Corporate Tax Avoidance and Value of Excess Cash Holdings of Quoted Non-Financial Firms in Nigeria

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Abstract
This study investigates if there is any relationship between tax avoidance and value of excess cash holdings of non-financial listed firms in Nigeria. It uses secondarily sourced panel data over the period from 2005 to 2020 of 75 such firms listed on the floor of the Nigerian Exchange Group (NXG). The generalized method of moments (GMM) results reveal that current effective tax rate (current ETR), Henry and Sansing's (2014) measure and book-tax-differences (BTD) are positively significant with value of excess cash holdings; long-run current ETR, lagged cash ETR and tax shelter score are negatively significant with value of excess cash holdings while lagged current ETR, cash effective tax rate (cash ETR) and long-run cash ETR are insignificant. The study concludes with some recommendations.

Keywords: Tax Avoidance, Excess Cash Holdings, Quoted Non-Financial Firms, GMM, NXG.

Introduction

Governments, whether in developed or developing countries, need money and even much more money to sustain the machinery of governance. The money needed is expected to be used to provide security, education facilities, electricity, good road, portable water, clean and clear air, employment, transportation, health care services, retirement benefits, et cetera which are the basic economic and social amenities required to improve the standards of living of the entire citizenry. Tax payment-of which is company income tax(CIT)-is generally viewed not only as an obligation of the citizenry but as their right to partake in adequately financing the state for societal prosperous development, but some firms see it differently as an extra cost and so try to outrightly dodge it or at best minimize it (Andhitiyara & Dameria, 2022). Even though full tax compliance may be a mark of good citizenship, it is an extra burden to the firm since it reduces firm's profits and cash flows, and so the firm seeks to take advantages of weaknesses in the tax laws or outright violation of ambiguities in tax provisions to reduce or eliminate its tax burden (Saputri & Husen, 2020) These strategies by firms to avoid the payment of tax are commonly termed tax avoidance, tax aggressiveness, tax planning, tax sheltering, tax management; et cetera. Tax avoidance (TA) is the strategies, schemes or measures, within the bounds of the law, employed by tax payers to ensure that their tax liabilities, which are supposed to be their fair share of the citizenry total tax burden, are minimized. This definition is aligned with Saffe (2013) who hinted that TA does not only

diminish government revenue, but also threatens the concept of taxation that we all must contribute our fair share to the maintenance of the state. According to Fisher (2014) as cited in Ahmed (2019), TA practices involve: the payment of less tax than might be reasonably expected by the ordinary interpretation of the law of a country; the payment of tax on the profits earned in one country but declared in another country; the payment of tax on the profits earned somewhat later than the time it was really earned. Although TA is seen not to be an illegal activity with respect to many judicial pronouncements, it is perceived by the public to be unacceptable. This can negatively affect the overall value of the firm through loss of reputation, cash paid for penalties, political costs, low financial reporting quality, et cetera.
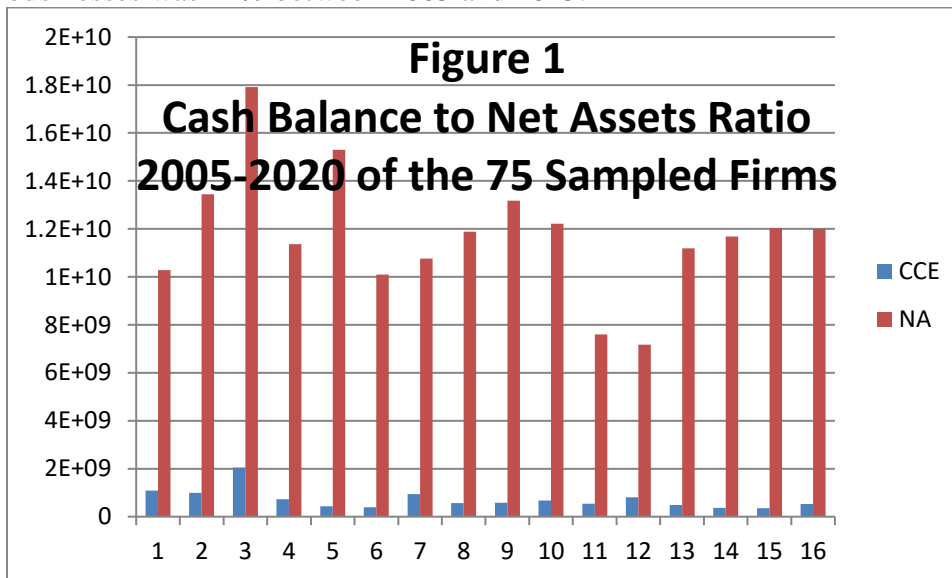
Otusanya (2011) elaboration on three brazen cases of tax evasion and avoidance against the Nigerian government by Chevron Nigeria Limited, Pan African Airlines Nigeria Ltd and Halliburton West Africa Ltd are just tips of the iceberg of the undetected massive tax evasion and avoidance schemes that go on in Nigeria. The above assertion attest to Federal Inland Revenue Services (FIRS) studies in 2018, as reported by Chitimira & Animashaun (2021), of the severe challenges faced by tax administration in Nigeria due to tax avoidance and tax evasion. The Nigerian tax laws are outdated, but when up to date there is no proactiveness in pursuing the case to a conclusive end (Otusanya, 2011).

