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## EFFECT OF CORPORATE TAX AVOIDANCE ON OPERATING CASH FLOW PERFORMANCE: AN EMPIRICAL STUDY OF MANUFACTURING FIRMS IN NIGERIA

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### Abstract

*This study examined the effect of corporate tax avoidance on operating cash flow performance of manufacturing firms in Nigeria. The study adopted the ex post facto research design and the population composed of quoted manufacturing firms on the Nigeria. The financial statement data were analyzed using descriptive and inferential statistical techniques. The hypotheses were analysed using the multiple regression procedure; specifically, the Random-GLS estimation technique based on the Hausman Specification test results. All the empirical analyses were performed using the E-Views statistical software. The empirical results showed a non-significant positive effect of effective tax rate on operating cash flows; but, a significant positive effect on investing cash flows. Based on this, the study recommended that to curtail earnings management acts by managers, shareholders need to ensure that tax savings are deployed for investment decisions in the firms, such as diversification objectives or new product developments, etc. and managers can strengthen the rating of a firm among her investors and attract further investors by utilising tax savings for financing policies, such as dividend payments.*

**Keywords:** Corporate tax avoidance, Operating cash flow performance, Effective tax rate and Book tax difference

## Introduction

Corporate income taxes 'are non-discretionary expenditure imposed by the government on all profitable firms' (Edwards, Schwab, & Shevlin, 2013). In Nigeria, private and public limited corporations are liable to pay Company Income Tax (CIT) as stipulated in the Company Income Tax Act (CITA) at the rate of 30% on the assessable profit. In addition, resident companies are required to pay Education Tax at the rate of 2% of the assessable profit for each year of assessment. CIT is administered under CITA (1979) as amended in 2007; which has its root from the Income Tax Management Act of 1961. It is administered and collected by the Federal Inland Revenue Service ('FIRS' or 'the Service'). Tax revenue is vital to the well-functioning of societies (Avi-Yonah, 2006; Martinez, 2013); and, enables the provision of public goods/welfare, transportation infrastructure, and national defense (Center on Budget and Policy Priorities, 2015; Williams, 2011).

There is vast empirical evidence that tax avoidance affects the cash flows of a firm (Desai & Dharmapala, 2008). For instance, Amiram, Bauer, and Frank (2019) finds that corporate tax avoidance in an imputation system increases a firm's operating cash flows but does not increase cash flows available to shareholders because of dividend taxes. Kroes and Manikas (2014) documents that cash flow policies are inexorably linked to a firm's operations. Against this backdrop, the study evaluates the effect of corporate tax avoidance on cash flow performance of quoted manufacturing firms in the Nigerian Stock Exchange.

Tax payments have remained one of the driving forces for firm decision-making behaviour (Rui, 2019). Empirical evidence has shown cross-sectional and within industry variation of cash effective tax rates of firms, both in Nigeria and globally (Jim-Suleiman, 2015; Leonhardt, 2013; Mohammed, 2017). Specifically in Nigeria, prior studies have shown of tax aggressiveness among quoted manufacturing firms (Jim-Suleiman, 2015; Mohammed, 2017; Onyali & Okafor, 2018; Ezejiofor & Ezenwafor, 2020; Umeh, Okegbe & Ezejiofor). For instance, Salawu and Ololade (2018) showed evidence that quoted firms engage in tax avoidance in the long run. Therefore many firms have continued to maintain high profitability over the years due to efficient tax planning schemes (PwC, 2013). The report issued by the 'Task Force for Financial Integrity and Economic Development' developing countries loses about \$1 trillion every year through evasion and/or avoidance, corruption, and money laundering (Reuters, 2013).

Studies have suggested alternative proxies of tax avoidance to capture the full dimensionality of corporate tax avoidance and provide more robust results (Khuong, Ha, Minh, & Thu, 2019; Noga & Schnader, 2013). Edwards, Schwab, and Shevlin (2013) found evidence that managers primarily focus on tax strategies that produce both a cash and financial reporting benefit (i.e., tax strategies that produce permanent book tax differences). Thus, the current study focuses on cash effective tax rate and book tax differences to capture the various dimensionality of tax avoidance that can also infer earnings management.

The study employs the dynamic generalized method of moments (GMM) to empirically validate the hypotheses. This approach is consistent with the study by Khuong, Ha, Minh, and Thu (2019) that used GMM to tackle the endogeneity problem. Similarly, in the Nigerian context Salawu and Adedeji (2017) also employ the GMM in investigating the relationship between corporate governance and tax planning. This represents a methodological

advancement over previously used methods of FEM and REM (Khuong, Ha, Minh, & Thu, 2019; Kurniawan & Nuryanah, 2017).

