Cash Management and Financial Performance of Quoted Non-Financial Firms in Nigeria: A Dynamic Robust Least Squares Regression Approach

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Abstract

This study investigates the impact which cash management and the financial performance of selected firms in Nigeria. The period which the study covers is from 2005 to 2020 of 76 non-financial firms quoted on the floor of the Nigerian Exchange Group the information about them are extracted from their financial statements. The results of the dynamic robust least squares indicated that while cash and cash equivalence (CCE), average collection period (ACP), days sales outstanding (DSO), days inventory outstanding (DIO) and sales growth (GSALES) are positively significant with economic value added (EVA); cash conversion cycle (CCC), average payment period (APP), days payment outstanding (DPO), quick ratio (QR), short term debt (STD) and capital expenditures (CAPEX) are negatively significant with it. The study concludes with some recommendations.

Keywords: *Cash Management, Performance, Quoted Non-Financial Firms, Robust Regression.*

Introduction

In every business organization, the ability to manage cash forms one of the most important financing decisions due to the non-availability of cash to meet all organizational objectives. According to Harvest and Sophia (2022), firms globally are faced with the problems of effective management of business activities due to insufficient cash to meet targeted obligations. Cash is seen by Dibie (2022) as the lifeline of all organization and so must be properly managed otherwise it can negatively affect the operations of the organization. Business owners, in the process of conducting their day to day operations, should ensure that a balance is maintained between liquidity and profitability as cash management affect both (Eton et al., 2019). When cash is effectively managed, it ensures that the business can both survives and attracts more investors who always evaluate businesses using both the liquidity and profitability metrics. Effective cash management is a basic tool of corporate asset that leads not only to firms' profitability but ensure that firms can meet their short-term liabilities as at when due. Cash management involves the setting of rules or guidelines for cash planning, cash collection, cash monitoring to ensure that optimum level of cash is maintained while ensuring that resources are effectively, efficiently and

economically utilized for other productive investment. Efficient cash management is a significant tool that guarantees firms' profitability and this is vital to the persistence of business as it is basically meant to identify effective policies that balance customer satisfaction and service costs (Laghari et al., 2023). Abdulkadir and Usman (2023), in the same vein, noted that businesses need to manage efficiently and profitably their affairs so as to sustain a balance between liquidity and profitability. They went on to say that, in the short run, an entity might be profitable but there may be a risk of going-concern over the long run. Managers need to decide each day between how much cash to hold for precautionary and operational purposes and how much for any other type of asset. In summary, the management of cash is critically crucial for businesses if they are to make sure that, whether in the short or long run, their financial performance or profitability is sustained. CCE(cash and cash equivalence); CCC(cash conversion cycle); CFO(cashflow from operations), etc are some ways of measuring cash management.
Firm performance or profitability is a measure of how successful a business has thrived in its efforts to provide goods and services to its customers. It shows how efficient a firm can employ its assets and liabilities to generate sustainable revenue. It reveals information about the financial health of a firm whether it can continue to generate revenue or to be liquidated. Various metrics have been used to measure profitability some of which are: ROA(return on assets); ROE(return on equity); ROI(return on investments); RI(residual income);EVA(economic value added); EPS(earnings per share); TobinsQ; etc. This study attempts to engage in a robust study by considering many more variables which others, to the best of my knowledge, have not used.

Following this introduction, the rest of the paper is divided into five sections with the literature review in section two, methodology in section three, discuss of results in section four and the fifth section concludes this paper.

Review of Related Literature.

Theoretical Underpinning.

Monetary Theory of Cash Management:

Monetary theory is a macroeconomic theory which holds that an increase in the supply of money will lead to an increase in a country's economic activities. This monetary theory as represented by the formula MV=PQ means that M (money supply) and V(the rate of spending money) is equal to P(prices of goods and services) and Q(quantities purchased). Applying this at a microeconomic level, it is evidenced that almost all business transactions are characterized with cash inflow and/or cash outflow. The processes from distribution in time of payments (outflows) to creditors and receipts (inflows) from debtors) all through the calculation of financial results (Kostyuchenko et al., 2021). Cash management is meant to ensure that firms have the needed cash at the right moment as well as at least cost. To do this, firms make use of various measures and techniques relating to cash planning, monitoring, decisions on short-term financing, analysis of payables and receivables management, etc (San-José, 2009). According to Wesonga (2017), cash management focuses on liquidity by using its surplus to cover cash losses through controlling of cash inflows, cash outflows, and balances at certain times. This is very necessary because liquidity shortfalls can lead to organizational crisis which might eventually lead to corporate failure.

