# EFFECT OF CASH FLOW ON CORPORATE TAX AGGRESSIVENESS OF QUOTED CONSUMER GOODS FIRMS IN NIGERIA.

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## Abstract

This study investigated the effect of cash flow on the corporate tax aggressiveness of quoted non-financial firms in Nigeria. The study specifically examined the effect of operating cash flow, financing cash flow, investing cash flow, and cash and cash equivalent on the effective tax rate of quoted non-financial firms. Four research questions and hypotheses were formulated for this study. The study adopted the ex-post facto research design as the most appropriate design. The population of the study comprised 21 quoted consumer goods firms on the Nigerian Exchange Group (NGX) from 2012 to 2021 financial year. Purposive sampling was used as the sample method for the investigation and 16 firms from the consumer goods sector selected. The study relied on secondary data obtained from the annual reports and accounts of consumer goods firms. The study analysed the data using descriptive and inferential statistical techniques. The hypotheses were tested using the random effects model specification. The results of the study shows that there is positive and significant effect of operating cash flows on effective tax rate of non-financial firms in Nigeria at 5% level of significance, financing cash flows have a positive and significance effect on effective tax rate of non-financial firms in Nigeria at 5% level of significance , investing cash flows have negative and significant effect on the effective tax rate at 5% level of significance while cash and cash equivalent have negative and non-significance effect on the effective tax rate at 10% level of significance of non-financial firms in Nigeria. The study recommended that, investors should be mindful of the operating cash flow for its ability to explain the effective tax rate. Investors are advised by the study to pay closer attention to the quality of financing cash flow of the companies, among others.

**Keywords: Cashflow, Tax Aggressiveness, Effective Tax Rate, Operating Cash flow, Financing Cashflow and Investing Cashflow**

## 1.0 Introduction

Tax aggressiveness is any act by the management of a firm to reduce the tax burden of the company. It is an extreme attempt to reduce tax liability in an overly aggressive manner. Examples of such attempts include investment in bonds, tax reliefs and exemptions, lobbying activities, and other uncertain tax positions. The activities which constitute tax aggressiveness when arranged in a continuum, comprise legitimate, grey, and unlawful acts (Chen, Chen, Cheng, & Shevlin, 2010). In Nigeria, all limited liability companies are liable to pay tax at the rate of 30% on their assessable profit on a preceding year basis. This is enshrined in the Companies Income Tax Act (CITA) and collected by the Federal Inland Revenue Service (FIRS). The issue of tax aggressiveness has received increased attention recently, among scholars and policy makers (Aronmwan & Okaiwele, 2020). From a macroeconomic perspective, it is described as a corporate social responsibility lapse by denying governments funds for the development of society.

Tax aggressiveness has several implications for a firm. The primary aim is to improve the after-tax cash position either from legal or illegal means. It has a positive effect of increasing a firm's cash flows and net income; thereby, causing shareholders to have a higher residual income. It

decreases the quality and transparency of financial statements by creating room for opaque reporting. Tax-aggressive firms are more likely to experience a decrease in cash flow following the detection of such an act. It is practised globally with events such as the Luxembourg leaks in 2014, the Panama papers in 2016 and paradise leak in 2017 (Fitzgibbon & Starkman, 2017). For instance, in the United States of America, the estimated loss of tax revenue is reportedly close to $70 billion annually, which is close to 20% of the corporate tax revenue collected annually (Zucman, 2017). Also, in developing economies, tax aggressiveness is not a new trend with an estimated amount of up to $9.6 billion a year being lost by the West Africa region in general with Nigeria averaging an estimated $2.9 billion yearly (Action Aid and Tax Justice Network, 2015). Tax is a 'line item' in the financial statements, thus, tax aggressiveness lowers taxable income by lowering the effective tax rate. Such that tax aggressive firms are characterized by a less transparent external information environment (Balakrishnan, Blouin, & Guay, 2018).

The cashflow information is presented in the 'Statement of Cashflows', shows the ability of a firm to survive in the short and long run, based on the inflows and outflows of cash into the business. The information is presented in three categories, i.e., operating, investing and financing activities. Additionally, IAS 7 requires the presentation of information about the historical changes in cash and cash equivalents of an entity. Operating cash flow is the principal revenue-producing activities, e.g., receipts from customers or payments to suppliers, etc., that is all activities which are not investing or financing activities. Investing cash flow originates from the acquisition or disposal of long-term assets and other investments; while, financing cash flow comprises inflows or outflows that arise from the change in size or composition of equity or debt capital. Lastly, the cash and cash equivalents comprise funds in either cash or bank balances; while, an investment qualifies as cash equivalent if it is readily convertible to cash and subject to minimal risk. Studies have shown a relationship between cash flows and the effective tax rate of manufacturing firms (Eze, 2021; Udeh & Eze, 2021; Odo & Udodi, 2022).

