Impact of Working Capital Cycle Management on the Profitability of Insurance Companies in Nigeria

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Abstract: The studyexamined the impact of working capital cycle on the financial performance of insurance companies in Nigeria. Specifically, the study sought to: determine the impact of cash conversion cycle and operating cash flow on financial performance of insurance companies in Nigeria. The study adopted *Ex-post-facto* research design while Panel Data Regression Model was used to analyze annual time series data collected from audited annual reports of the 20 Insurance Companies for the period 1999-2016. The study found that cash conversion cycle has negative and significant impact on financial performance of insurance companies in Nigeria while operating cash flow has positive and significant impact on financial performance of insurance companies in Nigeria. The implication of the findings is that without adequate monitoring and management of working capital cycle, the financial performance of insurance companies will always be impaired. The study concluded that an increase in cash flow cycle from operating activities will lead to an increase in financial performance of listed insurance companies in Nigeria whereasan increment in the cash conversion cycle of an insurance company will amount to more financial losses which might hamper a robust financial performance. It was recommended that insurance companies should reduce the number of days in their cash conversion cycle and that insurance companies should set up a good operating cash flow system that will curb liquidity risks in their companies.

Key words: Working capital · Cash conversion cycle · Operating cash flow · Financial performance

INTRODUCTION

Working Capital refers to that capital that is available for the day to day running of a company's operation. Working Capital Cycle (WCC) on the other hand refers to the period it takes to convert cash to inventories to receivables and then to cash.The management of working capital is considered very difficult because it constitute that variable in the asset of a firm that is not constant. The management of working capital depends on the decisions of the financial manager. The financial manager determines how to optimize investments in current assets and how to finance the current assets. Working capital cycle comprises of cash conversion cycle and operating cash flow. Whereas operating cash flow concentrates on cash inflows and out flows related to a company's main business activities such as providing services and

paying salaries; cash conversion cycle focuses on the period it takes to covert cash into receivables and back to cash.

Understanding a company's cash flow is essential to making investment decisions and a good way to judge a company's cash flow prospects is to look at its working capital cycle.Working capital cycle considers the ability to control effectively and efficiently the current assets and current liabilities in a manner that provides the firm with maximum return on its assets and minimizes payments for its liabilities. The concept of working capital cycle addresses the way companies manage their short-term capital and the goal of the management of working capital is to promote a satisfying liquidity, profitability and shareholders' value [1]. Insurance companies like every other corporate organization is concerned seriously about the best way to sustain and

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improve its profitability. Today, owing to technological advancement and increased competition among firms, each of the firms is making frantic efforts to enhance its profits [2]. To achieve their profitability enhancement, firms now strive hard to bring their working capital at optimal level. Excessive investment in current assets should be avoided because it impairs the firm's financial performance, as idle investment earns nothing. On the other hand, inadequate amount of working capital can threaten solvency of the firm because of its inability to meet its current obligations.

Insurance companies have to grasp the requirement to articulate appropriate working capital management policies that will enable them meet up with the demands of the policy holders by taking into account the heavy rise in operating risk globally and the mounting burden on insurance institutions [3]. Nigeria's dominant position in Africa as the most populous and with one of the largest and fastest growing economies in Africa coupled with its high incidence of risk and uncertainty makes the country a vibrant insurance market [4]. The proper management of working capital becomes extremely important when thecompany's business is to provide insurance care [5]. Insurance, unlike most businesses in other sectors of the economy, are mostly prepaid business and they have unpredictable cash outflow as claims come in [6]. Given this characteristic ofthe sector, there is need to evolve an optimal operating cash flow mechanism and efficient cash conversion cycle.

