market competitiveness is more intense; (iii) financial firms in countries with stronger levels of legal enforcement tend to engage in more CSR activities. However, interestingly and rather strikingly, those firms in countries with stronger shareholder rights tend to engage in less CSR activities; (iv) self-regulation within the financial industry has a significantly positive effect on CSR, with firms being found to act in more socially responsible ways in those countries which have more cooperative employer–employee relations, higher quality management schools, and a better macroeconomic environment.

Adeyemo, Oyebamiji and Alimi[8] examined factors influencing corporate social responsibility in Nigerian manufacturing companies. The population of the study covered all the staff of the selected manufacturing companies in Ibadan (Nigerian Breweries, Nigerian Bottling Company,

[6] P. A. Akanbi and O. E. Ofoegbu, "Impact of Corporate Social Responsibility on Bank Performance" in *Journal of US-China Public Administration*, no. 9, 2012, pp. 374-383.
[7] Hsiang-Lin, Hsiang-Hsuan and Tzu-Yin, *op. cit.*
[8] Adeyemo, Oyebamiji and Alimi, *op. cit.*

Procter and Gamble, Yale Nigeria limited and Eagle Flour Mill). Purposive sampling method was used to select ten (10) respondents from each organization totaling 50 respondents. Multiple regression was used to analyze the data with the aid of SPSS version 20. The result identified factors that influenced CSR practices as competition, employees demand, government policy, organizational culture, and customer demand.

Ombugu (2016) investigated determinants of corporate social responsibility among some conglomerates in Nigeria. It employed quantitative data from 2009 to 2013 which were sourced from the Annual Reports of seven (7) sampled companies. With the use of multiple linear regression models, the study selected explanatory variables such as profitability, firm size, firm growth and leverage in order to establish a functional relationship with CSR; the explained variable. The findings revealed that profitability and firm size are positively and significantly influencing CSR of conglomerates in Nigeria. While firm growth was found to be negative and insignificant in influencing CSR of conglomerates whereas, leverage showed a negative and significant effect in explaining and predicting CSR of conglomerates in Nigeria. The study concludes that profitability and size of firms determine CSR.

Farouk and Hassan (2013) analysed the determinants of CSR of listed Deposit Money Banks DMBs in Nigeria for the period of 2005-2011. The listed DMB‟s are twenty-one (21) in numbers out of which a sample of thirteen (13) were used for the study. The study adopted multiple regression techniques and data were collected from secondary source through the annual reports and accounts of the firm. The findings reveal that Dividend paid, Institutional ownership, Firm growth, and Leverage is positively, strongly and significantly influencing the CSR practice of listed Deposit Money banks in Nigeria, while the Economic profit and Firm size have a positive impact on CSR of Banks but at 10% level of significance.

Obasi, Okey and Akinleye (2015) examined the determinants of corporate social responsibility in the Nigerian business environment. Some selected companies across four different sectors in the Nigerian Stock

Exchange were used. Secondary data were collected from the companies' annual reports. The Eview statistical tool was used to analyze the data and test the hypotheses. The result of the study shows that altruistic donation, regulatory requirements and political donations all have indirect relationship with CSR. The study, therefore, concludes that political donations, regulatory requirements and philanthropic or altruistic activities are the three determinates of CSR in Nigerian listed companies.

Methodology

This aspect of the paper discusses research methods adopted which includes the model specification, estimating techniques and sources of data.

