

Free Cash Flow and Firms' Growth: An Empirical Investigation of Nigerian Quoted Non-Financial Firms

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Abstract: This study analyzes the effect of free cash flow on the growth of non-financial quoted firms in Nigeria. Specifically, the impact of free cash flow on the percentage change in a total asset of selected quoted firms (Dangote Flour Mills, Honeywell Nig. Plc, Dangote Sugar Refinery, Flour Mills of Nig. Plc, and PZ Cussons Plc) over a period of five years (2012-2016) was analysed. Data used in the study were sourced from the annual reports of the selected quoted firms. Correlation analysis, restricted F-test, Hausmantest, and some panel estimation methods (pooled OLS estimation, fixed effect estimation, and random effect estimation) were employed to analyse the data. Results revealed that free cash flow exerts a negative impact on firms' growth rate, to the tune of $-0.000391(p=0.179 > 0.05)$. The study, therefore, established that rising free cash flow has the capacity to erode the growth prospect of firms quoted on the Nigeria stock exchange. Based on this result, the study recommends that quoted firms in the country decrease their free cash flow, leverage increased turnover, explore viable/positive net present value projects, and reduce operational costs so as to be positioned for better growth in terms of percentage change in total asset.

Keywords: *Free Cash Flow; Firms' Growth; Quoted Firms; Non-financial firm; Nigeria Stock Exchange*

1. Introduction

This paper examines the stake of firms' growth in the presence of free cash flow in the light of the numerous empirical literature which support a positive finance-growth nexus across the world. Growth is one of the most valued characteristics of any successful firm irrespective of its size. It is an accepted fact that a firm's growth cannot be divorced from its cash flow, be it free or otherwise, because firms that have high free cash flow easily attract investors looking for effective opportunities to invest their excess resources. The willingness of investors to invest in a firm stem from their confidence in its ability to kickback debt, as well as its financial flexibility observed over time. The free cash flow theories were introduced in 1986 for the first time by Jensen, and have gradually developed till today, forming a part of the new topics in the financial literature which explain the behaviour of firms that are not justifiable with previous economic theories (Carroll, & Griffith, 2001). Jensen (1986) critically examined free cash flow from the agency perspective. He first tried to institute a better understanding of the concept, where he defined free cash flow as the "excess of cash flow required to fund all projects that have positive net present values (NPV) when discounted at all relevant cost of capital".

In other words, free cash flow is the cash balance left over after a firm has paid all expenses incurred in generating the cash, and deducted the sum required for its short and long-term investments which will enable it to maintain its current operations. Hence, free cash flow, if not paid out as dividend or interest, will end up serving as agency cost to the firm. Free cash flow is one of the crucial tools used for measuring the financial performance of a business unit, as it shows the amount of cash in a firm's custody after performing the asset maintenance necessary for the smooth operation of the firm (Habib, 2011). It is also used by shareholders as a tool for assessing the financial capacity of any business entity. However, academics have long ago posited that free cash flow can lead to managers' expropriation of owners' wealth because of the agency problem that exists between managers and shareholders in a firm. The Nigerian government, together with firms and individuals in the private sector, has put strong efforts into ensuring the existence of a favourable business environment in the country.

Despite these efforts geared towards sustaining a high level of corporate performance in the country, firms across different sectors of the country find it difficult to sustain a high and stable level of performance. Notably, a large number of identified challenges to improved performance among quoted firms in the country

is often attributed to finance (Chebii, Kipchumba, & Wasike, 2011). On the other hand, scholars such as Omondi and Muturi (2013), Almajali, Alamro, and Al-Soub (2012), and Liargovas and Skandalis (2015) have affirmed that factors affecting the financial performance of firms especially in developed countries are both internal and external, and that the performance of a quoted firm answers not only to finance. At the moment, the effect of free cash flow for Nigerian firms is still uncertain, even though some of them are folding up because of the huge economic hardship. The relevance of free cash flow in firms to great growth prospect and the ability to possess huge market power cannot be overemphasised. This is premised on the fact that free cash flow, if properly monitored, can be used for the expansion of the business, payment of shareholder dividends, and debt reduction, among many others. It can also be used for reinvestment after the requirements of the entity have been fulfilled, serving as a cheap source of equity. However, free cash flow has been highlighted as one of the issues that demand balancing when it comes to the discourse of managers and shareholders finding equilibrium.