Although a number of studies about the impact of working capital management on financial performance of firms have been undertaken in the countries around the world, most of these studies are foreign and there is need for local evidence with regards to the impact of working capital cycle on financial performance of insurance firms in Nigeria. However, the erroneous view that the insurance industry is naturally liquid has also helped to shift attention from this field of research. It is along this line that this present study is set. Therefore, the broad objective of this study is to assess the impact of working capital management on the performance of insurance companies in Nigeria. Specifically, the study sought to evaluate the impact of cash conversion cycle on financial performance of insurance companies in Nigeria and also to examine the impact of operating cash flow on financial performance of insurance companies in Nigeria.

Conceptual Review: Cash conversion cycle starts with the purchase of raw material and other resources and ends with the realization of cash from the sale of finished goods. It is used as a powerful tool for measuring

management effectiveness [7]. According to [8] it is a combination of several activity ratios involving account receivables, accounts payables and inventory turnover. This means that the ratios show how efficiently management can utilize short-term assets and liabilities to generate cash. When a firm manages its cash efficiently, that will translate to an increase in the net present value of its cash flows which would in turn result in the increase in its market value. In the same vein, a shorter cash conversion cycle period would eventually result in a higher profitability of the firm.

An illustration of the working capital cycle indicates that the cycle begins with the purchase of raw materials which are later on transformed into finished goods that are eventually sold to customers. The sale can be purchased by cash or by trade credit. This trade credit provides a delay until the cash is received. With every step of the cycle there are associated costs, which are direct costs and opportunity costs. The direct costs are the cost of capital invested in each part of the cycle, for example interest on the debt finance to sustain trade creditors. The opportunity costs are represented by the possible returns forgone by investing in working capital instead of some alternative investment opportunity [9].

Empirical Review: [10] examined the impact of working capital management on the financial performance of listed conglomerate companies in Nigeria for a period of 2005-2014. The study employed Ordinary Least Square estimation techniques whiledata were collected from the annual reports and accounts of the companies. The study found that cash conversion cycle has positive but insignificant relationship with the financial performance of the studied companies.

[11] assessed the effect of cash conversion cycle on the profitability of selected insurance firms quoted in the Nigerian Stock Exchange for the period (2000-2011). The return on assets was used as a measure of profitability. Data were collected from the annual financial reports of sampled insurance companies whilemultiple regression analysis was used in data analysis. The study found that cash conversion cycle had negative and significant effect on profitability

[12] examined the impact of operating cash flow on corporate financial performance of listed conglomerate companies in Nigeria over the period 2005-2014. The result showed a positive and insignificant impact between cash flow from operating activities and financial performance (ROA). However the impact was positive and significant when financial performance was proxied by Return on Equity (ROE).

[13] employed Ex-post facto research design and time-series data to assess the extent at which cash holding affects financial performance of quoted insurance firms in Nigeria. Secondary data was used. Findings showed that cash holding has a positive and statistical significant effect on financial performance.

[14] examined the impact of working capital management on financial performance of manufacturing companies in Nigeria. The study employed multiple regressions in analyzing the data sourced from the published financial statement of the firms under the study. The study found thataverage payment period and average collection period impacts on financial performance(earnings per share and return on capital employed). The implication is that efficient management of working capital will improve the financial performance of the manufacturing firms, hence the study recommended that professionals should be hired by these firm to ensure proper management of stock to avoid stock out.

[15] examined the impact of working capital management on the profitability of petroleum retail firms in Ghana over the period 2008-2013. Data were collected from the audited annual reports of the five selected petroleum retail firms in Ghana. The study showed that cash conversion cycle, average day's inventory and average days receivables have insignificant impact onthe profitability of petroleum retail firms in Ghana. The study further found that working capital management practices among the five selected petroleum retail firms support the conservative strategy of working capital management, rather than an aggressive working capital management strategy.

[16] analyzed the impact of working capital on financial performance of the small and medium-sized enterprises in Vietnam,using panel data for 1,209 enterprises in the period from 2008-2015. The study found that receivables and working-capital turnover impact negatively on financial performance of small and medium-sized enterprises in Vietnam. The paper further showed that accounts payable period and inventory conversion period have a direct relationship with corporate financial performance.