Some of the various tax avoidance techniques used by tax avoiders already identified are: tax havens, transfer pricing, tax treaty shopping, Dutch letterbox companies, tunneling incentives, double Irish and Dutch sandwich for intellectual properties (IP), invoice financing under the traditional and the modern corporate structures(Egbadju, 2022). Some of the measurements used to represent tax avoidance obtained from the extant literatures are: current effective tax rate (current ETR); long-run current ETR; lagged current ETR; cash effective tax rate (cash ETR); long-run cash ETR; lagged cash ETR; Henry and Sansing's (HS) measure; tax shelter score; conforming tax avoidance; ETR differential;book-tax-differences (BTD); BTD lagged to total assets; permanent difference; total permanent book-tax-differences (PBTD); discretionary book-tax-differences (DBTD) or abnormal book-tax-differences; tax expense/operating cash flow; tax expense/operating cash flow; cash tax expense paid/ operating cash flow, et cetera.
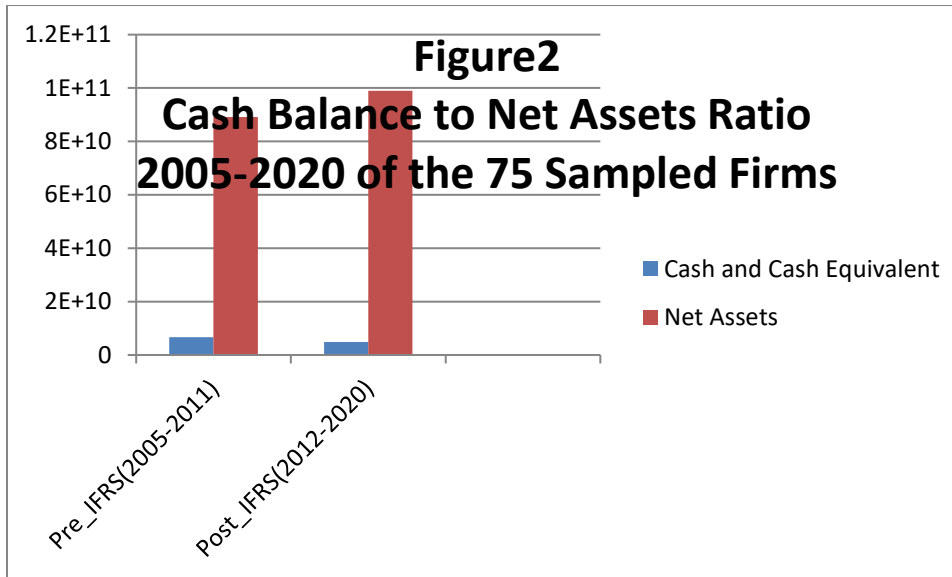Although CIT is very important to governments in generating the fiscal revenue necessary for the provision of infrastructures and public goods, the strategies to avoid tax helps companies to reduce costs and manage their cash flow properly (Chen, 2017). That is, tax liability constitutes a huge expense to firms and reduces significantly the cash flow available for viable projects which should have in turn increased their profitability and values. Literature on cash holdings has identified transaction cost motive, precautionary motive and agency motive as reasons why firms hold cash. Cash holding due to TA is a precautionary motive arising from the possibility that corporations hold onto more cash than they otherwise would due to tax uncertainty especially where tax authorities may have a different assessment of the firm's genuine taxes due to the intricacies and inconsistencies in the tax laws (Hanlon et al.,2017). Despite the fact that corporate cash holdings and TA have received a lot of attention in academic literature, little is known about how cash holdings and TA are related. Prior studies have provided insight into variations in cash holdings, showing that businesses facing greater tax uncertainty maintain larger cash reserves to meet

potential future demands (Hanlon et al. 2017). That is, if tax authorities reject a business's tax structure due to TA, the business may have to pay additional costs if found guilty.