This discourse is inevitable because firms practise agency relationships which allow managers who are motivated by personal interests to, at some point, opt for 'more investment' which might be vague, and might yield negative or zero NPV. At other times, such managers may distribute firms' earnings for their personal/selfish gain. With the advent of the free cash flow hypothesis, the traditional belief is that for any firm to sustain future growth, there is need to maintain a high level of free cash flow. Studies have shown that free cash flow, if not paid out as dividend or interest, will end up serving as agency cost to the firm, since managers' interests are different from those of the shareholders, and in pursuing such personal interests, they may end up negatively affecting the firm. Thus, the following dilemma arises: Should Nigerian firms take decisions that will give no room for free cash flow, no matter how little, to avoid managers' expropriation which leads to agency cost? Or should free cash flow be encouraged in Nigerian firms so as to ease the financial challenges they face and stimulate their growth? This dilemma has not been solved by previous studies in the Nigerian context, even though free cash flow has gained the attention of a wide range of researchers in the field of accounting and finance. This study finds it necessary and expedient to establish the effect of free cash flow, not on performance, but on the growth prospects of Nigerian firms. Thus, this study investigates the effects of free cash flow on the growth of quoted non-financial firms in Nigeria.

2. Literature Review

Nyabwanga, Ojera, Simeyo, and Nyanyuki (2013) investigated the liquidity, solvency, and financial health of selected small and medium-sized enterprises in the Kisii Municipality, employing ratio analysis as a means of financial diagnoses. Their study found that the understudied firms had low liquidity, low solvency, and poor financial health. It was also discovered that variables representing liquidity, solvency, and financial health exert a significant impact on the firms' performance measures. An investigation conducted by Atieh (2014) focused on evaluating the liquidity of the pharmaceutical sector in Jordan using cash flow analysis. They found that some of the understudied firms had a good traditional liquidity ratio, while cash flow ratios tended to be weak. However, the cash ratios used in the study showed better positions of liquidity. The study, therefore, concluded that the liquid position of a firm is better represented by cash flow ratios than traditional ratios. Similarly, Amuzu (2010) studied cash flow as a measure of the performance of listed companies in emerging economies and found out that cash flow analysis measures the performance as well as competitiveness of firms appropriately. Mazloom, Azarberahman, and Azarberahman (2013) analysed the interrelationship between earning, cash flow measures of performance, and stock return in Nigeria. Secondary data collected over a period spanning from 2003 to 2011 were used in the study. Data collected in the study were analysed using multiple as well as simple regression. The study revealed that a company's performance and cash flow have a significant negative relationship. Furthermore, Amah, Ekwe, and Uzoma (2016) studied the relationship between free cash flow and operating earnings with the stock return and growth of net market values of operating assets in the Tehran stock exchange. The formulated hypotheses were tested using Pearson correlation and simple linear regression. The study revealed that there is a positive meaningful relationship between operating earning with return on equity, return on assets, and gearing of net market values in operating assets (Muneer et al., 2017).

Cheng, Cullinan, and Zhang (2014) conducted a study on the impact of free cash flow on performance using Chinese listed real estate firms and concluded that a negative relationship exists between them. Though the

study made use of accounting profit, the author failed to control for growth opportunities among firms. In addition, the study related free cash flow with contemporaneous profits, with no consideration for the overlapping effect. As a result, the study documented evidence that contradicts established free cash flow hypotheses. Gregory (2005) investigated the effect of free cash flow on the performance of firms involved in mergers and revealed that mergers with a higher level of free cash flow perform better than those with low free cash flow. Ashtiani (2013), carried out research work on the relationship between accounting ratios, operating cash flows, investments, financing, and stock returns in the Tehran Stock Exchange. The study sampled 650 quoted firms, covering a period between 1998 to 2004. Using techniques of analysis such as Pearson correlation and linear regression, the study showed that there is significant interrelationship among operating earnings, net profit, operating cash flows, investing cash flows, and stock returns; while the relationship that exists between growth of trade sale, financing cash flows and stock return is not significant.