Model Specification

The model here examines the determinants of CSR in the quoted firms in both oil and banking sectors in Nigeria. The formulation of the models is built on the works of Hsiang-Lin Chih *et al.* (2010) who based their work mostly on external factors and Omugbu (2016) who based his work primarily on internal factors. This study combines both the internal and external factors to examine the determinants of CSR. The model is consequently stated as follows:

$TCSRS_{it} = f(ROA_{it}, TOA_{it}, LEV_{it}, COM_{it}, INF_{it}, LEG_{it})$…….…..… (1)

And in linear form the model is presented thus:

$$TCSRS_{i,t} = \alpha_0 + \alpha_1 ROA_{i,t} + \alpha_2 TOA_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 COM_{i,t} + \alpha_5 INF_{i,t} + \alpha_6 LEG_{i,t} \quad (2)$$

Where: TCSRS=Total Corporate Social Responsibility Spending, ROA = Return on asset TOA = Total Asset (measure of firms size), LEV = Leverage ratio (Debt equity ratio which is a measure of capital structure/ firm's leverage ratio), COM = Competition, INF = Consumer price index Inflation rate (measures the economic environment), LEG = Legal environment, $\alpha_1, \alpha_2, \alpha_3$ ..... α_6 = Coefficients, μ (s) = stochastic error terms, i = cross section unit, t = time period.

Estimation Technique

The study adopts panel data regression analysis to analyze the determinants of CSR in some selected firms in Nigeria. The panel data procedure starts from the panel unit root test because it is important that all the variables included in the panel model are stationary.

Panel Unit Root Test

The conventional unit root tests no longer hold sway in the face of the advantages inherent in the panel unit root test. Levin, Lin and Chu (2002) show that there is a considerable improvement in the power of Unit Root tests when using panel data other than the univariate testing procedures. The panel unit root test explores the data characteristics of the panel before proceeding to the panel co integration test. The idea is to test for stationarity of each variable used in the study. According to Engel and Granger (1997), a variable may not be stationary but a linear combination of the non-stationary variables may be stationary hence the need for co integration.

Another method of panel unit test adopted for this study is Im, Pesaran and Shin (IPS) test. The test has been proven to be suitable in verifying stationarity of variables in panel data (Im, Pesaran) and Shin, 2003), (Maddala and Wu, 1999). The basic IPS specification is given by:

$$\Delta Y_{i,t} = \alpha Y_{i,t-1} + \sum_{j=1}^{pi} \Delta Y_{i,t-j} + \beta_0 + \beta_{1t} + \beta_1 x_{i,t} + \varepsilon_{i,t} \quad \ldots\ldots\ldots\ldots(3)$$

Where βo is the constant, $X_{i,t}$ represents the explanatory variables, $\Delta Y_{i,t}$ is the explained variable, β_{1t} is a time trend and P is the required lag length. The null hypothesis to be tested for the IPS is $H_0 : \alpha_i = 0$ for all "i"s while the alternative hypothesis is $H_1 : \alpha_i < 0$, for at least one i. The lag lengths are selected using the Akaike Information Criterion.

The Panel Data Models

There are four possibilities and options when it comes to panel data regression which are reviewed here under. However, it should be noted that our series in this research that is T 16 years while our cross-sectional unit N is 17.

The Fixed Effect Model

The term "fixed effect" is due to the fact that although the intercept may differ among firms, each firm's does not vary overtime, that is time-variant. This is the major assumption under this model. It is divided into various types namely; within group, first difference and least square dummy variable

Random Effect Model

Another alternative approach known as the random effects regression model subject to two conditions provide a solution to a problem in which a fixed effects regression is not an effective tool when the variables of interest are constant for each firm and such variables cannot be included.

The first condition is that it is possible to treat each of the first unobserved Z_p variables as being drawn randomly from a given distribution. This may well be the case if the individual observations constitute a random sample from a given population.

Robustness Tests for panel data

In line with Ujunwa (2012), Sangosanya (2011), and in other to make our finding robust both fixed effect and random effect will be employed in estimating the data set and a Hausman-test conducted to determine the most appropriate for the study.

a) The Hausman Test

The significant problem for the fixed effects model (FEM) is that the estimator cannot accommodate time-invariant variables since it cannot

recover the coefficients on time invariant attributes. If the assumption of no correlation between the individual error and independent variables holds, then Random Effects should be used. Auspiciously there is a way of testing which estimator is more suitable in any given circumstance. This is because under the null hypothesis of random individual effects the estimators should give coefficients that are common. The Hausman test can be implored to compare the estimates from the two models. If the p-value is significant (for example <0.05) then use fixed effects, if not use random effects (Green, 2008; Reyna, 2010).

b) Serial Correlation

Situation where residuals are correlated across time is referred to as serial correlation. Disregarding serial correlation where it actually existed causes consistent but inefficient estimates and biased standard errors. Significant inference of independent variables may be incorrect under conditions of serial correlation (Jager, 2008).