The main objective of the study is to ascertain the effect of corporate tax avoidance on operating cash flow performance of manufacturing firms in the Nigeria. The specific objectives of the study are as follows:

1. To examine the effect of effective tax rate on operating cash flows of manufacturing firms.
2. To determine the effect of book tax difference on operating cash flows of manufacturing firms.

## Literature Review

### Corporate Tax Avoidance

According to the national tax policy (2017), “tax” is any compulsory payment to government imposed by law without direct benefit or return of value or a service whether it is called a tax or not. Tax is a compulsory deduction of money by public authority for public purposes (Soyode & Kajola, 2006). Taxes are broadly classified into two: direct and indirect taxes (Ojo, 2009; Aguolu, 2004). direct taxes are those taxes levied on incomes or capital and are paid directly by the person to the tax authority; examples include personal income tax, company income tax, petroleum profit tax, among others. Indirect taxes usually referred to as “hidden tax” are paid indirectly as part of the payment for some goods and services; examples include import and custom duties and value added tax (Ojo, 2009).

The literature documents several methods used by individuals and corporations to exploit loopholes in the tax laws. Stiglitz (1985) itemizes three basic principles that apply in relation to avoidance of income taxes- the ability to postpone taxes, tax arbitrage across individuals facing different tax brackets or an individual facing different marginal tax rate at different times and tax arbitrage across income streams facing different tax treatments. With respect to corporations Sikka (2010) identified the use of transfer pricing, royalty programs, off shore tax havens and structured transactions as methods of tax avoidance by corporations. The most widely used measure of corporate tax avoidance is the effective tax rate, the effective tax rate, is computed by dividing the tax income to pre-tax income. Alternatively, is the ratio of tax expense to cash flow from operations (Richardson & Lanis, 2007).

BTDS refer to the gap between pre-tax incomes, as shown in a company’s published financial statement, and the taxable incomes reported to tax authorities (Tang, 2006). Taxable income refers to the amount calculated in line with the rules established by the tax authorities of a particular country and on which the income taxes are levied (Chytis, 2019). Thus, BTDS are mainly caused by differing local GAAP and tax treatment of revenue and expense items (Harrington, Smith, & Trippeer, 2012).

prior studies, such as Revsine, Collins, Johnson, And Mittelstaedt (2005) and Pratt (2005) found that ratio of pre-tax book income to taxable income is a useful indicator for assessing the degree of conservatism in a firm’s accounting choices. Chytis (2019) divided temporary differences into: (a) taxable temporary differences, which result in payment of higher taxes in the future and recognition of - deferred tax liabilities (DTL) in the present, and (b) deductible

temporary differences leading to higher tax paid in the current year and lower in future periods for which a - deferred tax asset (DTA) is recognized. DTA and DTL in the statement of financial position incorporate the estimated future tax effects resulting from temporary differences between book and taxable income (Chytis, 2019).

*tax expense* = current tax expense (+/-) deferred tax expense of the period permanent differences are differences between pre-tax book and taxable income that never reverse (Hanlon, Krishnan, & Mills, 2012). This difference occurs because some transactions are not included in the calculation of taxable income based on tax regulations (Martinez, Souza, & Monte-mor, 2016). Permanent differences are also associated with aggressive tax reporting (Balakrishnan, Blouin, & Guay, 2019; such that, shareholders may value permanent differences as risks that affect shareholders' wealth (Ling & Abdul Wahab, 2019). The third component, i.e., statutory tax rates differences, is associated with companies that have business operations across multiple jurisdictions (Ling & Abdul Wahab, 2019). The differences imply companies' strategic tax planning activities to generate tax benefits by utilising their overseas permanent establishments that are subject to favourable tax regimes, including through transfer pricing (OECD, 2018). The fourth component, i.e., discretionary BTDS, is associated with the discretionary practices of managers in choosing accounting and tax related practices (Tang & Firth, 2012).

### **Cash flow performance**

Cash is the life blood of any business and vital to the well-functioning of its daily activities. Cash refers to money which a business organization or firm can disburse immediately without restriction (Pandey, 2010). The definition of cash includes: coins, currencies and cheque holding by the firm and balances in its bank account (Nwarogu & Iormbagah, 2017). Narkabtee (2000) reported that the "importance of cash flows cannot be overemphasized mainly because the users of accounting information are particularly interested in the cash of the company that is published in its financial statements". Cash flow is the net amount of cash and cash-equivalents moving in and out of a business. The cash flows of an organisation refer to those "pool of funds that the company commits to its fixed assets, inventories, account receivables and marketable securities" (Uremadu, 2004).