Cheng et al. (2014) studied free cash flow, growth opportunities, and dividends of cross-listing of shares in China using multiple regression on 1105 randomly sampled companies over the period 2012 – 2016. It was discovered that free cash flow exerts a significant impact on dividend payments of Chinese cross-listed companies, but doesn't for non-cross-listed companies. Saez and Gutierrez (2015) provided evidence that free cash flow leads to an increase in dividend yield, and that the effect is stronger for low-growth firms. The study established that there is a significant positive relationship between the dividend policies and free cash flow of low-growth firms, but that the relationship tends to be insignificant for high-growth firms. Nor Hasmadila (2014) studied the 100 largest listed companies in Bursa, Malaysia, by using panel data analysis and multiple regression models. His study revealed that there is positive interrelationship between free cash flow and the dividend pay-out of quoted firms in Malaysia. Stouraitis and Wu (2004) studied the ownership structure and dividend policy of Japanese firms with free cash flow problems.

Review of Related Theories: Analyses conducted in the study established the fact that there is positive interrelationship between free cash flow and dividend payment by firms, though it tends to be greater in magnitude for low-growth firms than their high-growth counterparts. Investigated the impact of cash flow on the organizational performance of hospitality and print media industries in Nigerian. The study made use of a pilot study, focusing on 45 randomly selected SMEs. The study found that in the presence of technological advancement, there is a need for firms in the industries understudied to develop strategies to enhance their cash inflow in order to ensure quality service delivery, which is necessary to ensure their competitiveness. Adelegan (2003) analysed the impact of cash flow on dividend changes in Nigeria. The study sampled a total number of 63 quoted firms over a period from 1984 to 1997. Using ordinary least squares estimation, the study discovered that there is a significant positive relationship between cash flow and firm performance. Frank and James (2014) analysed the impact of cash flow on the corporate performance of selected food and beverage companies in Nigeria. Six food and beverage firms were sampled in the study, and data were collected from their annual reports and analysed using multiple regression. The study found that operating and financing cash flow has a significant positive relationship with corporate performance in the food and beverage sector of Nigeria.

Pecking Order Theory: The pecking order theory postulates that firms prefer to use capital generated from retained earnings to finance their businesses (Myers, & Majluf, 1984). Due to information asymmetries between managers and potential investors, firms' order of preference in terms of finance will be using retained earnings rather than debt (either short term or long term), short term debt instead of long term debt and any form of debt rather than equity (issue of new shares). Myers and Majluf (1984) argued that the problem of information asymmetry will be resolved if firms refuse to issue new security but utilise retained earnings to finance investment opportunities. This implies that the equity source of finance becomes more expensive as the asymmetric information between insiders (managers) and outsiders (owners) increases. Hence, it is preferable for firms with high information asymmetry to issue debt so as to avoid selling under-priced securities. Based on this, care should be taken in the choice of policy on dividend so that the source of financing or the mix of sources does not become a problem. Managers are privy to insider information that is not known to the market and they have more information on the most judicious distribution of the firm's earnings and the risk attached to such earnings than the owners (outsiders). Therefore, efficient use of free cash flows must be towards embarking on viable projects. Taking policies to distribute all earnings in order to reduce free cash flow to the barest minimum can signal higher returns but jeopardises the firm's financing

structure. This should not be accepted by the owners (shareholders) because managers tend to limit the use of equity in order to retain control of the firm (Abor, & Biekpe, 2006).

Agency Theory: According to Rozeff (1982), any firm with agency relationships faces the challenge of the agency problem due to the possibility of sub-optimality of goals between shareholders and managers who are supposed to act in the sole interests of the owner and render stewardship reports on time. The agency problem refers to a principal-agent problem where the principal is the shareholder and the agent is the manager whose main duty is to run the activities of the firm effectively and efficiently, in order to increase its value and maximise shareholders' returns. It emanates from the mis-alignment and divergence of the parties' interests because in such situations, managers no longer invest in viable or positive NPV projects that shareholders consider worthwhile. The agency costs incurred in aligning these interests involve monitoring and bonding costs and residual losses. Rashid (2015) state that the agency problem emanates from the fact that managers are more informed about worthwhile investments that will yield higher positive returns because they are involved in the daily activities of the firm. However, Ballwieser et al. (2012) show that managers whose activities are not properly monitored (agency monitoring costs) tend to pursue their personal interests at the expense of corporate goals by engaging in activities that increase their executive benefits. According to Jensen and Meckling (1976), reducing free cash flows in the custody of managers, minimises the possibility of embezzlement or investing in zero or negative NPV projects; this invariably minimises the agency problem (costs) and maximises shareholders' wealth, which is the firm's ultimate goal.