[17] carried out a study on cash flow and organizational performance of Nigerian Hospitality and Print Media using 45 small and medium enterprises from the two sectors. Data collected were analyzed using Pearson Product Moment Coefficient of correlations and Statistical Package for Social Sciences (SPSS) 2.0 Software. The result indicated that a significant strong positive relationshipexist between cash flow position and net profit Nigerian Hospitality and Print Media Enterprises. It was concluded that cash flow position determines the extent of net profit performance of organizations in the hospitality and print media in Nigeria.

[18] conducted an investigation on cash flows' effect on financial performance of 183 companies listed on Tehran Stock Exchange over the period 2009-2013.Data analysis was done using Pearson Product Moment Correlation Coefficient. The studyfound that there is a significant relationship between accounting cash flow, equity cash flow, free cash flow, capital cash flow and financial performance of listed companies in Tehran Stock Exchange.

[19] examined the relationship between cash flow and corporate performance in the food and Beverages sector of Nigeria. Data used were obtained from the Nigerian Stock Exchange for the period 2007 - 2011 and were analyzed using multiple regression technique. Return on Assets (ROA) represents the dependent variable and the three cash flow components as the independent variables. The study found that operating and financing cash flow have significant positive relationship with corporate performance while investing cash flow and corporate performance have significant negative relationship.

[20] carried out a research on the cash flow statement component effect on management performance using 138 firms listed on the Tehran Stock Exchange for the period of 2008-2012. Using multiple linear regression on the variables Return on Assets and Return on Equity as performance measures and the independent variables (cash flow from financing activities, cash flow from investing activities, cash flow from operating activities and cash flow from return on investment and interest paid. The finding showed that there is negative relationship between cash flows from investments activities and return on assets while there is no relationship between cash flows from operational activities and financing activities and return on assets.

Theoretical Framework: The study adopted the Risk Return Theory that was propounded by [21]. This theory assumes that investors are risk-averse. Thetheory was adopted because insurance companies is both a risk-taking and profit making business and insurance firms activities should return profits commensurate with their risk. The higher the risk, the higher will be the financial performance and vice versa. This postulation is true when the insurance firm risk appetite is lower than the risk tolerance.

Research Design: The study adopted *Ex-post facto* research design. The reason for adopting Ex-post facto research design is because it utilizes data on event that has taken place and the data are already in existence [22]. The study covered 20 out of the 26 listed insurance companies in Nigeria Stock Exchange as at 2018. The study period was 1999-2016. Data was obtained from theaudited annual reports of the companies under study. The study adopted panel regression model. The three major panel regression models that were examined included pooled, fixed and random effect models. The pooled regression model which involves pooling all the variables over time was specified as follows:

$$PAT_{it} = \beta_0 + \beta_1(CCC)_{it} + \beta_2(OCFR)_{it} + \varepsilon_{it} \qquad (1)$$

The fixed effect model allows the explanatory variables to be fixed while the intercept varies from one company to another. The fixed effect model is specified as follows:

$$PAT_{it} = \beta_{0i} + \beta_1(CCC)_{it} + \beta_2(OCFR)_{it} + \varepsilon_{it} \qquad (2)$$

The random effect model allows the dummy variables to be expressed through error term or disturbance and it was specified as:

$$PAT_{it} = \beta_0 + \beta_1(CCC)_{it} + \beta_2(OCFR)_{it} + u_i + \varepsilon_{it} \qquad (3)$$

where;
Profit after Tax (PAT_{it}) = It was measured as net income to total asset.
Cash Conversion Cycle ($CCC)_{it}$ = It is measured as receivable collection period less payables payment period.
Operating Cash Flow ($OCFR)_{it}$ = it was measured as the ratio of operating cash flow/ current liabilities.
β_k^s = Regression coefficients for k^{th} variable.
ε_{it} = error term.