Globally, a large portion of the firm's assets are typically held in cash or tradable securities as firms over the past few decades have held significantly larger cash reserves with some holding more cash than they need for reasons like information asymmetry or potential future investment opportunities or still for other reasons (Al Rubaye et al., 2024). According to the literature assessment of Mouline and Sadok (2021), between 1980 and 2015, the liquidity ratio of listed European companies increased on average from 8% to 17% of total assets. In 1980, the average cash ratio for US firms was 10.5%; by 2016, it had risen to 23.2%. Between 1990 and 2015, the average cash ratio for Australian businesses was 12.33%, whereas the average for Indian businesses was 12% between 2005 and 2015.

Figure 1
Cash Balance to Net Assets Ratio 2005-2020 of the 75 Sampled Firms

Source: Researcher's Computations (2024) Using Microsoft Excel.

Figure2
Cash Balance to Net Assets Ratio
2005-2020 of the 75 Sampled Firms

Source: Researcher's Computations (2024) Using Microsoft Excel.

Figure 1 and Figure 2 above shows that Nigerian firms do keep a large portion of their assets in cash or tradable securities neither before nor after IFRS adoption. Data available for this study reveals that percentage of cash-to-net assets is 6.13% with the lowest being 2009 (2.85&) and the highest being 2017(11.45%).

Studies on TA and cash holding are very rare in Nigeria for out of the empirical literatures reviewed in this study, none is on Nigeria except Udeh and Eze (2021) examined the impact which TA on firms' operating cash flows. However, several studies that have linked TA and cash holding found strong relationship between them. For examples, while some found a positive relationship (Benkraiem et al., 2023); Setyawan et al. (2021); others found a negative relationship (Al Rubaye et al. (2024); Eldawayaty (2022); or still no relationship at all (Kurniawan & Nuryanah, 2017). For as much as the results from previous studies have shown mixed outcomes, the main objective of this study is to investigate the impact which TA may have on cash holdings of quoted non-financial firms in Nigeria. This study differs from others in that it uses nine (9) variables to measure tax avoidance. While Khuong et al. (2019) used three measures of tax avoidance which are current effective tax rate, cash effective tax rate (CETR) and book-tax-difference; Eldawayaty (2022) used both the book tax difference ratio (BTD) and the current effective tax rate (ETR) as measures of tax avoidance. This study uses a time span from 2005 to 2020 apart from Benkraiem et al. (2023) who used a time span from 2005 to 2018. We, therefore, hypothesized that all the various TA measurements considered in this study have no significant relationship with cash holdings represented by the value of excess cash of quoted non-financial firms in Nigeria. 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.

2.0 Review of Related Literature.
      2.1   Theoretical Underpinning.
      2.1.1   The Trade-Off Theory of Cash Holdings.

The trade-off theory of cash holdings, according to Chang-Soo et al. (1998), indicates that a firm's cash holdings can be actively controlled in situations where the marginal costs and benefits of doing so are equal. This suggests that there may be an ideal level of cash holding. The ideal degree of liquidity, in accordance with trade-off theory, is the outcome of striking a balance between the advantages and disadvantages of carrying cash. The key advantage of keeping cash for the company would be the establishment of a 'safety zone', which would prevent the costs of external financing or asset liquidation and would also enable the company to implement its future investment plans (Mouline & Sadok,2021). There are, however, two types of cash costs to the firm for holding cash. First of all, the rate of return on liquid assets is limited and oftentimes lower than the cost of the resources that the business uses. This will in fact decrease the firm's profitability. Secondly, management and shareholders views on the costs and the benefits associated with cash holdings may differ. From agency motivation according to Opler et al.,(1999), managers might want to maintain a large amount of cash reserves to further their own agendas and and increase their autonomy. Therefore, these expenses which results from agency conflicts between shareholders and management, and the low return on cash relative to other firm assets are the main costs of holding onto cash.