The solvency, flexibility and the financial performance of the firm are set on the firm's ability to generate positive cash flows from the operating, investing and financing activities (Turcas, 2011). The statement of cash flows quantifies a company's cash inflows and outflows in a manner different from that of the balance sheet and income statement (Amuzu, 2010). This practice has been part of Nigeria's GAAP since the introduction of Statements of Standard Accounting Practice (SSAP) 10, Statements of Source and Application of Funds. Prior to that date entities were required to prepare a statement of changes in financial position (commonly referred to as a "fund statement") (Nwaiwu & Oluka, 2017). However, in 2007 IAS 7 was retitled from 'Cash Flow Statements' to 'Statement of Cash Flows'; and, following the mandatory adoption of IFRS for publicly listed companies in Nigeria became applicable to firms listed on the Nigerian Stock Exchange (NSE).

### **CTA and Operating Cash Flow**

Studies document mixed findings on the effect of CTA on operating cash flow. The evidence points that firms that earn high profits with high tax burdens more frequently implement tax avoidance to reduce their tax expenses (Frank, Lynch, & Rego, 2006; Koh, Kim, & Choi,

2007). However, some studies show that operating cash flows and prior-year free cash flows have a negative relationship with tax avoidance (Choi & Kweon, 2016; Lee & Hong, 2015). The study by Katz, Khan, and Schmidt (2013) showed that tax avoidance significantly reduces the association between current and future profitability, on average. The authors maintain that tax avoidance is associated with low future returns on equity and low returns on net operating assets.

From an organisational perspective, Churchill and Mullins (2001) finds that reduced operating cash cycle is linked to improved firm performance; while, Kroes and Manikas (2014) finds that reducing operating cash cycle is significantly linked to improved firm performance for manufacturing firms.

### **Empirical Review**

Umeh, Okegbe and Ezejiofor (2020) determined the effect of tax planning on firm value in quoted consumer goods manufacturing firms in Nigeria. The specific objectives are to: Determine the effect of Effective Tax Rate (ETR) on firm value of Nigerian consumer goods manufacturing companies; Ascertain the effect of Book Tax Differences (BTDs) on the firm value of Nigerian consumer goods manufacturing companies. Ex-post facto research design was adopted for the study. A sample size 21 of firms was selected based on availability of the financial statement of the selected firms from the population of all the non-financial quoted on the Nigeria Stock Exchange. Data for the study will be obtained from annual published financial of the non-financial covering a period of ten years from 2009-2018. Ordinary least square regression was used to test the three formulated hypotheses with the aid of E-View 9.0. This study found that Effective tax rate (ETR) to impact negatively on firm value, but this impact was statistically significant. However, the study found that, book tax difference (BTD); impact positively on firm value, but this impact was not statistically significant. Ezejiofor and Ezenwafor (2020) ascertained the effect of CEO duality on the effective tax rate of quoted foods and Beverage companies. *Ex-post facto* research design was adopted. A purposive sampling technique was applied in selecting nine (9) companies during the data collection process. Data were collected from annual reports and accounts of the sampled companies from 2013-2019. Data for the study analyzed using descriptive statistics and regression was used with aid of the e-view was at 95% confidence at five degrees of freedom (df). The result shows that CEO duality was significant and had a positive coefficient on tax planning of food and beverage companies in Nigeria.

Khuong, Ha, Minh, and Thu (2019) undertook a study titled 'Does corporate tax avoidance explain cash holdings? The sample comprised of 125 non-financial firms listed on the Ho Chi Minh City Stock exchange and Ha Noi Stock exchange from 2010 to 2016. The study relied on financial statement data obtained from the data stream of Thomson Reuters EIKON. The data were analysed using the two step GMM estimator to validate the hypotheses. The results showed that current ETR, cash ETR and BTD all had a significant positive relationship with firm's cash holding. Stom and Wepukhulu (2019) conducted a study titled 'Effect of cash flow management on financial performance of listed companies at Nairobi Securities Exchange; Kenya'. The study adopts the casual and correlational research designs. The sample comprised of 54 firms listed at the Nairobi Securities Exchange. The study relied on secondary data obtained from the financial statements of the companies from 2013 to 2017. The data were analyzed using multiple linear regression technique. The results showed a positive significant relationship between cash flow from operating activities and financial



performance. Udeh and Ezejiofor (2018) examined the effect of accounting information on deferred taxation in Nigerian deposit money banks. Ex post Facto research design was adopted and the data were collected from annual reports and accounts of Nigerian deposit money banks. Multiple regression analysis was employed to test the formulated hypotheses. Based on the analysis, the study found that earnings per share (EPS) and Cash flow (CASHFL) impact negatively on our dependent variable, deferred tax, but book value of equity impact was statistically significant while earnings per share (EPS) and Cash flow (CASHFL) impact were not statistically significant.