Empirical Literature

Laghari et al. (2023) empirically tested the impact of cash flow management on firm performance in China. The study made use of sampled 20288 listed non-financial firms between the period 2018:q2 to 2020:q1. The results of the generalized method of moments (GMM showed that cash conversion cycle (CCC) positively and significantly influenced return on assets (ROA).

Karim et al. (2023) empirically tested whether cash conversion cycle has affected corporate financial performance in Bangladesh. The study used secondary panel data over the period from 2003 to 2020 obtained for 10 manufacturing firms. The GMM regression results indicated that CCC was negatively and significantly related with ROA. This means that a reduction in ACP; a reduction in ICP and a delay in APP helped to boost the profitability of Bangladeshi manufacturing firms for the period under study.

Olulu-Briggs et al. (2023) studied whether there is any relationship between cash flow management and profitability of firms in Nigeria. The researchers used annually sourced panel data collected over the period from 2010 to 2019 on selected firms quoted on the floor of the Nigeria Exchange Group (NXG). The results of the GMM revealed that CCC had a positively significant effect on ROA.

Ubesie et al. (2023) attempted an empirical examination of how cash management had affected financial performance of selected deposit money banks (DMBs) in Nigeria. Secondarily sourced panel data from 2012 to 2021 obtained on four banks were used. The results of the OLS showed that cash and cash equivalent (CCE) positively and significantly impacted ROA.

Odhowa and Mutswenje (2022), in this research, investigated the effect of cashflow management activities on financial performance in Kenya. Secondarily sourced panel data for 2017 to 2021obtained on 8 manufacturing firms listed on the Nairobi securities exchange was used. The results of the OLS showed that CFO from investing activities was statistically negative with ROA.

Ugo and Egbuhuzor (2022) embarked on this research to investigate the effect of cashflow management on financial performance of firms in Nigeria. The study used of secondarily sourced audited reports of 10 Pharmaceutical firms quoted in the NXG over the period 2011 to 2020. The results of the OLS revealed that financing activities was negatively significant with ROA.

Eke and Ringim (2022) researched to ascertain the extent to which Liquidity management has affected firms' financial performance in Nigeria. Secondary data collected from annual reports of 7 consumers' goods manufacturing firms quoted on the floor of the NXG from 2009 to2020 was used. The OLS regression results showed that neither the CCE ratio nor the quick ratio (QR) significantly influenced ROA.

Dibie (2022) carried out a research to determine the effect of cashflow management on financial performance of firms in Nigeria. The study used annual secondary panel data obtained on 11 Food and Beverages firms listed on the NXG covering the period 2001 to 2009. The OLS regression

model results indicated that all the variables of interest-CCC, APP and cash flow margin(CFM)-positively and significantly influenced ROA.

Harvest and Sophia (2022) carried out a research on the extent to which cash management practices had affected the financial performance of DMBs in Nigeria. Annual secondary panel data which covered the period 2014 to 2020 collected from five DMBs reports were used. The OLS regression results showed that CCE and cash turnover had a positively significant relationship with return on equity (ROE).

Onyemaechi and Nneka (2022) attempted a research study to examine how cash management had affected financial performance of selected firms in Nigeria. Secondarily sourced cross sectional data obtained on 26 firms were used. The results of the OLS showed that cash and cash equivalent (CCE) negatively and significantly impacted ROE.

Bivariate Data Analysis (Correlation Analysis)

The correlation analyses among the variables are meant to first determine the association between each pair of the dependent and independent variables as well as among the explanatory variables. The degree of association may be weak (0.00 to 0.5), moderate (0.51 to 0.8) or high (0.81 and above). A very high association among the regressors poses a problem of multi-collinearity.