2.2 Empirical Literature

Al Rubaye et al. (2024) carried out an empirical assessment if there is any relationship between tax avoidance and cash holdings in Oman. Secondarily sourced panel data obtained from the Muscat Stock Exchange on some non-financial firms spanning the period from 2011 to 2020 for 20 firms making a total of 300 firm-year observations was used. The results of the ordinary least squares (OLS) regression showed that tax avoidance represented by current effective tax rate (CETR) was negatively significant with cash holdings. This means that as firms reduces their effective tax rate (avoid tax) or as less of cash was paid to the tax authorities, cash balances increased from cash tax saved.

Eldawayaty (2022) carried out an empirical analysis whether tax avoidance and firm's life cycle had impact on cash holdings In Egypt. A panel data on 126 non-financials listed on the Egyptian stock market spanning the period 2012 to 2019 making a total of 711 firm-year observations was used in the study. Results of the pooled OLS showed that tax avoidance represented by both the book tax difference ratio (BTD) and the current effective tax rate (ETR) was negatively significant with cash holdings. That is, as managers tried to dodge more tax by reducing the ETR or as tax avoidance increased, more cash is saved for future uses.

Benkraiem et al. (2023) studied the relationship, if any, that existed between tax avoidance and excess cash value in 39 developed and developing countries. An annual secondary panel data of selected 41,535 firm-year observations over the period from 2005 to 2018 was used. The OLS

regression result revealed that tax avoidance proxied by current ETR was positively significant with excess cash value. This means that firms engaging in tax avoidance will have a higher ETR and therefore a lower value of excess cash.

Udeh and Eze (2021) examined the impact which tax avoidance has had on firms' operating cash flows in Nigeria. Secondarily sourced data from the annual reports of listed 62 non-financial firms totaling 733 firm-year observations obtained from the Nigerian Exchange Group (NXG) was used. The results of the generalized least squares (GLS) estimation technique showed that tax avoidance represented by current ETR had a positive but insignificant relationship with OCF.

Setyawan et al. (2021) , in a research study, sought to verify if at all the tax avoidance of firms improves cash holdings in Indonesia. Using a secondarily sourced annual data obtained from 106 listed manufacturing firms on the floor of the Indonesia Stock Exchange (IDX) was used. Results of the pooled OLS showed that tax avoidance represented by both the book tax difference ratio (BTD) and the cash effective tax rate was negatively significant with cash holdings. This means that as managers tried to dodge more tax by reducing the ETR or as tax avoidance increased, more cash is saved for future purposes.

Khuong et al. (2019) studied how cash holdings can be influenced by tax avoidance in Vietnam. A sample made up of 875 firm-year observations consisting of 125 non-financial firms' data spanning the periods from 2010 to 2016 obtained from the Vietnamese's stock market was used. The results of the generalized method of moments (GMM) showed that all three tax avoidance measurements- current effective tax rate, cash effective tax rate (CETR) and book-tax-difference- were positively significant with cash holdings. This means that managers were not disposed to dodge more tax by reducing the ETR or the ETR is equal to or more than the statutory tax rate (STR). Thus, more cash is paid to the tax authorities by not reducing the ETR and less cash saved for future purposes.

Kurniawan and Nuryanah (2017) investigated whether tax avoidance represented by cash ETR had any effect on cash holdings in Indonesia. The study used secondary data collected from the annual reports of 46 non-financial firms spanning the period from 2009 to 2016. The results of the OLS revealed that cash ETR had a negative but insignificant relationship with cash holdings for the period under review.

Li (2012) empirically tested the extent to which tax avoidance represented by book-tax difference (BTD) on cash holdings in the United States of America. A panel data on certain firms over the period 1993 to 2011 was used and analyzed with the OLS regression method. The results revealed that BTD had a positively significant relationship with cash holdings. This means that there was probably a decrease in total cash balance for as much as the BTD was equal to or greater than the STR.

3.0 Methodology

3.1 Research Design

Using the ex-post facto research design, often referred to as the descriptive or correlational research design, the study investigates if there is any relationship between ownership structure and firm performance of companies in Nigeria. The population of the study consists of 106 non-financial enterprises listed on the floor of the Nigerian Exchange Group (NXG). In order to conduct this study, secondary data from 75 out of 106 organizations' annual reports were gathered over a period of sixteen (16) years, from 2005 to 2020, totaling 1,200 observations.