Kim and Jang (2018) conducted a study titled 'Relationship between tax avoidance and key financial indicators in Korea's Construction Waste Disposal Industry'. The final sample consisted of 23 Korean construction waste disposal companies from the year 2006 to 2016. The data were analysed using multiple regression technique. The results showed that a positive significant relationship between cash flow from operations and book tax difference; the effect of non-current assets to non-current financing is positive and significant; and, lastly, debt is positive but not significant. Soet, Muturi, and Oluoch (2018) analysed the 'effect of operating cash flow management on financial performance of mutual funds in Kenya'. The study employed the causal research design. The sample comprised of 22 mutual funds. The study relied on secondary data obtained from audited financial statements for the period 2011 to 2016. The data were analysed using multiple regression technique, specifically the random effect and fixed effect model. The results showed that operating cash flow had a significant positive effect on return on assets; however, an insignificant positive effect on return on equity. Oyieko, Nyang'au, and Chesoli (2018) conducted a study titled 'An evaluation of effects of cash flow management activities on the financial performance of manufacturing firms listed at Nairobi Securities Exchange'. The sample comprised of 7 manufacturing firms listed on the Nairobi Securities Exchange. The study relied on secondary data obtained from published financial statements for the period 2007 to 2016. The data were analyzed with correlation and regression technique. The results showed a positive relationship between operating cash flows and financial performance proxied via return on asset. Liman And Mohammed (2018) examined 'Operating cash flow and corporate financial performance of listed conglomerate companies in Nigeria'. The study adopts the ex post facto research design. The sample comprised of 5 conglomerates listed in the Nigerian Stock Exchange. The study relied on secondary data obtained from annual reports and accounts for a period of 10 years (2005 to 2014). The data were analyzed using multiple regression technique. The results showed a positive insignificant impact of operating cash flow on financial performance proxied by ROA; while, the impact is positive and significant for financial performance proxied by ROE. Al Hayek (2018) investigated 'The relationship between sales revenue and net profit with net cash flows from operating activities in Jordanian Industrial Joint Stock Companies'. The study relied on secondary data extracted from the annual financial reports for the years 2010 to 2017. The data were analyzed using multiple regression technique. The results showed that operating cash flows is significant and positively associated to cost of goods sold, net operating income, and net income. However, operating cash flows is negative and significantly associated to sales revenue. Alslehat and Al-Nimer (2017) conducted a study titled 'Empirical study of the relationship between cash flow management and financial performance of the Jordanian insurance companies'. The study adopts the descriptive analytic approach. The sample comprised of 23 insurance companies. The data were analysed using multiple regression technique. The results showed

that net cash flows from operating activities have a significant positive effect on ROA. Oraka, Ogbodo and Ezejiofor (2017) how effect of Tertiary Education Tax Fund (TETFUND) on management of Nigerian tertiary education. Survey and Time series research design were adopted. Data were obtained from National Bureau of Statistics by use of financial ratios and tested using regression analysis with aid of SPSS statistical package version 20.0. The study found that ETF fund allocations to Nigerian Tertiary Institutions have no correlation with the enrollment ratio of Nigerian Tertiary Institutions. Ogbeide and Akanji (2017) conducted a study on 'Relationship between cash-flow and financial performance of insurance companies: Evidence from a developing economy'. The sample comprised of 27 listed insurance firms. The study used secondary data; specifically time series data for the period 2009-2014 obtained from annual reports and accounts. The researchers employed the panel estimates generalized least squares (EGLS) technique to analyse the data. The results showed a positive significant effect of operating cash flow on financial performance proxied as ROTE. Nwarogu and Iormbagah (2017) evaluated 'Cash management and performance of listed firms in Nigeria'. The study adopts the ex post facto research design. The sample comprised of 35 service firms listed on the Nigerian Stock Exchange (NSE). The study relied on secondary data obtained from audited financial statements from 2008 to 2015. The data were analysed using pooled Ordinary Least Squares. The results showed a non-significant negative relationship between cash flow and return on total assets and return on equity. Nwaiwu and Oluka (2017) conducted a study titled 'IFRS: Cash flow accounting and financial performance of quoted companies in Nigeria'. The sample comprised of 24 non-financial firms listed on the Nigerian Stock Exchange (NSE). The study relied on secondary data; obtained from annual reports and accounts from 2004 to 2008. The data were analysed using multiple linear regression. The results showed a positive significant effect of operating cash flow on operating profit and profit before tax. Amah, Micheal, and Ihendinihu (2016) undertook a study titled 'Relationship of cash flow and financial performance of listed Banks in Nigeria'. The study adopts the ex post facto research design. The sample comprised of four banks listed in the Nigerian Stock Exchange (NSE) for the period of 9 years (2005 - 2013). The study utilised secondary data obtained from annual reports and accounts. The data were analysed using correlation. The results showed that cash flow from operating activities had a positive significant relationship with performance of the sampled banks. Nwanyanwu (2015) conducted a study titled 'Cash flow and organizational performance in Nigeria: Hospitality and print media industries perspectives'. The sample comprised of 45 small and medium enterprises from the hospitality and print media sectors. The study relied on secondary data. The data were analysed using Pearson product moment coefficient of correlations. The results showed that there is a significant positive relationship between cash flow position and net profit.