When using panel data it is always reasonable to suspect that the errors ε_{it} of a person *i* are correlated over time (*autocorrelation*). Therefore the Durbin-Watson test is going to be performed to test for serial correlation. If serial correlation is present, Newey-West standard error adjustment will be used to correct for serial autocorrelation.

c) Heteroscedasticity

Equally important is the need to test whether errors have constant variance, i.e. the assumption of homoskedasticity, or else statistical inference becomes unreliable, even if the coefficients are unbiased. If Heteroscedasticity is found to be present, one could then use the Newey-West (1987) standard error adjustment.

Sources of Data/Data Collection Techniques

Secondary data are used in this study. From the Published Annual Reports and Statements of Accounts of the selected firms are data collected for variables such as profit after tax, total assets, total deposit liability for banks, the numbers of network spread (Proxy for market share) and CSR

spending covering the period between 1999 and 2015. The data collected from the Annual reports and statement of accounts of the Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC) include the total number of banks with operation license. From the Nigeria Stock Exchange (NSE) data collected include the list of the quoted oil and gas firms listed on the Exchange. Other information are also extracted from the Statistical Bulletins of CBN, and NDIC. The data for inflation rate was collected from the Federal office of statistics covering the same period. This period is considered broad enough to be able to make a reasonable comparison between the two industries to ascertain the degree of their involvement in CSR.

Results and Discussion

This section of the study analyses the data, interprets is and makes necessary inferences as it affects the major objectives of the study. As explained under the methodology, the major estimating techniques to be utilized here is the panel data. It begins with panel unit root test.

Table 1. Panel Unit Root Test Result

	TEST AT LEVEL			TEST AT FIRST DIFFERENCE		
Variables	**LLC**	**IPS**	**ADF**	**LLC**	**IPS**	**ADF**
TCSRS	-2.95947**	-1.47903*	60.3818**	--	--	--
CGR	-6.76203*	-4.24062*	72.8127*	--	--	--
OPE	-5.11417*	-2.2694**	53.8657**	--	--	--
PAT	-5.75397*	-4.33151*	90.0585*	--	--	--
ROA	-5.15701*	-4.33625*	74.9269*	--	--	--
TOA	-3.69565*	-1.36259	45.2442	--	-7.7251*	115.931*
COM	-9.15026*	-6.70601*	101.850*	--	--	--
INF	-11.1225*	-6.05907*	89.8100*	--	--	--
WC	-4.03189*	-0.55787	40.7137	--	-8.8508*	127.474*
LEV	-45.5912*	-17.1513*	104.495*	--	--	--

***(**)** connote rejection of unit root hypothesis at 1% (5%) level of significance level
Source: E-view Computation (2017)

Table 1 present results of Levin-Lin-Chu test (LLC), Im-Pesaran-Shin test (IPS) and ADF fisher Chi-square test statistics of unit root for continuous variables used in the study in the quest to describe stationary property of each of the variables. The test statistics is reported at level and first difference. Result showed that there is evidence to reject the null hypothesis of no unit root at level for all the variables used, based on all the three unit root test conducted, except in the case of total asset, and working capital which shows rejection of null hypothesis at level base on Levin-Lin-Chu test only. The results show that all the variables are either stationary at levels or at first difference which is the requirement for proceeding to panel data estimation.