The Hausman test was employed to select the model (pooled, random or fixed effects) that best fits the study. The probability values and the t-statistic were used to determine the statistical significance of the results. The Statistical Package for Social Sciences (SPSS) statistical software 2.0 version was used in data analysis. The decision rule on the statistical significance of the results obtained was based on the probability values.Accept the alternate hypothesis and reject the null hypothesis if the P-value is less than the chosen level of significance (0.05). Accept the null hypothesis and reject

the alternate hypothesis if the P-value is greater than the chosen level of significance (0.05).

RESULTS

Table 1 showed that the mean value for the 20 insurance companies over the years under review were 6473551, 125.58 and 48.98 with standard deviation of 45572309, 43.30 and 332.64 respectively. The minimum and maximum values were also displayed for profit after tax, cash conversion cycle andoperating cash flow ratio.

In Table 2, the study applied the Hausman test to select the model (fixed effect or random effect) that will be mostly appropriate for estimation. Hausman test null Hypothesis states that fixed effect model was appropriate while its alternative hypothesis states that random-effect model was appropriate. The selection of either fixed effect model or random effect model is based on the statistical significance of the P-value. From table 2, the Hausman test statistics P-value is [0.000]. It implies that its P-value is significant because it is less than 5% (0.05) chosen level of significance. Thus, the null hypothesis was rejected. Therefore, it was concluded that random effect model was desirable for prediction.

Test of Research Hypotheses: The probability values formed the basis for decision making on the statistical significance of the results obtained for each of the research hypotheses. Thus, in testing the hypotheses, the P-valuesin table 2 (Panel 3) was used. The hypotheses were tested considering random effect model.

Test of Hypothesis One: H_{01}: There is no significant impact of cash conversion cycle on financial performance of insurance companies in Nigeria.

H_{A1}: There is no significant impact of cash conversion cycle on financial performance of insurance companies in Nigeria.

Based on the regression result presented in table 2 (Panel 3), cash conversion cycle (CCC) has a P-value of 0.0012. The parameter of CCCis significant in measuring the financial performance (PAT) as confirmed by its P-value. Since 5% (0.05) level of significance is greater than the P-value [0.0012], we accept the alternate hypothesis and conclude that the level of cash conversion cycle has significant impact on the financial performance of insurancecompanies in Nigeria. The study accordingly reject the null hypothesis since the p-value is less than 0.05 at 5% level of significance.

Table 1: Descriptive Statistics Result

Stat.	PAT	CCC	OCFR
Mean	6473551	125.58	48.98
STD	45572309	43.30	332.64
Min	-2.1E+08	25	-1.73
Max	5.34E+08	300	4130.88

Source: Author's Computation 2016 from SPSS, 2.0

Table 2: Baseline Panel Regression Results

Variable	Pooled Regression Model (Panel 1)	Fixed Effect Model (Panel 2)	Random Effect Model (Panel 3)
C	-11018923	-5024410	-11018923*
	(0.1503)	(0.5119)	(0.0521)
CCC	-137763.6**	-115406**	-137763.6***
	(0.0159)	(0.0416)	(0.0012)
OCFR	17496.28**	60779.92***	17496.28***
	(0.0166)	(0.0000)	(0.0013)
R^2-Adjusted	0.164	0.642	0.164
F-value	2.707*	13.622**	2.76*
Durbin-Watson (D.W)	0.992	2.000	0.992

( ) - P-value, * - significant at 10%

 ** - significant at 5% Hausman Test p-value = 0.000

 *** - significant at 1%

Source: Author's Computation 2016 from SPSS, 2.0

Test of Hypothesis Two:

H_{02}: There is no significant impact of operating cash flow on financial performance of insurance companies in Nigeria.

H_{A2}: There is significant impact of operating cash flow on financial performance of insurance companies in Nigeria.