3.2 Measurement and Definitions of Variables.

Table1

S/N	Variables Names	Definitions	Variable Types	Measurements	Authorities
1	EC	Excess Cash	Dependent	See 3.2.1 for Details	No author(s) used it of the literature reviewed in this study
2	CUT	Current Effective Tax Rate (Current ETR)	Independent	See 3.2.2 for Details	Al Rubaye et al. (2024)
3	LCUT	Long-Run Current ETR	Independent	See 3.2.2 for Details	No author(s) used it of the literature reviewed in this study
4	LGCUT	Lagged Current ETR	Independent	See 3.2.2 for Details	No author(s) used it of the literature reviewed in this study
5	CAT	Cash Effective Tax Rate (Cash ETR)	Independent	See 3.2.2 for Details	Setyawan et al. (2021)
6	LCAT	Long-Run Cash ETR	Independent	See 3.2.2 for Details	No author(s) used it of the literature reviewed in this study
7	LGCAT	Lagged Cash ETR	Independent	See 3.2.2 for Details	No author(s) used it of the literature reviewed in this study
8	HS	Henry and Sansing's (2014) Measure.	Independent	See 3.2.2 for Details	No author(s) used it of the literature reviewed in this study
9	SHT	Tax Shelter Score	Independent	See 3.2.2 for Details	No author(s) used it of the literature reviewed in this study

| 10 | BTD | Book-Tax-Differences (BTD) | Independent | See 3.2.2 for Details | Eldawayaty (2022) |

Source: Researcher's Computations from Extant Literature.

3.2.1 Derivation of the Dependent Variables (Excess Cash Holdings)

Excess Cash(EC) = is the residuals obtained from the estimation of the equation below.

$$LnCash_{it} = \beta o + \beta_1 SalesG_{it} + \beta_2 Size_{it} + \beta_3 FCF_{it} + \beta_4 NWC_{it} + \beta_5 IndSigma_{it} + \beta_6 R\&D_{it} + \beta_7 Div_{it} + \beta_8 Lev_{it} + \beta_9 Capex_{it} + \beta_{10} Idum_{it} + \beta_{11} Ydum_{it} + \varepsilon_{it}$$

where LnCash = is the natural logarithm of cash and cash equivalents divided by net assets; SalesG = three years sales growth; Size = the natural logarithm of net assets; FCF = operating income minus interest and taxes, divided by net assets or operating cash flow minus capital expenditure divided by net assets; NWC = current assets less current liabilities divided by net assets; IndSigma = five years industry average of the standard deviation of cash flow to net assets; R&D = research and development costs divided by net assets; Div = dividend divided by net assets; Lev = total debts divided by net assets; Idum = Industry dummy = A dummy variable which takes the value '1' for each industry; Ydum = Years dummy = A dummy variable which takes the value '1' for each year.

3.2.2 Derivation of the Independent Variables

3.2.2.1 Current Effective Tax Rate (Current ETR)

The current tax is the item of tax payable shown in the financial statement of a firm which is determined by the generally accepted accounting principles (GAAP). It is made up of current year tax expense only. Current effective tax rate is usually calculated as the current tax expense in a particular year divided by pre-tax book income or profit before tax in that year

$$Current\ ETR = \frac{Current\ Year\ Tax\ Expense}{Pre\text{-}Tax\ Income\ or\ Profit\ Before\ Tax}$$

3.2.2.2 Cash Effective Tax Rate (Current ETR)

The cash tax is the actual tax paid or payable to the Federal Inland Revenue Services (FIRS) which is based on the reported amount on FIRS's tax return each year. The book tax and the cash tax do produce different results due to differences in policy objectives, and this lead to the concept of timing differences which are temporary difference and permanent difference. Cash effective tax rate is usually calculated as the cash tax expense paid in a particular year divided by pre-tax book income or profit before tax in that year

$$Cash\ ETR = \frac{Cash\ Tax\ Expense\ Paid}{Pre\text{-}Tax\ Income\ or\ Profit\ Before\ Tax}$$

3.2.2.3.Long-Run Current ETR=$\underline{\text{Total Sum of Current Year Tax Expense Paid over n (3,5) years}}$
                                            Total sum of Pre-Tax Income or Profit Before Tax

This is the cumulative number of current year tax payable shown in the financial statement of a firm which is determined by the generally accepted accounting principles (GAAP)

3.2.2.4.Long-Run CASH ETR = $\underline{\text{Total Sum of Cash Tax Expense Paid over n (3,5,10) years}}$
                                            Total sum of Pre-Tax Income or Profit Before Tax

This is the cumulative number of the actual tax paid or payable to the Federal Inland Revenue Services (FIRS) which is based on the reported amount on FIRS's tax return each year.