Correlation Statistics

Table 1 Covariance
Analysis: Ordinary
Date: 07/31/23
Time: 17:49
Sample: 2006
2019
Included
observations: 1123
Balanced sample (listwise
missing value deletion)

Covariance Correlation	CCC	IACCC	CFO	CCE	ACP	APP	DSO	DPO	DIO	CR	QR	CAPEX	STD
CCC	3.55E+1.0000												
IACCC	3.55E+0.9999	3.55E+1.0000											

CFO	15990.	15995.	1083.1							
	0.0815	0.0817	1.0000							
CCE	17809.	17811.	711.62	2710.17						
	0.1121	0.1121	0.8111	31.0000						
ACP	3.49E+	3.49E+	15991.17	738.20	3.49E+					
	0.9904	0.9904	0.0820	1.1261	1.0000					
APP	-65281	-65264	7.0134	-4722.53	21093.5	67390				
	-0.1334	-0.1334	2.60E-05	-0.0033	0.0043	1.0000				
DSO	-4.57E+	-4.54E+	80959.61	-1021.70	3.46E+	1.11E+	1.90E+			
	0.0055	0.0055	0.0017	-0.0016	0.0042	0.0097	1.0000			
DPO	-19590	-19502	5547.85	-772.42	22383.5	-27655.6	80166	8.72E+		
	-0.0111	-0.0110	0.0057	-0.0073	0.0128	0.0114	-0.0196	1.0000		
DIO	-13248.	-13217	0.665	-3381.89	15295.1	20489.7	1.34E+	50263.2	15344.5	
	-0.0056	-0.0056	0.0051	-0.0036	0.0066	0.0063	0.0248	0.0434	1.0000	

CR	-6362 3.	-6358 2.	1.085 90.	844	-14253.	49369.	-60594.	-97737 1.3228.	71574.1				
	-0.026 9	-0.026 8	0.000 80.	00070.	-00600.	15150.	-00110.	83410.	02071.	1.0000			
QR	-3782 3.	-3772 5.	3.795 923.	087	10560.	48358.	-15717 8	87822 92805.	01565.	14449.6			
	-0.009 5	-0.009 4	0.001 70.	01290.	-00260.	08830.	-00170.	44570.	01070.	59131.	1.0000		
CAPEX	1131 4.	1131 8	777.1 0484.	79	11240 4.738.	1569724.	-4055.6	-529.90	1.0334	-2.8418	-666.95		
	0.073 5	0.073 5	0.914 30.	7044	0.0736	0.0034	-0.0019	-0.0053	-0.0052	0.0010	-0.0016	1.0000	
STD	-5607 1.	-5607 4	59.74 0129.	05	-56158 9875.	66	-18998 213428.	-839.18	7.9368	-14.624	54.4892	274.7	
	-0.197 24	-0.197 3	0.038 06	-0.101 41	-0.199 31	0.0022 37	-0.0028 87	-0.0095 34	-0.0044 92	-0.0041 94	0.0045 97	-0.044 38	1.0000 00

Source: Researcher's Computations (2022) Using EViews10 Software.

From Table 1 above, there are six relationships that have a high degree of association among them. They are: IACCC with CCC (0.99997); CCC with CFO (0.811394); ACP with IACCC (0.990465); ACP with CCC (0.990470); CR with DPO (0.834113) and CAPEX with CFO (0.814312). All other associations are weak and this attest to the fact that there is no problem of multicollinearity among the variables.

Methodology

Research Design

The study uses the ex-post facto research design, otherwise called the descriptive or correlational research design, to investigate the relationship if any between cash management and financial performance firms in Nigeria. The population of this research comprises 106 non-financial firms quoted on the floor of the Nigerian Exchange Group (NXG). Secondarily sourced data obtained from seven-six (76) of the 106 companies' annual reports over a period of sixteen (16) years from 2005 to 2020, making a total number of one thousand two hundred and sixteen (1,216) observations, is used in this study.

Model Specification

The functional equation of firm performance to test the fourteen (14) hypotheses specified is stated as:

EVA = f (CCC, IACCC, CFO, CCE, ACP, APP, DSO, DPO, DIO, CR, QR, GSALES, STD, CAPEX) (1)

The functional testable model will be derived as:

$EVA = \beta o + \beta_1 CCC + \beta_2 IACCC + \beta_3 CFO + \beta_4 CCE + \beta_5 ACP + \beta_6 APP + \beta_7 DSO + \beta_8 DPO + \beta_9 DIO + \beta_{10} CR + \beta_{11} QR + \beta_{12} GSALES + \beta_{13} STD + \beta_{14} CAPEX + \varepsilon$ (2).