Ezejiofor, Adigwe and Echakoba (2015) examined how tax as a fiscal policy tool affects the performance of Nigerian manufacturing companies. Descriptive method was adopted and data were collected through the use of six years financial accounts of the selected companies. ANOVA was employed to test the hypotheses with the aid of Statistical Package for Social Sciences (SPSS) version 20.0 software package. The study found that Taxation as a fiscal policy instrument has a significant effect on the performance of Nigerian manufacturing companies. The implication of the finding is that the amount of tax to be paid depends on the companies' performances.

Duru, Okpe, and Ifunanya (2015) evaluated the 'Effect of cash flow statement on company's performance of food and beverages companies in Nigeria'. The study adopts the *ex post facto* research design. The sample comprised of 6 food and beverages companies quoted in the Nigerian Stock Exchange. The study relied on secondary data obtained from annual reports and accounts from 2007 to 2011. The data were analyzed using multiple regression technique. The results showed that operating cash flows have a significant positive effect on corporate performance. Ghodrati and Abyak (2014) conducted a study 'on the relationship between operational cash flow and return on stockholders'. The sample comprised of 54 firms listed on the Tehran Stock Exchange. The study relied on secondary data obtained from financial statements for the period 2005 to 2011. The data were analysed using regression analysis. The results showed a positive relationship between operating cash flows and returns of all stakeholders. Aghaei and Shakeri (2012) undertook a study titled 'Application cash flow ratios, cash flows and accrual accounting in predicting future operating cash flow in companies of Tehran Stock Exchange'. The study adopted a casual research approach. The sample comprised of average of 1300 firm year observations. The study relied on secondary data obtained from annual reports and accounts from 2003 to 2007. The data were analysed using multiple regression technique. The empirical results showed that past earnings, cash flows and accrual component of earnings can be used to predict future cash flows.

## Methodology

### Research Design

The research design is methodological connection between the philosophies and subsequent selection of data collection methods (Denzin & Lincoln, 2011). The research work will adopt the *ex-post facto* research design. *Ex-post facto* means after the event, meaning that the events under investigation had already taken place and data already exist. The choice of *ex-post facto* research design is based on the fact that the study relies on historical accounting data obtained from annual reports and accounts.

### Population and Sample Size

The population of the study comprises of quoted manufacturing firms on the Nigerian Stock Exchange (NSE) as at end of 2019 financial year. The number of firms included in the various sectors that constitute the population of the study.

The study was limited to sixty-two (62) companies selected using purposive sampling technique; the decision was premised on the classification of the firms as manufacturing (based on the nature and description of activities) as shown on the Nigerian Stock Exchange (NSE) website.

The exclusion of the sectors was consistent with prior studies; firms from the financial sector are mainly excluded because of different regulatory environment (Tsipouridou & Spathis, 2012). In addition, during the data analysis any company whose required data are incomplete or unavailable will be eliminated from the sample. The final sample percentage with respect to the population is approximately 38% of the entire quoted companies on the Nigerian Stock Exchange.

The data were extracted from the annual reports and accounts of the selected companies. Specifically, the Statement of Financial Position and Statement of Profit or Loss and



Comprehensive Income will provide data in computing the selected ratios; and, the Statement of Cash Flows.