3. Methodology

This study makes use of a longitudinal research design, with focus on five quoted non-financial firms over a period of five years. The quoted firms sampled in the study are Dangote Flour Mills, Honeywell Nig. Plc, Dangote Sugar Refinery, Flour Mills of Nig. Plc, and PZ Cussons Plc. The justification for the choice of these five firms is the availability and consistency of their annual reports which facilitated access to the data needed to capture the variables of this study. The study covered the period from 2012 to 2016. The year 2012 was chosen as a base year because Nigeria's economy witnessed a sharp decrease in Gross Domestic Product during that time. This led to a rise in firms' finance challenges, and they are yet to recover from those challenges¹. A single equation panel model was estimated in this study. Panel data analysis was used because it is more informative than time series or cross sectional data analysis and it has the capacity to cater for heterogeneity problems. The study measured firms' growth (FGR) with the percentage change in the total asset over the period understudied, and Free Cash Flow (FCF) was calculated by subtracting increase in working capital and capital expenditure from the sum of net income, depreciation, and amortization. The model was controlled by liquidity, which was measured in terms of Current Ratio (CR), and Firm's Size (FS), measured in terms of the natural log of the total asset.

Hence, for simplicity of presentation, the model estimated in the study is presented in functional and linear form below:

$$FGR = f(FCF, CR, FS, U) \dots \dots \dots (i)$$

The model can as well be specified in linear form as:

$$FGR_{it} = \alpha_0 + \alpha_1 FCF_{it} + \alpha_2 CR_{it} + \alpha_3 FS_{it} + \varepsilon_{it} \dots \dots \dots (ii)$$

where:

FGR=Firm's growth rate

FCF=Free Cash Flow

CR=Current Ratio

FS=Firm's Size

i = cross-sectional variable from 1, 2, ... 5

t = time series variable form 1, 2, ... 5

¹<https://www.premiumtimesng.com/business/106240-nigerias-economic-growth-level-declines-in-2012-financial-analyst.html>

$\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are parameter estimates corresponding to the explanatory variable and the constant term, while ε_{it} is the idiosyncratic white noise error term.

Data used in the study were sourced from the annual reports of the selected quoted firms over the period covered in the study (2012 to 2016). The study adopted correlation analysis and panel estimations which include pooled OLS estimation, fixed effect estimation, and random effect estimations, as well as restricted F-test and Hausman post-estimation test.

The general framework of the panel regression model is; $Z_{it} = \alpha_i + \beta Q'_{it} + u_{it} \dots \dots \dots (iii)$

Where, Z_{it} is the dependent variable; Q'_{it} is the vector of the regressors; α_i is the constant term; i is the number of cross-sections and t is the time period. u_{it} is the stochastic error term.

Pooled Regression Model; $Z_{it} = \alpha + \beta Q'_{it} + u_{it} \dots \dots \dots (iv)$

Here, it is assumed that $\Sigma(Q_t, u_t) = 0$ for all the time-period t .

Fixed Effect Model; $Z_{it} = \alpha_i + \beta Z'_{it} + \varepsilon_{it} \dots \dots \dots (v)$

Here, α_i is treated as a variable that is partially correlated with the observed independent variables and with this, it solves the omitted variable bias that has been one of the problems with the fixed effect model.

Random Effect Model; $Z_{it} = \alpha_i + \beta Q'_{it} + \varepsilon_{it} \dots \dots \dots (vi)$

Here, ε_{it} is a random error term, that is $\varepsilon_{it} = \alpha_i + u_{it} \approx I.I.D.N(0, \sigma_u^2)$.

Post Estimation Test Statistics: The restricted F-test was conducted to determine if the analysis should proceed from the pooled OLS. The Restricted F-test statistic equation is;

$$F_{obs} = \frac{(G_{UR(FEM)}^2 - G_{R(POOLED)}^2) / (P-1)}{(1 - G_{UR(FEM)}^2) / (PT - P - K)} \cong F_{P, P(T-1)-K}$$

To choose the most efficient estimator between fixed and random effect, Hausman test was conducted. The Fixed Effect estimator in a demeaned form is written as;

$$\hat{\beta}_{FE} = \left(\Sigma_t \Sigma_t' \left(S_{it} - \bar{S}_t \right) \left(S_{it} - \bar{S}_t \right)' \right)^{-1} \left(\Sigma_t \Sigma_t' \left(S_{it} - \bar{S}_t \right) \left(Z_{it} - \bar{Z}_t \right)' \right);$$

β is the vector of the explanatory variables' coefficient; Z is the explained variable and S is the vector of the explanatory variables.