From the regression result presented in Table 2 (Panel 3), operating cash flow (OCFR) has a P-value of 0.0013. The parameter of OCFR is significant in measuring the financial performance (PAT) as confirmed by its P-value. Since 5% (0.05) level of significance is greater than the P-value [0.0013], we accept the alternate hypothesis and conclude that the level of operating cash flow has significant impact on the financial performance of insurance companies in Nigeria. The study accordingly reject the null hypothesis since the p-value is less than 0.05 at 5% level of significance.

Findings: The study found that cash conversion cycle has negative and significant impact on financial performance of insurance companies in Nigeria. This is confirmed by the coefficient of cash conversion cycle of -137763.6 and the p-value of 0.0012. The coefficient of cash conversion cycle (-137763.6) implies that an increase in cash conversion cycle by 1 unit would produce a decrease in Profit after tax by N137,763.60 when all the other working capital variable in the model are kept constant. The negative coefficient equally signifies that

cash conversion cycle is negatively related to profit after tax. Therefore an increment to the cash conversion cycle of an insurance company will amount to more financial losses which might hamper a robust financial performance. The p-value of 0.0012 which is less than the 5% significance level implies that cash conversion cycle has significant impact on financial performance ofinsurance companies in Nigeria.From the foregoing, it is evident that when the cash conversion cycle is relatively shorter, insurance companies may not require external financing. Reduced external financing results in insurance companies incurring less borrowing cost, thereby creating room for increased profitability. This finding has further demonstrated that decrease in cash conversion cycle decrease is one of the most important factors that account for increased profitability as well as increase in corporate value. An implication for the negative relationship between cash conversion cycle and profit after tax is that minimizing the investments in current assets is capable of enhance profitability of insurance companies in Nigeria. Therefore liquid assets such as cash should not be kept in the business for too long even though they are utilized in generating profit for the company.

The study equally found that operating cash flow has positive and significant impact on financial performance of insurance companies in Nigeria as confirmed by the coefficient of operating cash flow ratio of 17496.28 and the p-value of 0.0013.The coefficient of 17496.28 implies that on average an increase in operating cash flow ratio by 1 unit will bring about an increase of

about N17496.28 of the profit after tax when all the other working capital variables in the model are held constant. The coefficient operating cash flow ratio suggests that the impact of operating cash flow ratio to financial performance is very high in insurance companies in Nigeria.

The positive relationship between operating cash flow ratio and financial performance is that an increase in cash flow from operating activities will lead to an increase in profit after tax of listed insurance companies in Nigeria. Financial performance of listed insurance companies in Nigeria is therefore influenced by the cash flow generated from operating activities. By implication, this will boost the liquidity position of operators and further place them in good stead to readily meet their obligation and claims from clients. This development will without doubt aid and increase public confidence in the insurance sector thereby positively influencing profitability.

CONCLUSION

The study concluded that cash conversion cycle and operating cash flow have significant impact onfinancial performance of insurance companies in Nigeria.It was equally concluded that that an increase in cash flow from operating activities will lead to an increase in financial performance of insurance companies in Nigeria.The study equally concluded that an increment in the cash conversion cycle of an insurance company will amount to more financial losses which might hamper a robust financial performance.

Recommendations: Based on the findings, the study recommended as follows:

• That Nigerian insurance companies should endeavour to reduce the number of days in the cash conversion cycle in order to enhance their profitability.

• That Nigerian insurance companies should be encourage to set up a good operating cash flow system that will curb liquidity risks and increase their profitability.

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APPENDIXES

Sampled Nigeria Insurance Firms

1. Aiico Insurance Plc.
2. Lasaco Assurance Plc.
3. Law Union and Rock Insurance Plc.
4. NEM Insurance Plc.
5. Niger Insurance Plc.
6. Corner Stone Insurance
7. UNIC Insurance
8. Consolidated Hallmark Insurance plc
9. Prestige Assurance Plc.
10. Royal Exchange Plc.
11. Custodian & Allied Plc.
12. Universal Insurance Plc.
13. Standard Alliance Ins. Plc.
14. Staco Insurance Plc.
15. Linkage Assurance Plc.
16. Int'l Energy Insurance Plc.
17. Guinea Insurance Plc.
18. Regency Alliance Ins. Plc.
19. Equity Assurance Plc.
20. WAPIC Insurance Plc.