After the successful panel unit root test, the panel data is estimated. It presents the analysis showing the relationship between corporate social responsibility and selected determinants. Analysis conducted in this section is pooled OLS estimation, fixed effect estimation, random effect estimation alongside post estimation test used for validating the consistency, and efficiency of the estimations. Results are presented in *Tables 2–6* and interpreted accordingly

Table 2. Pooled OLS Estimation Result

Series: TCSRS ROA TOA LEV COM INF LEG

Variable	*Coefficient*	*Std Error*	*T-Test*	*Probability*
C	-5.975334	35.30999	-0.17	0.866
ROA	.1906443	1.738619	0.11	0.913
TOA	.0002702	.0000144	18.76	0.000
LEV	.7563501	.7658662	0.99	0.324
COM	70.49813	37.89856	1.86	0.064
INF	-1.966576	2.453419	-0.80	0.423
LEG	6.745624	21.30554	0.32	0.752

R-square=0.6279, Adjusted R-square=0.6199, F-statistics=79.30, Prob(F-stat) = 0.0000
(*) connotes significance at 5% level of significance.

Source: E-view Computation (2017)

Estimation result presented in *Table 2* revealed the impact of return on asset, total asset, leverage, competition, inflation and legal environment on corporate social responsibility of the sampled firms. Result showed that all the variables identified as determinant of CSR exert positive impact on corporate social responsibility of firms sampled in the study save for inflation rate that showed negative impact. Estimation result presented in table 2 reported coefficient estimates of 0.1906443 ($p=0.913 > 0.05$) for return on asset, .0002702 ($p=0.000 < 0.05$) for total asset, .7563501 ($p=0.324 > 0.05$) for leverage, 70.49813 ($p=0.064 > 0.05$) for competition, -1.966576 ($p=0.423 > 0.05$) for inflation rate, 6.745624 ($p=0.752 > 0.05$) for legal environment. Reported R-square stood at 0.6279, which implies that about 63% of the systematic variation in corporate social responsibility spending of firms sampled in the study can be explained jointly by return on asset, total asset, leverage ratio, competition, inflation rate, and legal environment. However, due to the problem of heterogeneity, the results of the pooled regression might not be reliable hence, the study proceeds to fixed effects estimation.

Fixed effect estimations incorporate heterogeneity effects across firms over time into the analysis to account for variations in corporate social responding spending due to effect across firms and/or over time. This study separately incorporated firm's heterogeneity effect and period effect into the model using least square dummy variable (LSDV) approach in which each firm and year period is assigned an intercept term as a dummy variable. Results of the least square dummy variable estimations (cross section and period specific) for investigating the relationship between CSR spending and its determinants are presented in *Table 3.*

Table 3. Fixed Effects Estimates

CROSS-SECTIONAL SPECIFIC EFFECT			TIME SPECIFIC EFFECT		
Variables	**Coefficients**	**Prob**	**Variables**	**Coefficients**	**Prob**
C	-60.08013	0.203	C	49.75173	0.615
ROA	.0813023	0.964	ROA	.9838804	0.591
TOA	.0002514	0.000	TOA	.0002716	0.000
LEV	.7687059	0.285	LEV	1.002797	0.204
COM	60.03864	0.108	COM	75.55997	0.049
INF	-2.385458	0.282	INF	-14.30563	0.168
LEG	62.30857	0.201	LEG	6.878748	0.760
Effects			**Effects**		
DIAMOND BANK	155.7648	0.001	2000	11.53553	0.822
FIRST BANK	189.0859	0.000	2001	181.4163	0.106
GTBANK	50.05501	0.297	2002	95.12006	0.121
FCMB BANK	142.7857	0.004	2003	115.1231	0.098
UBA BANK	-47.06253	0.329	2004	124.8016	0.107
UNION BANK	-37.848	0.429	2005	158.5982	0.120
ZENITH BANK	247.2068	0.000	2006	21.68546	0.643
WEMA BANK	54.84809	0.267	2007	7.328035	0.903
FIDELITY BANK	-.9489123	0.984	2008	85.62651	0.095
TOTAL NIG PLC	10.86954	0.824	2009	188.5664	0.000
MRS PLC	8.680716	0.857	2010	90.84036	0.160
OANDO PLC	22.51852	0.640	2011	84.6815	0.080
FORTE OIL	-2.192142	0.964	2012	47.93831	0.381
CONOIL	.0158841	1.000	2013	57.96667	0.221
MOBIL	10.64908	0.830	2014	76.10904	0.122
ETERNAL OIL	7.94115	0.456	2015	61.1516	0.432
R-square= 0.7151 Adjusted R-square=0.6927 F-statistics=31.91 Prob(F-stat)= 0.0000			R-square=0.6502 Adjusted R-square=0.6227 F-statistics=23.63 Prob(F-stat)= 0.0000		