3.2.2.5.Lagged Current ETR = $\underline{\text{Current Year Tax Expense}}$
                                            Lag1 of Pre-Tax Income or Profit Before Tax$_{t-1}$

Lagged current effective tax rate is usually calculated as the current tax expense in a particular year divided by pre-tax book income or profit before tax of the immediate previous or preceding year

3.2.2.6.Lagged Cash ETR = $\underline{\text{Cash Tax Expense Paid}}$
                                            Lag1 of Pre-Tax Income or Profit Before Tax$_{t-1}$

Lagged cash effective tax rate is usually calculated as the cash tax expense paid in a particular year divided by pre-tax book income or profit before tax of the immediate previous or preceding year.

3.2.2.7.HS (Henry and Sansing's 2014) Measure.

   HS = $\underline{\Delta}$ = $\underline{\text{Cash Tax Paid – (Statutory Tax Rate * Profit Before Tax)}}$
          MVA   MVA

where MVA = book value of assets + (market value of equity -book value of equity) = BVA+ (MV E - BV E)

3.2.2.8.SHELTER :

a) This is an indicator variable used when a firm is accused of engaging in any tax shelter activity

b) Alternatively, the probability that a firm may be engaged in tax sheltering can be computed as follows:

Tax Shelter Score (TSS) = -4.30 + 6.63 * BTD - 1.72 * LEV + 0.66 * SIZE + 2.26 * ROA + 1.62 * FOREIGN INCOME + 1.56 * R&D

where: BTD = Book-Tax-Differences = Profit Before Tax $-\dfrac{\text{(Current Tax Expense)}}{\text{Statutory Tax Rate}}$

LEV = Leverage = Total Debts / Total Assets; SIZE = Log of Total Assets; ROA = PBT/Total Assets; Foreign Income = Income earned outside the shores of Nigeria; R&D = Research & Development Expenditures / Total Assets.

Book-Tax-Differences (BTD) Based Measures

3.2.2.9. BTD = Profit Before Tax(PBT) $-\dfrac{\text{(Current Tax Expense)}}{\text{Statutory Tax Rate}}$

3.3 Model Specification

The functional equation of cash holdings to test the seventeen (9) hypotheses specified is as stated in equation 1 below:

CH1 = f (CUT, LCUT, LGCUT, CAT, LCAT, LGCAT, HS, SHT,BTD)
Eq1

The functional testable model will be derived as:

$EC = \beta o + \beta_1 CUT + \beta_2 LCUT + \beta_3 LGCUT + \beta_4 CAT + \beta_5 LCAT + \beta_6 LGCAT + \beta_7 HS + \beta_8 SHT + \beta_9 BTD + \varepsilon$
Eq2

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

$EC_{it} = \beta o + \beta_1 CUT_{it} + \beta_2 LCUT_{it} + \beta_3 LGCUT_{it} + \beta_4 CAT_{it} + \beta_5 LCAT_{it} + \beta_6 LGCAT_{it} + \beta_7 HS_{it} + \beta_8 SHT_{it} + \beta_9 BTD_{it} + \varepsilon_{it}$
Eq3

By including the lagged value of the dependent variable, that is, EC_{it-1}, due to unobserved heterogeneity transforms the static model to a dynamic one. That means, including the lagged dependent variable to equation 3, we have equation 4 below:

$EC_{it} = \beta o + \beta_1 EC_{it-1} + \beta_2 CUT_{it} + \beta_3 LCUT_{it} + \beta_4 LGCUT_{it} + \beta_5 CAT_{it} + \beta_6 LCAT_{it} + \beta_7 LGCAT_{it} + \beta_8 HS_{it} + \beta_9 SHT_{it} + \beta_{10} BTD_{it} + \varepsilon_{it}$
Eq4

where the definitions are as stated in Table2 above.

β_1 to β_{10} are the beta coefficients of the instrumental, independent and control variables. From this study, we expect β_1 to β_{10} to be greater than zero.

ε_{it} = Error term for year 'i' in year 't'

This study is anchored on the model previously used by Khuong et al. (2019) who also used the dynamic generalized method of moments (GMM).