Since we are using panel data, the model will be specified in the appropriate form as:

$EVA_{it} = \beta o + \beta_1 CCC_{it} + \beta_2 IACCC_{it} + \beta_3 CFO_{it} + \beta_4 CCE_{it} + \beta_5 ACP_{it} + \beta_6 APP_{it} + \beta_7 DSO_{it} + \beta_8 DPO_{it} + \beta_9 DIO_{it} + \beta_{10} CR_{it} + \beta_{11} QR_{it} + + \beta_{12} GSALES_{it} + \beta_{13} STD_{it} + \beta_{14} CAPEX_{it} + \varepsilon_{it}$ (3)

Description of the Estimation Technique Used.

This study uses the dynamic Robust Least Squares Regression Estimator which combines the use of lagged dependent variable in a robust least squares regression environment. A robust least squares regression or simply, a robust regression is a regression technique designed to be robust or reliable in handling a situation where the ordinary least squares (OLS) regression fails due to the violation of one of the OLS assumptions. For example, the OLS method is BLUE (Best, Linear, Unbiased Estimator), but where there are outliers and a departure from normality; it is no longer BLUE since it is not robust to deal with any departure from normality assumption of the error term (Ismail et al., 2021). For as much as the conventional regression methods are sensitive to observation outside the norm, the estimation coefficients can result in inaccurate underlying statistical relationship (Croux et al., n. d.). Thus, robust regression stands as an alternative. If a regression estimator can still reliable in the presence of outliers and its standard error consistent when the regression errors have outliers, autocorrelation and heteroskedasticity, then it is adjudged to be robust (Ismail et al., 2021).

Including the lagged dependent variable to equation 3, we have:

$EVA_{it} = \beta o + \beta_1 EVA_{it-1} + \beta_2 CCC_{it} + \beta_3 IACCC_{it} + \beta_4 CFO_{it} + \beta_5 CCE_{it} + \beta_6 ACP_{it} + \beta_7 APP_{it} + \beta_8 DSO_{it} + \beta_9 DPO_{it} + \beta_{10} DIO_{it} + \beta_{11} CR_{it} + \beta_{12} QR_{it} + + \beta_{13} GSALES_{it} + \beta_{14} STD_{it} + \beta_{15} CAPEX_{it} + \varepsilon_{it}$ (4).

The use of lagged dependent variable is, first, to eliminate autocorrelation in the residuals and, secondly, to capture the dynamism in panel data by controlling for endogeneity bias. By including the lagged value of the dependent variable, that is, EVAit-1, due to unobserved heterogeneity transforms the static model to a dynamic one.

Finally, the study included year dummy and industry sector dummy variables to control for specific fixed effect to arrive in equation 5.

$EVA_{it} = \beta o + \beta_1 EVA_{it-1} + \beta_2 CCC_{it} + \beta_3 IACCC_{it} + \beta_4 CFO_{it} + \beta_5 CCE_{it} + \beta_6 ACP_{it} + \beta_7 APP_{it} + \beta_8 DSO_{it} + \beta_9 DPO_{it} + \beta_{10} DIO_{it} + \beta_{11} CR_{it} + \beta_{12} QR_{it} + + \beta_{13} GSALES_{it} + \beta_{14} STD_{it} + \beta_{15} CAPEX_{it} + \beta_{15} IDUM_{it} + \beta_{16} YDUM_{it} + \varepsilon_{it}$ (5).

β1, β2, β3, β4, β5, β6, β7, β8, β9, β10, β11, β12, β13, β14, β15, β16, β17 = Beta coefficient of the independent and control variables. From this study, we expect β1 to β15 to be greater than zero.

ε_{it} = Stochastic White Noise or Error term.

This study adapted the model previously used by: Olulu-Briggs et al. (2023); Karim et al. (2023) and Laghari et al. (2023) who used a dynamic generalized method of moment (GMM)

Derivation of the Dependent Variable.

Economic Value Added (EVA)
Economic value added is a performance measure of estimating the true economic profit of a firm not derived purely from accounting conventions (Stewart, 2018). EVA makes a firm to focus on value creation, capital structure policy, maximizing shareholders returns by maximizing the investment return while minimize the cost of capital (Ende, 2017)

EVA is calculated in based on the following formula:
EVA = NOPAT – A Capital Charge.