### Methods of Data Analysis

The study employs both *descriptive* and *inferential* statistical techniques to analyse the data. The following descriptive statistics will be computed such as the mean, median, standard deviation, minimum, maximum values, and Skewness-Kurtosis statistics, etc.

The correlation matrix will be constructed to identify the correlation between the dependent and independent variables. Lastly, multiple regression will be used to validate the hypotheses. According to Hair, Black, Babin, Anderson, and Tatham (2006) multiple regression is a 'statistical technique which analyses the relationship between a dependent variable and multiple independent variables by estimating coefficients for the equation on a straight line'. The strength of 'multiple regression models' is its ability to analyze several variables simultaneously (Mussalo, 2015). The goodness of fit of the model will be tested using the Coefficient of Determination (R-squared). The analysis will be done via E-Views statistical software. In view of the dependent, independent and control variables of the study, the following model will be used to examine the relationship between corporate tax avoidance and cashflow performance of quoted manufacturing firms:

$$\begin{aligned} OCF &= f(etr, fsize, flev, sgrow, roa, fira) \dots\dots\dots i \\ OCF &= f(btd, fsize, flev, sgrow, roa, fira) \dots\dots\dots ii \end{aligned}$$

Equations 1-6 can be written econometrically as presented in equations 7-12 as follows:

$$OCF_{it} = \eta_0 + \eta_1 etr_{it} + \eta_2 fsize_{it} + \eta_3 flev_{it} + \eta_4 sgrow_{it} + \eta_5 roa_{it} + \eta_6 fira_{it} + \sum_t \dots\dots\dots iii$$

$$OCF_{it} = \eta_0 + \eta_1 btd_{it} + \eta_2 fsize_{it} + \eta_3 flev_{it} + \eta_4 sgrow_{it} + \eta_5 roa_{it} + \eta_6 fira_{it} + \sum_t \dots\dots\dots iv$$

Where:

OCF	=	Operating cash flow
etr	=	Effective tax rate
btd	=	Book tax differences
fsize	=	Firm size
flev	=	Firm leverage
sgrow	=	Sales growth
roa	=	Return on assets
fira	=	Firm Age
t	=	Time dimension of the variables
$\eta_0$	=	Constant or Intercept.
$\eta_{1-2}$	=	Coefficients to be estimated or the Coefficients of slope parameters.

The expected signs of the coefficients (a priori expectations) are such that  $\eta_2$   $\eta_4$  and  $\eta_5 > 0$ ; while,  $\eta_1$  and  $\eta_3 < 0$

## Data Presentation and Analysis

### Descriptive Statistics

The descriptive statistics of the variables utilised in the study are presented in Tables 4.2a-b below shows the mean, median, standard deviation, observations, minimum and maximum values of each selected variable. The description helps in showing the nature of the data.

Table 1: Descriptive statistics of main dependent variables

	CFOA
Mean	0.091134
Median	0.084000
Maximum	0.589500
Minimum	-0.942200
Std. Dev.	0.137457
Skewness	-0.513593
Kurtosis	8.224654
Jarque-Bera	883.6410
Probability	0.000000
Sum	68.16800
Sum Sq. Dev.	14.11410
Observations	748

Source: E-Views 9

Table 2: Descriptive statistics of main independent and control variables

	DTAX	EFFT	REVG	FSIZ	FIRA	RETA	DETA
Mean	3.218002	-15.11668	11.59141	7.088158	26.04502	2.688282	62.57582
Median	2.120800	-25.45690	5.297800	7.010500	28.00000	3.546300	59.69110
Maximum	48.39310	2520.393	1354.255	9.240900	55.00000	176.2669	292.7292
Minimum	0.000000	-4108.395	-90.70160	5.092700	2.000000	-179.9173	4.284900
Std. Dev.	4.118707	219.8111	70.45392	0.819377	13.39080	16.63481	30.54254
Skewness	3.624089	-5.137058	12.01869	0.176662	-0.230730	-1.424739	2.784217
Kurtosis	28.00618	202.3361	202.3163	2.531985	1.722897	46.14926	18.48394
Jarque-Bera	20702.52	1216793.	1230975.	10.50257	56.31691	57112.24	8269.453
Probability	0.000000	0.000000	0.000000	0.005241	0.000000	0.000000	0.000000
Sum	2358.796	-11080.53	8496.501	5195.620	19091.00	1970.511	45868.08
Sum Sq. Dev.	12417.46	35368001	3633468.	491.4490	131257.5	202556.8	682843.7
Observations	733	733	733	733	733	733	733

Source: E-Views 9

The observations row shows the number of cases included in each analysis of the variables of the study as seven hundred and forty eight for the dependent variables; and, seven hundred and thirty three was utilised in DTAX, EFFT, REVG, FSIZ, FIRA, RETA and DETA. The Mean is a measure of central tendency which calculates the average of a set of observations; while, the Standard Deviation (SD) is a measure of the average distance between the values of the data in the set and the mean. A low SD indicates that the data points tend to be very close to the mean; a high SD indicates that the data points are spread out over a large range of values.