Table 1: Descriptive Statistics of the Variables under study by Companies

COMPANIES	Statistic	Profit after Tax	Cash Conv. Cycle	Operating Cash Flow Ratio
Aiico Insurance Plc	Mean	1063551	204.39	0.09
	STD	2273564	51.03	0.35
	Min	-930158	125.00	-1.13
	Max	9682115	300.00	0.66
Consolidated HallMark	Mean	126508343	128.56	976.11
	STD	166673502	47.98	1174.16
	Min	-207111706	73.00	7.95
	Max	534229069	259.00	4130.83

Table 1: Continued

COMPANIES	Statistic	Profit after Tax	Cash Conv. Cycle	Operating Cash Flow Ratio
Cornerstone Ins. Plc	Mean	99082	142.61	0.66
	STD	638373	30.25	1.39
	Min	-1889787	112.00	-0.10
	Max	1282346	204.00	4.70
Custodian & Allied Plc	Mean	1098292	143.17	0.09
	STD	865761	30.97	0.07
	Min	178187	98.00	-0.01
	Max	2909006	188.00	0.26
Equity Assurance Plc	Mean	-130710	141.83	1.02
	STD	383125	26.41	2.06
	Min	-895835	103.00	-0.57
	Max	445041	208.00	5.65
Guinea Insurance	Mean	-15424	158.28	0.01
	STD	124285	27.99	0.32
	Min	-465507	119.00	-0.61
	Max	92605	228.00	0.87
Int'l Energy Insurance Plc	Mean	-193371	115.61	-0.03
	STD	765257	15.17	0.18
	Min	-2164762	79.00	-0.56
	Max	795920	139.00	0.11
Lasaco Assrance Plc	Mean	214536	145.94	0.29
	STD	215819	73.64	0.46
	Min	-198702	59.00	-0.23
	Max	688171	269.00	1.63
Law Union & Rock Ins	Mean	75817	126.56	0.12
	STD	404636	15.54	0.16
	Min	-1337180	100.00	-0.04
	Max	561851	160.00	0.63

STD-Standard Deviation, Min-Minimum, Max- Maximum

Linkage Assurance Plc	Mean	100146	132.72	0.21
	STD	311287	12.25	0.69
	Min	-775779	109.00	-1.73
	Max	544564	153.00	1.08
Nem Insurance Plc	Mean	490004	95.00	0.31
	STD	581956	19.00	0.41
	Min	-56742	59.00	-0.41
	Max	1848616	123.00	1.49
Niger Insurance Plc	Mean	274021	78.78	0.03
	STD	826241	25.05	0.32
	Min	-2253299	25.00	-0.85
	Max	2307032	102.00	0.85
Prestige Assurance Plc	Mean	255537	90.83	0.09
	STD	262820	30.42	0.24
	Min	-137003	52.00	-0.40
	Max	711649	159.00	0.55
Regency Alliance Ins. Plc	Mean	180296	129.67	0.17
	STD	168511	20.33	0.34
	Min	-66752	100.00	-0.48
	Max	470594	168.00	0.84
Royal Exchange Plc	Mean	105642	84.28	0.02
	STD	340105	43.50	0.09
	Min	-932832	41.00	-0.13
	Max	647142	205.00	0.23
Staco Insuranc Plc	Mean	36486	128.94	0.20
	STD	610274	20.81	0.28
	Min	-1888598	100.00	-0.33
	Max	757982	200.00	1.06