EVA = NOPAT – (WACC x Capital Employed)

EVA = NOPAT – Cost of Capital x Capital Employed
Where NOPAT = Net operating profit after tax = Net profit after tax plus fixed interest charges.

WACC = Weighted average cost of capital = Long-term debt / Long-term debt + Equity multiplied by cost of debt Plus Equity / Long-term debt + Equity multiplied by cost of equity.

Derivation of the Independent Variables.

Average Collection Period (ACP) = Accounts Receivables / Sales*365

Average Payment Period (APP) = Accounts Payables / Purchases*365

Cash Conversion Cycle (CCC) = ACP + *ICP - APP

Where *ICP = Inventory Conversion Period = Inventory / Cost of Sales*365

Industry Adjusted CCC (IACCC) = CCC – Industry median of CCC for each sector.

Day Sales Outstanding (DSO) = Sales / Accounts Receivables *365

Day Payables Outstanding (DPO) = Accounts Payables / Cost of Goods Sold *365

Day Inventory Outstanding (DIO) = Cost of Goods Sold / Inventory *365

Current Ratio (CR) = Current Assets / Current Liabilities

Quick Ratio (QR) = Current Assets - Inventory / Current Liabilities

Salies Growth (GSALES) = (Sales this year / Sales last year) – 1

OR (Sales this year - Sales last year) / Sales last year

Cash Flow from Operating (CFO) = CFO/ TA_{it-1} (Where TA_{it-1} is the lag of total assets)

Cash and Cash Equivalent (CCE) = CCE/ TA_{it-1} (Where TA_{it-1} is the lag of total assets)

Cash Flow from Operating (CFO) = CFO/ TA_{it-1} (Where TA_{it-1} is the lag of total assets)

Short Term Debts (STD) = STD/ TA_{it-1} (Where TA_{it-1} is the lag of total assets)

Capital Expenditures (CAPEX) = CAPEX/ TA_{it-1} (Where TA_{it-1} is the lag of total assets)

Industry Dummy (IDUM) = 1, 2, 3, …10 for each of the industry sectors

Year Dummy (IDUM) = 1, 2, 3, …16 for each of the years

Method of Data Analysis

Data collected are to be analyzed using EViews 10+ in the following order: unit root test, estimation of the models and then performance of some diagnostics tests.

Unit Root Test.

Once the EViews workfile has been structured in panel data form, we can go ahead and perform a panel data unit root test.

Table 2

Variables	Levin, Lin & Chu t*	Breitung t-stat	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Decision
EVA	-14.85 (0.0000)	None	-10.99 (0.0000)	396.23 (0.0000)	419.36 (0.0000)	I(0) stationary
CCC	-249.6 (0.0000)	-1.68 (0.0459)	-120.9 (0.0000)	261.7 (0.0000)	258.5 (0.0000)	I(0) stationary
IACCC	-249.6 (0.0000)	-1.68 (0.0459)	-120.9 (0.0000)	261.7 (0.0000)	258.5 (0.0000)	I(0) stationary
CFO	-471.04 (0.0000)	-3.76 (0.0001)	-68.71 (0.0000)	471.42 (0.0000)	576.04 (0.0000)	I(0) stationary
CCE	-645.74 (0.0000)	0.213 (0.5843)	-83.60 (0.0000)	289.0 (0.0000)	365.6 (0.0000)	I(0) stationary
ACP	(0.0000) -168.0	(0.4022) -0.247	(0.0000) -347.3	(0.0000) 257.2	(0.0000) 266.0	I(0) stationary
APP	(0.0000) -14.4	(0.1244) -1.153	(0.0000) -4.42	(0.0000) 229.7	(0.0000) 288.1	I(0) stationary
DSO	(0.0000) -13.79	(0.2732) -0.603	(0.0000) -5.252	(0.0000) 262.1	(0.0000) 285.4	I(0) stationary
DPO	(0.0000) -48.49	(0.0000) -4.973	(0.0000) -8.63	(0.0000) 210.46	(0.0000) 223.3	I(0) stationary