Sources: E-view Computation (2017)

Fixed effect cross sectional specific estimation result presented in table 3 revealed that when heterogeneity effect across firms is incorporated into the model all the variables except inflation rate exert positive impact on corporate social responsibility. With the coefficient estimates of 0.0813023 ($p=0.964 > 0.05$) is for return on asset, 0.0002514 ($p=0.000 < 0.05$) for total asset, 0.7687059 ($p=0.285 > 0.05$) for leverage, 60.03864 ($p= 0.108 > 0.05$) for competition, -2.385458 ($p=0.282 > 0.05$) for inflation rate, and 62.30857 ($p=0.201 > 0.05$) for legal environment, inflation remains the only variables with negative impact.

Furthermore, estimates reported in table 3 for fixed effect period specific showed that all explanatory variables except inflation rate exert positive impact on corporate social responsibility spending. With coefficient estimate of 0.9838804 ($p=0.591 > 0.05$) for return on asset, 0.0002716 ($p=0.000 < 0.05$) for total asset, 1.002797 ($p=0.204 > 0.05$) for leverage, 75.55997 ($p=0.049 < 0.05$) for competition, -14.30563 ($p=0.168 > 0.05$) for inflation rate, 6.878748 ($p=0.760 > 0.05$) for legal environment, there seems to be consistency in our result. R-square statistics showed that about 72% of the systematic variation in corporate social responsibility spending can be explained jointly by the explanatory variables when cross sectional heterogeneity effect is incorporated into the model, while about 65% can be explained when period specific effect is incorporated into the model.

Across the specific effects analysis, four out of nine banks exhibit specific characteristic, namely Diamond bank, Frst Bnak, FCMB and Zenith Bank. For the oil firms effect of specific characteristics is not conspicuous. The implication of the results is that, there is more uniformity in what determine CSR expenditure among the oil firms than the Banks.

The study also uses random effect method for the panel data analysis in order to know the suitable method for our study. The results are presented in *Table 4*.

Table 4. Random Effect Estimation
Series: TCSRS ROA TOA LEV COM INF LEG

Variable	Coefficient	Standard Error	Z-Test Values	Probability
C	11.27279	41.26886	0.27	0.785
ROA	.1013375	1.735742	0.06	0.953
TOA	.0002549	.0000144	17.75	0.000
LEV	.7668193	.7099097	1.08	0.280
COM	62.19715	36.48677	1.70	0.088
INF	-2.307174	2.200817	-1.05	0.294
LEG	-3.493446	44.08449	-0.08	0.937

R-square=0.6274, Wald chi^2 (5) = 356.19 , Prob> chi^2 = 0.0000
Sources: E-view Computation (2017)

Random effect estimation result presented in table 4. revealed that all the determinant variables exert positive impact on corporate social responsibility spending except inflation and legal environment. The coefficient estimates are 0.1013375 (p=0.953 > 0.05) for return on asset, 0.0002549 (p=0.000 < 0.05) for total asset, 0.7668193 (p=0.280 > 0.05) for leverage, 62.19715 (p=0.088 > 0.05) for competition, -2.307174 (p=0.294 > 0.05) for inflation rate, and -3.493446 (p=0.937 > 0.05) for legal environment. This is another confirmation of consistency in our result as these results are almost similar to what we obtained under the fixed effects. R-square value stood at 0.6274 which implies that about 63% of the systematic variation in corporate social responsibility spending of the sampled firms can be explained by return on asset, total asset, leverage, competition, inflation rate and legal environment, when heterogeneity effect across firms over time is incorporated into the error term.