Standard Alliance Ins. Plc	Mean	-742332	124.11	0.16
	STD	2494088	25.76	0.29
	Min	-8715999	90.00	-0.42
	Max	810238	213.00	0.74
Unic Insurance Plc	Mean	-23247	76.22	0.00
	STD	434613	19.33	0.14
	Min	-1083120	43.00	-0.16
	Max	942945	116.00	0.40
Universal Ins Plc	Mean	-116857	123.11	-0.01
	STD	533775	12.58	0.30
	Min	-2070669	98.00	-0.80
	Max	303955	139.00	0.49
WAPIC Insurance Plc	Mean	191206	140.89	0.02
	STD	293322	30.82	0.11
	Min	-395824	89.00	-0.26
	Max	793993	207.00	0.12

Source: SPSS, 20

Dependent Variable: PAT
Method: Panel Least Squares
Date: 09/20/18 Time: 11:22
Sample: 1999 2016
Periods included: 18
Cross-sections included: 20
Total panel balanced observations: 354

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	-11018923	7643149.	-1.441673	0.1503
CCC	137763.6	56881.78	2.421928	0.0159
OCFR	17496.28	7270.855	2.406358	0.0166
R-squared	0.303108	Mean dependent var	6581869.	
Adjusted R-squared	0.163806	S.D. dependent var	45950278	
S.E. of regression	45572261	Akaike info criterion	38.12430	
Sum squared resid	7.23E+17	Schwarz criterion	38.18988	
Log likelihood	-6742.001	Hannan-Quinn criter.	38.15039	
F-statistic	2.706097	Durbin-Watson stat	0.991716	
Prob (F-statistic)	0.050355			

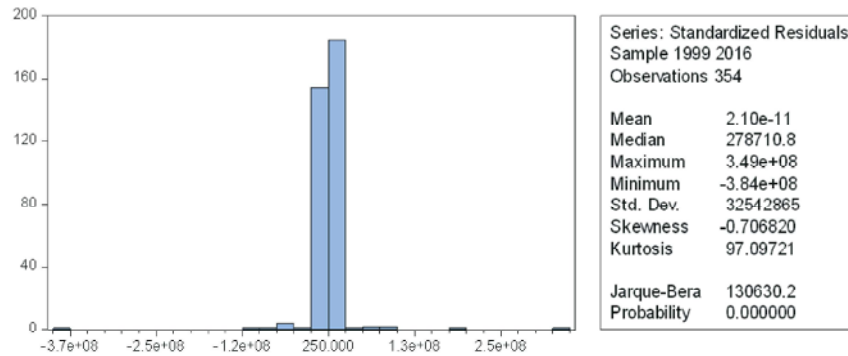|	
Series: Standardized Residuals	
Sample 1999 2016	
Observations 354	
Mean	-1.47e-09
Median	-5346854.
Maximum	5.05e+08
Minimum	-2.22e+08
Std. Dev.	45248360
Skewness	6.589865
Kurtosis	63.92617
Jarque-Bera	57314.13
Probability	0.000000
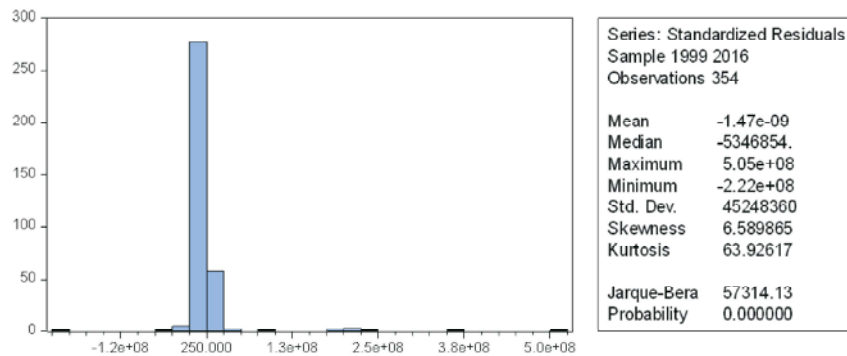
Dependent Variable: PAT
Method: Panel Least Squares
Date: 09/20/18 Time: 11:28
Sample: 1999 2016
Periods included: 18
Cross-sections included: 20
Total panel balanced observations: 361