DIO	(0.0000) -9.74	(0.0073) -2.44	(0.0000) -3.72	(0.0000) 236.5	(0.0000) 302.5	I(0) stationary
CR	(0.0000) -8.41	(0.0011) -3.05	(0.0051) -2.56	(0.0059)	(0.0000) 226.6	I(0) stationary
QR	(0.0000) -9.6949	(0.0000) -4.2274	(0.0006) -3.2166	(0.0013) 207.7	(0.0000) 248.5	I(0) stationary
GSALES	(0.0000) -2488.72	(0.0000) -8.57483	(0.0000) -496.556	(0.0000) 594.323	(0.0000) 691.536	I(0) stationary
STD	(0.0000) -139.727	(0.0000) -3.38281	(0.0000) -19.9111	(0.0000) 273.497	(0.0000) 303.979	I(0) stationary
CAPEX	(0.0000) -5344.31	(0.0000) -0.44712	(0.0000) -653.011	(0.0000) 280.710	(0.0000) 332.991	I(0) stationary

*Unit Roots Test Statistic (P-values in parentheses)

The results of the five unit roots test Statistics and their respective p-values are as shown in Table 2 above. Apart from Breitung t-stat where CCE, ACP, APP and DSO are not stationary at levels, all the other variables of interest are I(0), that is, stationary at levels. When variables are not stationary, it means that they can drift apart on the long run and the regression results obtained can be spurious or nonsensical. We never computed a unit root test for the dummy variables (IDUM, YDUM) because the data were arbitrarily generated. Thus we can use the ordinary least squares (OLS) method of estimation.

Dynamic Robust Least Squares Estimation Results.

Table 3. Dependent Variable: EVA
Method: Robust Least Squares
Date: 08/05/23 Time: 08:00
Sample (adjusted): 2006 2020
Included observations: 1038 after adjustments
Method: M-estimation
M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
EVA(-1)	0.897123	0.000467	1920.491	0.0000
CCC	-102685.2	4448.446	-23.08339	0.0000
IACCC	166.0777	116.0593	1.430972	0.1524
CFO	-1685.914	1736.752	-0.970728	0.3317
CCE	2801.947	1112.976	2.517527	0.0118
ACP	102519.0	4451.558	23.02992	0.0000
APP	-102498.6	4451.305	-23.02664	0.0000
DSO	0.703767	0.011528	61.04989	0.0000
DPO	-4.739880	1.144582	-4.141146	0.0000
DIO	133.5842	4.068489	32.83387	0.0000
CR	27907.89	918.8009	30.37425	0.0000

QR	-38533.24	336.1935	-114.6163	0.0000
GSALES	70668.11	180.9792	390.4764	0.0000
STD	-671.7282	352.1733	-1.907380	0.0565
CAPEX	-4924.130	1822.498	-2.701858	0.0069
C	98791.61	17263.89	5.722441	0.0000

Robust Statistics			
R-squared	0.177085	Adjusted R-squared	0.165007
Rw-squared	0.983413	Adjust Rw-squared	0.983413
Akaike info criterion	2560.004	Schwarz criterion	2652.018
Deviance	6.42E+14	Scale	502512.6
Rn-squared statistic	3862586.	Prob(Rn-squared stat.)	0.000000

Non-robust Statistics			
Mean dependent var	1356119.	S.D. dependent var	40217891
S.E. of regression	34109360	Sum squared resid	1.19E+18

Source: Researcher's Computations (2023) Using EViews10 Software.

Discussion of the Regression Results.

Table 3 above show the regression estimation results of the relationship between cash management and firms' financial performance in Nigeria based on Equation 4.

For the EVA model, both the Rw^2 and the Adj Rw^2 = 0.983413 which means that about 98.34% of systematic variations in economic value added is accounted for by CCC, IACCC, CFO, CCE, ACP, APP, DSO, DPO, DIO, CR, QR, GSALES, STD, CAPEX, IDUM and YDUM. The remaining 01.66% can be explained by other factors not captured by our model. The Rn-squared statistic (3862586) and a Prob(Rn-squared stat.) of 0.000000 confirm that there is a joint statistical significant of a linear relationship between the variables (dependent and independent). Looking at the independent variables (CCC, IACCC, CFO, CCE, ACP, APP, DSO, DPO, DIO, CR and QR) as well as the control variables (GSALES, STD, CAPEX, IDUM and YDUM) reveal that all the variables are statistically significant with EVA at the 1% level and 6% level except IACC and CFO which are insignificant.