The Random Effect estimator is written as;

$$\hat{\beta}_{RE} = \left(\Sigma_{it} \left(S_{it} - \hat{\eta} \bar{S}_t \right) \left(S_{it} - \hat{\eta} \bar{S}_t \right)' \right)^{-1} \left(\Sigma_{it} \left(S_{it} - \hat{\eta} \bar{S}_t \right) \left(Z_{it} - \hat{\eta} \bar{Z}_t \right)' \right);$$

Note that; $\hat{\eta} = 1 - \frac{1}{\sqrt{1 + n \left(\frac{\hat{\sigma}_u^2}{\hat{\sigma}_e^2} \right)}}$

Here, n stands for the number of cross sections and note that $\hat{\beta}_{FE} = \hat{\beta}_{RE}$ when $\hat{\eta} = 1$.

Whenever $\hat{\eta} \neq 1$, the Hausman test is required to compare the weighted squares of both estimators. The Hausman test statistic has asymptotic chi-square distribution and it is expressed as:

$$\chi^2 = \frac{(\hat{\beta}_{FE} - \hat{\beta}_{RE})^2}{Var(\hat{\beta}_{RE}) - Var(\hat{\beta}_{FE})}$$

4. Finding

Table 1: Correlation Matrix of the Series: FGR, FCF, CR, FS

	FGR	FCF	CR	FS
FGR	1.0000			
FCF	-0.2954	1.0000		
CR	0.0924	0.1867	1.0000	
FS	0.2948	-0.7094	-0.1873	1.0000

Source: Authors' Computation (2018)

Table 1 reports the correlation between variables used in the study. From the table, it can be observed that there is a negative correlation between firms' growth rate and free cash flow over the time period covered and across firms understudied. The reported correlation coefficient stands at 0.2954, showing that the correlation between the two variables is weak in magnitude over time, given the observation collated across the sampled firms over the study period. Similarly, the correlation coefficients are 0.0924, 0.2948, 0.1867, -0.7094, and -0.1873 for firm's growth rate and current ratio, firm's growth rate and firm's size, free cash flow and current ratio, free cash flow and firm's size, current ratio and firm's size, and current ratio and firm's size respectively. This indicates a positive correlation between the two control variables (current ratio and firm's size) and firm's growth rate, though it is weak in magnitude. The highest correlation between FCF and FS is not up to 0.8 which is the rule of thumb to denote multi-collinearity.

Table 2: Pooled OLS Parameter Estimates of the Series: FGR, FCF, CR, FS

Variable	Coefficient	Standard Error	T-Test Values	Probability
C	-98.83753	161.1652	-0.61	0.546
FCF	-.0001831	.0002772	-0.66	0.516
CR	.6904945	.8779295	0.79	0.440
FS	5.821649	8.908622	0.65	0.521

Source: Authors' Computation (2018). R-square=0.1276; Adjusted R-square= 0.60; F-statistics= 1.02; Prob(F-stat) = 0.4022

Panel Models Estimation Results: The estimation results presented in Table 2 show the impact of FCF on FGR when the heterogeneity effect across the firms sampled in the study is not taken into consideration. The results show that FCF exerts an insignificant negative impact on the growth rate of the manufacturing firms sampled in the study, with a reported coefficient estimate of -0.0001831 ($p=0.516 > 0.05$). Thus, an increase in FCF by a million has the tendency to impede the rate of growth of quoted firms sampled in the study by about 0.00018%. The quest to track a more inclusive interrelationship between FCF and FGR necessitated the incorporation of the heterogeneity effect across firms sampled in the study over time, and is the rationale behind the fixed effect and random effect estimations presented in Tables 3 and 4 below: Notably, the deviation from the intercept term reported for cross-section specific effect estimation (-1277.765) stood at -42.48483, -103.025, .4723559, and 2.579342 for Dangote Sugar Refinery, Flour Mills of Nigeria, Honeywell and PZCussons respectively, while the deviation from the intercept term (50.84731) reported for the period-specific estimation stood at 12.5627, 5.666324, 6.23266, 32.31692 for 2013, 2014, 2015 and 2016, respectively.