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	-5024410.	7652624.	-0.656560	0.5119
CCC	115406.0	57798.68	1.996690	0.0467
OCFR	-60779.92	7096.513	-8.564759	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.498426	Mean dependent var	6581869.
Adjusted R-squared	0.461837	S.D. dependent var	45950278
S.E. of regression	33708947	Akaike info criterion	37.57243
Sum squared resid	3.74E+17	Schwarz criterion	37.84568
Log likelihood	-6625.320	Hannan-Quinn criter.	37.68115
F-statistic	13.62228	Durbin-Watson stat	2.000593
Prob (F-statistic)	0.000000		

Dependent Variable: PAT

Method: Panel EGLS (Cross-section random effects)

Date: 09/20/18 Time: 11:31

Sample: 1999 2016

Periods included: 18

Cross-sections included: 20

Total panel balanced observations: 361

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11018923	5653494.	-1.949047	0.0521
CCC	137763.6	42074.39	3.274287	0.0012
OCFR	17496.28	5378.115	3.253237	0.0013

Effects Specification		S.D.		Rho
Weighted Statistics				
R-squared	0.300318	Mean dependent var		6581869.
Adjusted R-squared	0.163806	S.D. dependent var		45950278
S.E. of regression	45572261	Sum squared resid		7.23E+17
F-statistic	2.760907	Durbin-Watson stat		0.991716
Prob (F-statistic)	0.056355			
	Unweighted Statistics			
R-squared	0.030318	Mean dependent var		6581869.
Sum squared resid	7.23E+17	Durbin-Watson stat		0.991716
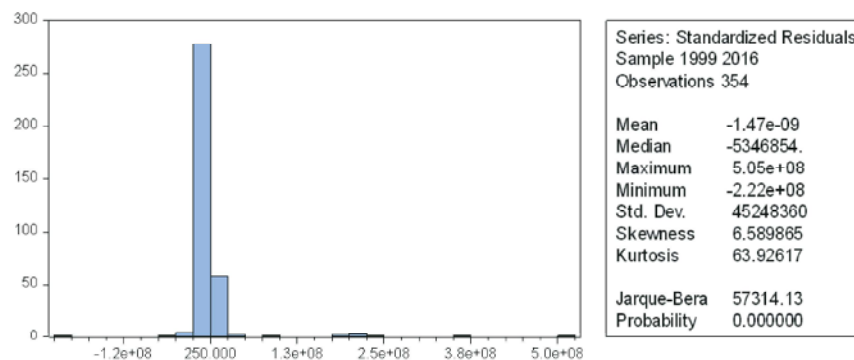
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	307.018080	5	0.0000

** WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CCC	115406.049644	137763.609971	1570432748.981178	0.5726
OCFR	-60779.921853	17496.281471	21436367.637910	0.0000

Cross-section random effects test equation:
Dependent Variable: PAT
Method: Panel Least Squares
Date: 09/20/18 Time: 11:38
Sample: 1999 2016
Periods included: 18
Cross-sections included: 20
Total panel balanced observations: 361

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	-5024410.	7652624.	-0.656560	0.5119
CCC	115406.0	57798.68	1.996690	0.0467
OCFR	-60779.92	7096.513	-8.564759	0.0000

Effects Specification
Cross-section fixed (dummy variables)

R-squared	0.498426		Mean dependent var	6581869.
Adjusted R-squared	0.461837		S.D. dependent var	45950278
S.E. of regression	33708947		Akaike info criterion	37.57243
Sum squared resid	3.74E+17		Schwarz criterion	37.84568
Log likelihood	-6625.320		Hannan-Quinn criter.	37.68115
F-statistic	13.62228		Durbin-Watson stat	2.000593
Prob (F-statistic)	0.000000			