From the same Table 3 above, the coefficient (0.897123) of EVA(-1) is positively significant (p= 0.0000) at the 1% levels of significance. This result is in line with the extant literature that the dependent variable and its lag move in the same direction and must be significant. This means that the current year performance strategies can be directly affected by previous period(s) strategies in the light of new information we were not aware of. The result is supported by the studies of Olulu-Briggs et al. (2023) and Karim et al. (2023).
Of all the measures and metrics of cash flow, while CCC and CCE are significant; IACCC and CFO are insignificant. CCC has a negative z-Statistic of -23.08339 with a p-value of 0.0000. CCC

is a measure of how long, expresses in number of days, it takes a firm to sell its product from its investments in inventory and other resources. The shorter the number of days, the better the liquidity position of the firm. A negative relationship shows that as the CCC decreases, the performance of firms increase. For low CCC conserves a firm debt capacity and so the firms need less short term borrowing to provide liquidity (Laghari et al., 2023). A low CCC means that a reduction in ACP; a reduction in ICP and a delay in APP helped to boost the profitability of firms. This result is in line with those of Dibie (2022) and Karim et al. (2023).

CCE has a positive z-Statistic of 2.517527 with a p-value of 0.0118. This positive relationship shows that as the cash balances increases, the performance of firms' increases. This result is in line with those of Ubesie et al. (2023) and Harvest and Sophia (2022) but contrary to that of Onyemaechi and Nneka (2022).

ACP, APP, DSO, DPO and DIO are all connected with CCC and they all have a significant relationship with EVA. While ACP, DSO and DIO have positive and significant impact on EVA; APP and DPO have negative relationship. ACP and DSO being positively significant means that it takes a longer period to collect debts from customers. This is definitely not good for cash management. APP and DPO being negatively significant means that it takes a shorter period to pay creditors. This result is in line with Dibie (2022). Management needs to know that a reduction in ACP; a reduction in ICP and a delay in APP helped to boost the profitability of firms. For the control variables, CR and GSALES are positively significant with EVA while QR, STD and CAPEX are negatively significant with it. The overall results show that firms are highly liquid and this has translated into firms' profitability.

Additional Tests for Robustness Checks

In Equation 5 where both the industry fixed effect and year fixed effect dummy variables are introduced, the regression results did not significantly depart from that of Equation 4 without the dummy variables as shown in Table 4 below. This attest to the fact that cash management has helped in improving the financial performance of firms for the period under consideration.

Table 4. Dependent Variable: EVA
Method: Robust Least Squares
Date: 07/31/23 Time: 17:39
Sample (adjusted): 2006 2020
Included observations: 1036 after adjustments
Method: M-estimation
M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
EVA(-1)	0.900954	0.000455	1980.754	0.0000
CCC	-205414.1	4333.065	-47.40618	0.0000

IACCC	511.2946	117.8202	4.339617	0.0000
CFO	952.4051	1692.863	0.562600	0.5737
CCE	189.2810	1083.739	0.174656	0.8614
ACP	204903.1	4338.365	47.23050	0.0000
APP	-204880.3	4338.112	-47.22799	0.0000
DSO	0.712111	0.011204	63.55646	0.0000
DPO	-2.588397	1.116648	-2.318007	0.0204
DIO	40.58753	3.954614	10.26334	0.0000
CR	55936.20	896.8015	62.37300	0.0000
QR	-67871.35	327.2478	-207.4005	0.0000
GSALES	63261.83	176.1282	359.1805	0.0000
STD	-541.4599	343.6763	-1.575494	0.1151
CAPEX	-1763.422	1775.682	-0.993096	0.3207
IDUM	4468.819	6347.090	0.704074	0.4814
YDUM	-8269.261	3616.826	-2.286331	0.0222
C	163922.4	43428.10	3.774570	0.0002

Robust Statistics			
R-squared	0.178791	Adjusted R-squared	0.165078
Rw-squared	0.984312	Adjust Rw-squared	0.984312
Akaike info criterion	2578.548	Schwarz criterion	2681.997
Deviance	6.01E+14	Scale	484938.0
Rn-squared statistic	4076672.	Prob(Rn-squared stat.)	0.000000

Non-robust Statistics			
Mean dependent var	1347816.	S.D. dependent var	40255944
S.E. of regression	34124583	Sum squared resid	1.19E+18