### Test of Hypotheses

#### Hypothesis One

H<sub>01</sub>: There is no statistically significant effect of effective tax rate on operating cash flows of quoted manufacturing firms.

Table 3: Random-effects GLS regression output for hypothesis one

Random-effects GLS regression	Number of obs	=	733
Group variable: Panel_ID	Number of groups	=	75
R-sq:	Obs per group:		
within = 0.0148	min =		7
between = 0.4998	avg =		9.8
overall = 0.1143	max =		10
	Wald chi2(6)	=	59.78
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

CFOA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
EFFT	.0000164	.0000205	0.80	0.422	-.0000237	.0000565
FSIZ	.014245	.0069646	2.05	0.041	.0005947	.0278954
DETA	.0000319	.0001742	0.18	0.855	-.0003095	.0003733
REVG	-.0000207	.0000645	-0.32	0.748	-.0001472	.0001057
RETA	.0020294	.0003109	6.53	0.000	.00142	.0026387
FIRA	-.0002229	.00042	-0.53	0.596	-.0010461	.0006002
_cons	-.0086608	.0501669	-0.17	0.863	-.1069861	.0896646
sigma_u	.02921516					
sigma_e	.11389596					
rho	.06173419	(fraction of variance due to u_i)				

Source: Stata ver. 15

**Interpretation:**

The regression model shown above with one IV and five CVs, as follows: log of total asset, debt to asset ratio, revenue growth, return on asset, and firm listing age. In model validation, the following are considered: Wald chi2 (6) which is equivalent to the F-statistics in Fixed and Pooled OLS, and the overall  $R^2$  are used. The overall R-squared is 0.1143 and the between R-squared 0.4998. The  $p$ -value of the Wald chi2 statistic is less than .05 (i.e., margin of error), which confirms the statistical significance of the model.

**Decision rule:**

The *coefficient* of the variable of interest: EFFT was (0.0000164) and *z-statistic* (0.80) positive but not statistically significant ( $p$ -value >.05). Therefore, the alternate hypothesis is rejected and null accepted; there 'is no statistically significant effect of effective tax rate on operating cash flows of quoted manufacturing firms'.

**Hypothesis Two**

H<sub>02</sub>: Book tax difference has no statistically significant effect on operating cash flows of quoted manufacturing firms.

Table 4: Random-effects GLS regression output for hypothesis four

Random-effects GLS regression	Number of obs	=	733
Group variable: Panel_ID	Number of groups	=	75
R-sq:	Obs per group:		
within = 0.0268	min =		7
between = 0.5009	avg =		9.8
overall = 0.1271	max =		10
	Wald chi2(6)	=	72.67
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

CFOA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
DTAX	.0045989	.0013374	3.44	0.001	.0019775	.0072202
FSIZ	.0124534	.0068903	1.81	0.071	-.0010513	.0259581
DETA	-.0001967	.0001849	-1.06	0.287	-.000559	.0001657
REVG	-.0000158	.0000641	-0.25	0.805	-.0001414	.0001097
RETA	.0023249	.0003195	7.28	0.000	.0016986	.0029512
FIRA	-.0002545	.0004144	-0.61	0.539	-.0010667	.0005576
_cons	.0032432	.0496171	0.07	0.948	-.0940045	.100491
sigma_u	.02834687					
sigma_e	.1126551					
rho	.05954515	(fraction of variance due to u_i)				

Source: Stata ver. 15

**Interpretation:**

The regression model shown above with one IV and five CVs, as follows: log of total asset, debt to asset ratio, revenue growth, return on asset, and firm listing age. In model validation, the following are considered: Wald chi2 (6) which is equivalent to the F-statistics in Fixed and Pooled OLS, and the overall  $R^2$  are used. The overall R-squared is 0.1271 and the between R-squared 0.5009. The  $p$ -value of the Wald chi2 statistic is less than .05 (i.e., margin of error), which confirms the statistical significance of the model.

**Decision rule**

The *coefficient* of the variable of interest: DTAX was (.0045989) and *z-statistic* (3.44) is positive and statistically significant ( $p$ -value <.05). Therefore, the alternate hypothesis is accepted and null rejected; thus, 'book tax difference has a statistically significant effect on operating cash flows of quoted manufacturing firms'.