Post estimation Test

Some diagnostic tests are carried out to evaluate the validity of the estimates from the panel data results. The HAUSMAN test tells the one that is more suitable for our analysis between random and fixed effect. The result is presented in *Table 5*.

Table 5. HAUSMAN Test

Null hypothesis	Chi-square stat	Probability
Difference in coefficient not systematic	29.53	0.0000

Sources: E-view Computation (2017)

Table 5 reported chi-square statistic of 29.53 and probability value of 0.0000. This result showed that there is enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation is not significant. Thus making fixed effect cross-sectional specific estimation presented in table 3 the most consistence and efficient estimate for analyzing the impact of return on asset, total asset, leverage, competition, inflation rate and legal environment on corporate social responsibility among the selected firms. Other post estimation test are summarized in *Table 6*.

Table 6. Other Post Estimation Test

Wald test		
Null hypothesis	**Statistics**	**Probability**
Panel homoscedasticity	582.6560	0.5216
Pesaran test		
Null hypothesis	**Statistics**	**Probability**
No cross sectional dependence	12.525	0.2116
Wooldridge test		
Null hypothesis	**Statistics**	**Probability**
No AR(1) panel autocorrelation	14.6695	0.5415

Sources: E-view Computation (2017)

Table reported result of post estimation test conducted to confirm if the specified model is in tune with basic assumptions underlining panel estimation. The result showed that there is no evidence to reject null hypothesis on panel homoscedasticity, null hypothesis of no cross sectional dependence and null hypothesis of no AR (1) panel autocorrelation, given

the reported probability statistics of 0.5216 > 0.05 for Wald test and 0.2116 > 0.05 for Pesaran test, 0.5415 > 0.05. Hence, it can be established from the result of the post estimation tests reported that the assumptions of equal variance of residual terms, cross sectional independence and absence of serial autocorrelation indicate that the model is fit for inferential analysis

Conclusions and recommendations

The result established that though all the identified determinants except inflation rate, exert positive impact on corporate social responsibility of all firms sampled in the study, only total asset reflected significant impact. Thus, it can be concluded form the study that among other things increase in total asset unlike other determinants (return on asset, total asset, leverage, competition, legal environment) has the capacity to significantly spur corporate social responsibility spending of firms in Nigeria. It is therefore evident that among all determinants identified only total asset can individually influence significantly the CSR spending among the sampled firms.

Notwithstanding, all the various estimations confirmed the joint significant powers of the variables as important determinants of CSR spending. Consequently, it can be also be concluded that there is enough evidence to reject the null hypothesis that the determinants of CSR does not significantly affects spending of the selected firms hence is established that return on asset, total asset, leverage, competition, legal environment and inflation are important determinants of CSR expenditure. However, while other determinants show positive relationship inflation show negative relationship. This is an indication that rising inflation trend tends to reduce CSR expenditure among the firms. The reason for this is not unconnected with the fact that inflation increases costs of goods and services therefore it reduces CSR expenditures.

Finally, there is a slight difference in terms of the results on Oil and Banking firms. Findings from the study show that there is a higher degree

of uniformity in what determine CSR expenditure among the oil firms as against the banks.

It is recommended that firms need to be more focused on these variables identified if they intend to be more socially responsible. Again, effort should be made by regulatory authorities to bring up policies that will make CSR a compulsory and important task that firms should engage in. this will promote uniformity among firms in respect to how they attend to issues relating to CSR and it will be easier for the regulatory agencies to monitor their CSR activities.

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