Table 3: Fixed Effects Estimates (Cross-Sectional and Period-Specific) of the Series: FGR, FCF, CR, FS

CROSS-SECTIONAL SPECIFIC EFFECT			TIME SPECIFIC EFFECT		
Variables	Coefficients	Prob	Variables	Coefficients	Prob
C	-1277.765	0.000***	C	50.84731	0.739
FCF	-.000391	0.179	FCF	-.0004207	0.145
CR	1.293308	0.076*	CR	1.237631	0.170
FS	71.82258	0.000***	FS	-3.178785	0.713
Effects			Effects		
DANGOTE SUGAR REFINERY	-42.48483	0.005***	2013	12.5627	0.252
FLOUR MILLS OF NIG	-103.025	0.000***	2014	5.666324	0.604
HONEYWELL	.4723559	0.957	2015	6.23266	0.597
PZ CUSSONS	2.579342	0.768	2016	32.31692	0.011**
R-square=0.6554			R-square=0.4962		
Adjusted R-square=0.5135			Adjusted R-square= 0.2887		
F-statistics=4.62			F-statistics=2.39		
Prob(F-stat) =0.0047			Prob(F-stat) =0.0673		

Sources: Authors' Computation (2018). Note that ***, **, * stands for significance at 1%, 5% and 10% respectively.

Table 3 presents results of the fixed effect estimation (cross-sectional and period-specific effect), which reflects the impact of FCF on FGR when the heterogeneity effect across firms sampled in the study and over time is incorporated into the model separately. Notably, the results show that when the cross-sectional effect was incorporated into the model, the impact of FCF on FGR stood at -0.000391 ($p=0.179 > 0.05$), implying that FCF still exerts a negative but insignificant impact on FGR when heterogeneity effect across firms is given consideration. In the same vein, when the heterogeneity effect over the period covered in the study was incorporated into the model, the result showed that FCF exerts an insignificant negative impact on FGR, with coefficient estimates of -0.0004207 ($p=0.145 > 0.05$). Also, Table 3 reveals that the period-specific effect as captured by intercept terms corresponding to each period covered in the study does not show significant deviation from the reference period or starting year (2012), except for the year 2016. The observed significant difference in the intercept corresponding to the year 2016 might be attributed to the huge impact of the economic downturn in Nigeria which led to the folding up of many firms. This downturn commenced from 2012 and still on-going at the moment.

The recession rose to the peak in 2016 and with what the country's economy witnessed in that year, it was indeed a trying period in which so many establishments, having FCF or not, struggled for survival. Furthermore, from the cross-sectional specific estimate, using Dangote Flour Mills as the base cross-sectional unit, it was discovered that the intercept of all the firms does not significantly deviate from the reference/base subject unit except for Dangote Sugar Refinery and Flour Mills of Nigeria. The reported R-square value for fixed effect cross-sectional specific estimation stood at 65.5%, while the figure reported for fixed effect period-specific stood at 49.6%. This shows that about 65.5% of the systematic variation in firm's growth can be explained by FCF, CR, and FS when the heterogeneity effect across firms sampled in the study is incorporated in the analysis, while only about 49.6% of the systematic variation can be explained when the period effect is incorporated. The discovery made in this study is in congruence with that of AKUMU (2014) as touching the impact of FCF on the performance of quoted firms measured in terms of profitability. Specifically, it was relayed in his study that there is an inverse relationship between FCF and the profitability of firms listed on the Nigerian Securities Exchange market.

Table 4: Random Effect Estimation of the Series: FGR, FCF, CR, FS

Variable	Coefficient	Standard Error	Z-Test Values	Probability
C	-179.56	194.2222	-0.92	0.355
FCF	-.00021	.0003066	-0.68	0.493
CR	.6389235	.8701447	0.73	0.463
FS	10.23945	10.71246	0.96	0.339

Source: Authors' Computation (2018). R-square=0.1231; Wald chi2(5) = 3.88; Prob> chi2 =0.2745

The estimation result presented in Table 4 reveals the impact of FCF on FGR when the heterogeneity effect across firms and over time is incorporated into the error term of the model. It can be observed that FCF exerts an insignificant negative impact on firms' growth to the tune of -0.00021 ($p=0.493 > 0.05$). The reported R-square shows that when the heterogeneity effect is incorporated into the error term of the model, only about 12.3% of the systematic variation in firms' growth can be explained by FCF along with current ratio and firm's size.