**Discussion of the Result and Conclusion**

The study showed that there was a non-significant positive effect of effective tax rate on operating cash flows of quoted manufacturing firms. This is somewhat consistent with the study by Khuong, Ha, Minh, and Thu (2019) using a sample of firms in Vietnam, found that current ETR and cash ETR had a significant positive relationship with firm's cash holding.

The control variables showed that firm size had a positive significant effect, debt to total assets had a non-significant positive effect, revenue growth had a negative non-significant effect, return on total assets had a positive significant effect and firm age had a non-significant negative effect. These findings are consistent with such studies as: Stom and Wepukhulu (2019) utilising a sample of listed companies at Nairobi Securities Exchange found a significant positive relationship between cash flow from operating activities and financial performance; Kim and Jang (2018) using a sample of Korean construction waste disposal companies found a non-significant positive relationship between cash flow from operations and debt.

Soet, Muturi, and Oluoch (2018) and Oyieko, Nyang'au, and Chesoli (2018) in Kenya found a significant positive effect of operating cash flow on return on assets. Alslehat and Al-Nimer (2017) using a sample of Jordanian insurance companies found a significant positive effect of net cash flows from operating activities on ROA. And in Nigeria, the study by Nwaiwu and Oluka (2017) using a sample of non-financial firms showed a significant positive effect of operating cash flow on operating profit and profit before tax. Nwanyanwu (2015) using a sample of firms from hospitality and print media industry and Pearson product moment coefficient of correlation found a significant positive relationship between cash flow and net profit.

However, Liman and Mohammed (2018) using a sample of listed conglomerates in Nigeria reported a positive insignificant impact of operating cash flow on financial performance proxied by ROA; while, Nwarogu and Iormbagah (2017) using a sample of service firms listed on the Nigerian Stock Exchange (NSE) found a non-significant negative relationship between cash flow and return on total assets. Amah, Micheal, and Ihendinihu (2016) using a sample of listed banks in Nigeria and correlation analysis found that operating cash flow had a positive significant relationship with performance. And studies by Duru, Okpe, and Ifunanya (2015) and Bingilar and Oyadenghan (2014) utilising firms from the food and beverages sector found a significant positive effect of operating cash flows on corporate performance. However, Al Hayek (2018) in Jordan found that operating cash flows had a negative significant relationship with sales revenue.

Secondly, hypothesis two revealed that book tax difference had a statistically significant positive effect on operating cash flows of quoted manufacturing firms. This is consistent with the study by Khuong, Ha, Minh, and Thu (2019) using a sample of non-financial firms in Vietnam showed that BTD had a significant positive relationship with firm's cash holding. Kim and Jang (2018) using a sample of Korean construction waste disposal companies showed a positive significant relationship between cash flow from operations and book tax difference. The control variables showed that firm size had a significant positive effect @10%, debt to total assets and revenue growth had non-significant negative effects, return on total assets had a significant positive effect; while, firm age had a non-significant negative effect. Studies by Stom and Wepukhulu (2019); Soet, Muturi, and Oluoch (2018); Oyieko, Nyang'au, and Chesoli (2018) in Kenya also documented a significant positive relationship between operating cash flow and financial performance, proxied by return on assets. Alslehat and Al-Nimer (2017) in Jordan also found that net operating cash flows had a significant positive effect on ROA.



Contrary to the above, the study by Nwaiwu and Oluka (2017) in Nigeria found a positive significant effect of operating cash flow on operating profit and profit before tax; this was consistent with the study by Amah, Micheal, and Ihendinihu (2016) using a sample of listed banks and correlation analysis reported a positive significant relationship between operating cash flow and performance of the sampled banks. And in Iran, the study by Ghodrati and Abyak (2014) on a sample of 54 firms found a positive relationship between operating cash flows and returns of all stakeholders.

Conclusively, there is non-significant positive effect of effective tax rate on operating cash flows of quoted manufacturing firms. Meanwhile book tax difference had a statistically significant positive effect on operating cash flows of quoted manufacturing firms.

### **Recommendations**

The study makes the following recommendations for policy, business managers, and shareholders:

1. Managers should be wary of aggressive tax practices because of its potential negative effect on a firm's image and reputation; as concerns are presently growing on the link between such practices and corporate social responsibility.
2. Managers can utilise potential tax savings for credit defrayment, such as long-term loans interest and also for community development thereby aligning the sustainable development goal of the firm with the financial bottom line.

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