4.0 Dynamic Data Analysis using Generalized Method of Moments (GMM):

GMM is designed to handle the problems of multicollinearity, heteroscedasticity and autocorrelation but especially second order correlation. Many studies in corporate finance which tries to explain causal-effect relationships often encounter difficulties in dealing with endogeneity and this can lead to inconsistent and biased parameter estimates (Wintoki et al., 2012) or we may not even get the right coefficient sign-positive or negative (Ketokivi & McIntosh, 2017), thereby resulting in misleading inferences, conclusions and interpretations (Li et al., 2021). Li et al. (2021) observed that out of about twelve (12) papers where endogeneity bias were ever mentioned, only three of them used the dynamic model approach while only one applied the rigorous way by reporting the results of the test. To identify endogeneity in our model, we run a fixed effect regression model for only the independent variables with each independent variable being a dependent variable in turn and then extract its residual. This residual variable is used to replace the main dependent variable in the original regression equation and then, rerun and observe the p-value. If the p-value of the residual variable is less than or equal to 5%, then there is an endogeneity in our model. The endogeneity test results in Table 3 below showed that RES_LGCUT(0.0000) and RES_LGCAT(0.0000) have endogeneity problem since their P-values are less than 5%.

Table 3   Endogeneity Test Results

S/N	Estimated Residuals of Variables	P-Values	S/N	Estimated Residuals of Variables	P-Values
1	RES_CUT	0.9587	6	RES_LGCAT	0.0000
2	RES_LCUT	0.9278	7	RES_HS	0.1941
3	RES_LGCUT	0.0000	8	RES_SHT	0.9879
4	RES_CAT	0.9514	9	RES_BTD	0.9924
5	RES_LCAT	0.9713			

Source: Researcher's Computations (2023) Using EViews13 Software.

4.4   Regression Models Estimation Results.

Table 4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CUT	0.128872	0.046264	2.785579	0.0068

LCUT	-0.12887	0.046229	-2.78757	0.0067
LGCUT	1.156637	2.532835	0.456657	0.6493
CAT	-0.10772	0.126366	-0.85246	0.3967
LCAT	0.123561	0.124721	0.990695	0.3251
LGCAT	-16.0775	3.70267	-4.34215	0.0000
HS	14.22534	2.317522	6.13817	0.0000
SHT	-3.00E-09	9.45E-10	-3.17417	0.0022
BTD	2.12E-08	6.12E-09	3.457638	0.0009
J-statistic			57.91135	-
Prob(J-statistic)			-	0.478578

Source: Researcher's Computations (2023) Using EViews13 Software.

Table 4 above show the regression estimation results of the relationship between tax avoidance and value of excess cash holding of 75 listed non-financial firms in Nigeria.

4.5   Discussion of the Regression Estimation Results and Hypotheses Testing.

Specifically, CUT relationship with EC is positively significant with a coefficient of 0.128872, a t-Statistic of 2.785579 and a p-value of 0.0068 at the 1% levels of significance. This suggests that an increase in CUT will increase EC. The results means that the higher the levels of CUT, the higher the firms' EC. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between CUT and EC. This result is in line with that of Eldawayaty (2022) but contradicts that of Al Rubaye et al. (2024) which was positive.

LCUT relationship with EC is negatively significant with a coefficient of -0.12887, a t-Statistic of -2.78757 and a p-value of 0.0067 at the 1% levels of significance. This means that as LCUT decreases, EC increases. This suggests that the more firms reduce their LCUT, the more the EC. The sign or direction as well as the size or magnitude is aligned with our expectations. We, therefore, reject the null hypothesis of no significant relationship between the LCUT and EC and accept the alternative that LCUT has a significant relationship with EC. No author(s) used it of the literature reviewed in this study

LGCAT relationship with EC is negatively significant with a coefficient of -16.0775, a t-Statistic of -4.34215 and a p-value of 0.0000 at the 1% levels of significance. This means that as LGCAT decreases, EC increases. This suggests that the more firms reduce their LGCAT, the more the EC. The sign or direction as well as the size or magnitude is aligned with our expectations. We, therefore, reject the null hypothesis of no significant relationship between the LGCAT and EC and accept the alternative that LGCAT has a significant relationship with EC.