Table 5: Restricted F Test of Heterogeneity (Cross-Sectional and Time Specific)

	F-statistics	Probability
Cross sectional	6.51	0.0023
Time specific	1.11	0.0732

Source: Authors' Computation (2018)

Post Estimation Test: Table 5 reveals the result of the heterogeneity test conducted with respect to both cross-sectional and period-specific effects. The table shows f -statistics values of 6.51 and 1.11 with probability values of 0.0023 and 0.0732 for cross-sectional and period-specific effects, respectively. Therefore, it can be concluded that only a cross-sectional heterogeneity/uniqueness effect exists among the selected quoted firms. As such, the pooled OLS estimator restriction is not valid, since the cross-sectional heterogeneity effect is too significant to be ignored.

Table 6: Hausman Test

Null hypothesis:	Chi-square stat	Probability
Difference in coefficient not systematic	24.65	0.0000***

Source: Authors' Computation (2018). Note that *** represents 1% level of significance.

Table 7: Other Post Estimation Test

Wald test		
Null hypothesis	Statistics	Probability
No Panel homoscedasticity	2.0354	0.1246
Pesaran test		
No cross sectional dependence	1.655	0.0979
Wooldridge test		
Null hypothesis	Statistics	Probability
No AR(1) panel autocorrelation	4.6732	0.0967

Source: Authors' Computation, (2018)

Table 6 reveals a Chi-square value of 24.65 and a probability value of 0.0000. This result shows that there is enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimator and random effect estimation are not systematic. Therefore, given the fact that the difference between fixed effect estimates and random effect estimates is significant, the most consistent and efficient estimation for the

investigation conducted in the study is the fixed effect cross-section estimate presented in Table 3 above. The result presented in Table 7 shows that there is no evidence supporting the rejection of the null hypotheses of panel homoscedasticity, no cross-sectional dependence, and no AR (1) panel autocorrelation, given a reported probability statistic of $0.1246 > 0.05$ for the Wald test, $0.0979 > 0.05$ for the Pesaran test, and $0.0967 > 0.05$ for the Wooldridge test. Post-estimation test results thus validate the assumptions of equal variance of residual terms, cross-sectional independence, and absence of serial autocorrelation in the estimated model.

Discussion of Findings: The estimation result of the most consistent and efficient estimator (fixed effect) revealed that FCF exerts an insignificant negative impact on FGR, to the tune of -0.000391 ($p=0.179 > 0.05$). This result implies that an increase in FCF by a million will only culminate in about a 0.000391% average decline in the rate of growth of the quoted firms sampled in the study. The result reflects that maintaining increasing FCF at the expense of capital expenditure has the capacity to impede the rate at which a quoted firm in Nigeria can record outstanding growth in terms of an expanded total asset.

5. Conclusion and Recommendations

From the discoveries made in this study, it can be established that rising FCF has the capacity to erode the growth prospect of firms quoted on the Nigeria Stock Exchange, especially when growth is measured in terms of percentage change in total asset over a time. This study draws attention to the fact that maintaining increased FCF should be done without trading off capital expenditure if such an increase will not dampen the growth capacity of quoted firms in the country. Hence, quoted firms in the country and elsewhere should decrease their FCF, but explore viable investment opportunities that are capable of yielding positive Net Present Value. They should also leverage increased turnover such that there will be a reduction in transaction costs. It is by doing these that these firms will be in a position for better, stable, sustainable and consistent growth because when there is a reduced free cash flow, there will be reduced tendencies for agency costs in firms which if not controlled, can pose a huge hindrance to the growth of the firms.

Constraint of the Study and Idea for Advance Research: Just as all research suffer certain limitations, so be it for this study. The main limitation of this study was its inability to include all quoted firms on the Nigeria Stock Exchange because of the rarity of data. Nevertheless, these limitations do not affect the power and genuineness of this study's results, as the examined firms account for the largest share percentage of the manufacturing sector in Nigeria. For further research on this focus, researchers could examine the effect of FCF in the context of financial firms because they also operate agency relationships. This is based on the fact that any firm operating agency relationships requires an in-depth monitoring of their FCF so that agency costs are lessened to a level at which they can be operationally proficient, and their growth is not endangered.

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