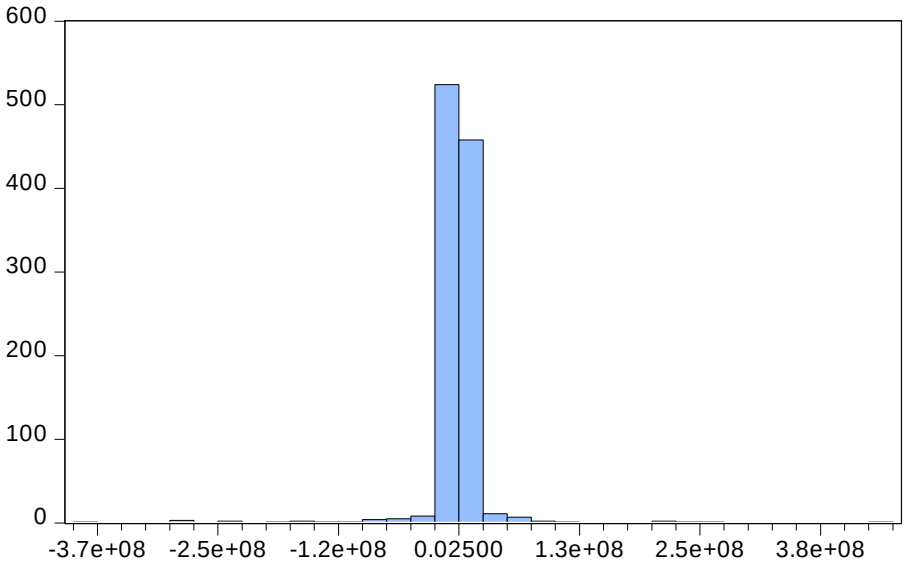
Source: Researcher's Computations (2023) Using EViews10 Software.

Normality Test

The purpose of the normality test is to determine if the distribution of data within a group of data or variables is regularly distributed or not. Data that has been collected in a normal distribution or taken from a normal population can be identified using the normality test. In data analysis, normalcy assumptions are used by descriptive statistics, correlation, regression, ANOVA, t tests, etc. This normality assumption should be upheld despite the sample size because choosing the incorrect data set representation will result in an incorrect interpretation (Mishra et al., 2019). Again, it is essential to check for non-normal errors in regression models since the assumption of normality is crucial for the validation of inference techniques, forecasting, and model specification tests, both conceptually and methodologically (Alejo et al., 2015). However, Ghasemi and Zahediasl (2012) noted that, in accordance with the central limit theorem (CLT), violating the normality assumption shouldn't be a significant problem once the sample size is 100 and above.

From the value of Jarque-Bera statistic and its probability value in Table 5 below, the data used in analyzing the regression model are not normally distributed since the p-value is less/lower than 0.05, that is, 5%. This is not a problem because the number of observation is large at 1,216.

Table 5: Normality Test



Series: Residuals	
Sample 2006 2020	
Observations 1036	
Mean	-706751.6
Median	-27271.95
Maximum	4.42e+08
Minimum	-3.93e+08
Std. Dev.	33835785
Skewness	-0.935804
Kurtosis	76.70238
Jarque-Bera	234634.3
Probability	0.000000

Conclusion and Recommendations

This study investigates the relationship between corporate governance attributes and the financial performance of selected manufacturing firms in Nigeria. Using secondary data over **t**he period from 2005 to 2020 of 76 firms, the results of the ordinary least squares revealed that while cash and cash equivalence, average collection period, days sales outstanding, days inventory outstanding and sales growth are positively significant with economic value added; cash conversion cycle, average payment period, days payment outstanding, quick ratio, short term debt and capital expenditures are negatively significant with it.

Based on the results above, the study recommends that firms should:

- Maintain or better still improve on their present cash conversion cycle as the shorter the period the more profitability the firms.
- Maintain or better still improve on their present average payment period as they delay in payment results in more profitability for the firms.
- Investigate the components of capital expenditures for wastages since such expenditure is presently not improving profitability of firms. The story is the same for the use of short term debt
- Investigate the reason it takes management longer time to collect money from debtors. Is there no incentive for prompt payments?
- Investigate the reason it takes management longer time to sell good since days inventory outstanding (DIO) is positively related with profitability.

- Maintain or better still improve on current levels of growth in sales since it is positively related to profitability.

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