This result is in line with that of Eldawayaty (2022) but contradicts that of Al Rubaye et al. (2024) which was positive. No author(s) used it of the literature reviewed in this study

HS relationship with EC is positively significant with a coefficient of 14.22534, a t-Statistic of 6.13817 and a p-value of 0.0000 at the 1% levels of significance. This suggests that an increase in HS will increase EC. The results means that the higher the levels of HS, the higher the firms' EC. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between HS and EC. This result is in line with No author(s) used it of the literature reviewed in this study

SHT relationship with EC is negatively significant with a coefficient of -3.00E-09, a t-Statistic of -3.17417 and a p-value of 0.0022 at the 1% levels of significance. This means that as SHT decreases, EC increases. This suggests that the more firms reduce their SHT, the more the EC. The sign or direction as well as the size or magnitude is aligned with our expectations. We, therefore, reject the null hypothesis of no significant relationship between the SHT and EC and accept the alternative that SHT has a significant relationship with EC. No author(s) used it of the literature reviewed in this study

BTD relationship with EC is positively significant with a coefficient of 2.12E-08, a t-Statistic of 3.457638 and a p-value of 0.0009 at the 1% levels of significance. This suggests that an increase in BTD will increase EC. The results means that the higher the levels of BTD, the higher the firms' EC. The sign or direction as well as the size or magnitudes are in line with our expectations. We, therefore, reject the null hypothesis of no significant relationship and accept the alternative hypothesis that there is a significant relationship between BTD and EC. This result is in line with that of Khuong et al. (2019) but contradicts that of Setyawan et al. (2021) which was negative.

LGCUT, CAT and LCAT are insignificant

From the same Table 4 above, since the p-value of Sargon statistic or J-Statistic (0.478578) is higher than the threshold of 5% and 10% or even the 25% or more suggested by Roodman (2009), our model is free from the problem of instruments proliferation.

4.6 Arellano and Bond Serial Correlation Diagnostic Tests of AR (1) and AR (2).

Table 5. Arellano-Bond Serial Correlation Test

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	NA	-21.0694	NA	NA
AR(2)	-0.14407	-12.9327	89.76419	0.8854

*Standard errors could not be computed. Try different covariance matrix options

Source: Researcher's Computations (2023) Using EViews13 Software.

When an estimator uses lags as instruments with the assumption that the disturbance or error term is white noise, such an estimator would produce inconsistent results if the disturbance terms are indeed serially correlated (Arellano & Bond, 1991). Thus, it is very necessary to be sure of no autocorrelation by carrying out test statistics of no serial correlation by validating the instrumental variables through a second-order residual serial correlation test (Arellano & Bond, 1991). The AR (1) may be or may not be significant but AR (2) must never be significant at all. AR (2) is more important in evaluating our results as it shows whether there is second-order serial correlation. If AR (2) is significant, it indicates that some of the lagged dependent variables which might be used as instrumental variables are bad instrument and thus endogenous. Since the p-values of AR (2) = 0.8854 in Table 5 above is greater than 0.05, we then accept the null hypothesis that there is no serial correlation.

Conclusion and Recommendations

This study investigates if there is any relationship between tax avoidance and value of excess cash holdings of non-financial listed firms in Nigeria. It uses secondarily sourced panel data over the period from 2005 to 2020 of 75 such firms listed on the floor of the Nigerian Exchange Group (NXG). The generalized method of moments (GMM) results reveal that current effective tax rate (current ETR), Henry and Sansing's (2014) measure and book-tax-differences (BTD) are positively significant with value of excess cash holdings; long-run current ETR, lagged cash ETR and tax shelter score are negatively significant with value of excess cash holdings while lagged current ETR, cash effective tax rate (cash ETR) and long-run cash ETR are insignificant.

Based on the results above, the study recommends the followings.

➢ The Nigerian tax laws should be regularly kept up-to-date and proactive measure applied in pursuing tax avoidance cases to a logical conclusive end.
➢ Knowledge of how tax avoidance strategies works can help policymakers to design future tax systems and accounting standards so as to be able to bridge the gap between financial income and taxable income.
➢ Lawmakers and governments can draft new enforcement guidelines to prevent managers from abusing corporate resources and using entrenchment strategies. The economy as a whole will gain from increased investments and possible production growth as a result of this.
➢ Managers should exercise caution when implementing aggressive tax techniques since they can damage a company's image and reputation.
➢ Shareholders and other investors should be aware that tax avoidance can hurt their interests by accelerating the depletion of cash assets held by the company due to managers' opportunistic rent extraction and diversion behaviour and thus lowering its valuation.

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