Recent high-profile corporate accounting scandals in the 20$^{th}$ century, globally and otherwise have led to the collapse of various large companies globally and in Nigeria. The case of Oando oil Plc and Arik Airlines are examples of recent corporate frauds recorded in 2017 (Abubakar, Mansor, & Wan-Mohamad, 2021). Previously attention was mainly directed to earnings management by managers to hoard information. However, recent research has revealed that tax aggressiveness also promotes managerial opportunistic behaviour (Abubakar, Mansor, & Wan-Mohamad, 2021; Kim, Li, & Zhang, 2011; Desai & Dharmapala, 2006). Therefore, studies globally and in developing countries have largely explored the issue of tax aggressiveness but are yet to explore the connection between corporate cash flows and tax aggressiveness and this is where this study proposes to fill in knowledge.

However, the volatile tax environment in Nigeria provides the incentive for firms to actively engage in managing tax liabilities through tax aggressiveness (Abubakar, Mansor, & Wan-Mohamad, 2021). This is well documented in a series of tax-related frauds in the country, for example, the Nigerian government's accusation against Multichoice of ₦1.8 trillion tax fraud (Arowoshegbe, Uniamikogbo, & Aigienohuwa, 2017). In another instance, the tax avoidance cases of MRS Holdings Ltd, an oil marketing company and Chevron, an international giant oil company are hidden in a ₦360 Billion ($1 billion) oil deal (Abubakar, Mansor, & Wan-Mohamad, 2021). Given the obfuscation surrounding tax aggressiveness, the deal was perpetrated through a billion-dollar transaction involving MRS and Petroci Holdings of Cote D'Ivoire, in the acquisition of Chevron Nigeria Holdings Limited (CNHL). CNHL was registered in Bermudian and in turn, owns 60 per cent of Chevron Oil Nigeria.

Therefore, the transaction was a Nigerian entity acquiring another Nigerian company via two shell companies in-between. These and several other cases have raised increased public awareness and concern on the issue of corporate tax aggressiveness (Olatunji & Christiana, 2020).

In the Nigerian context, studies such as Ogbodo and Omonigho (2021); Ezejiofor and Ezenwafor (2020) focus on corporate governance effects on tax avoidance proxied as ETR. Yet another stream of research, has focused on the implications of tax avoidance on financial performance, such as studies by Nwaorgu et al. (2020); and, Oyeshile and Adegbie (2020). Others such as Umeh, Okegbe, and Ezejiofor (2020), analysed the effect of book-tax differences on corporate firm value; while, Salawu, Ogundipe, and Yeye (2017) focus on the granger causality between tax planning and firm value. The present study proposes to investigate from the angle of corporate cash flows and corporate tax aggressiveness of quoted non-financial firms in Nigeria. The specific objectives of the study are to:

**$Ho_1$:** Examine the effect of operating cash flow on the effective tax rate of quoted non-financial firms.

**$Ho_2$:** Ascertain the effect of financing cash flow on the effective tax rate of quoted non-financial firms.

**$Ho_3$:** Examine the effect of investing cash flow on the effective tax rate of quoted non-financial firms.

**$Ho_4$:** Determine the effect of cash and cash equivalent on the effective tax rate of quoted non-financial firms.

## 2.0 Conceptual Review

**2.1.1 Corporate Tax Aggressiveness -** Tax is a compulsory levy by the government, through an appropriate agency, on the incomes, goods or services, and properties of an individual or corporate body, to raise money to fund government public expenditures. The government relies on tax revenue to fund its activities, such as providing the necessary infrastructural facilities for the citizenry (Aronmwan &Okaiwele, 2020). Tax aggressiveness is an arrangement to reduce tax liability and these arrangements when scrutinized, form a continuum of legitimate, grey, or unlawful activities (Chen, Chen, Cheng, & Shevlin, 2010). Slemrod (2004) argues that it may be quite difficult to determine conceptually, how much of corporate tax aggressiveness is legal given that it consists of "anything that corporations do to reduce their tax liability" and the "anything" could be quickly blurred when the issue of morality versus legality is introduced.

Tax aggressiveness decreases the quality and transparency of financial statements (Shevlin, Urcan, & Vasvari, 2020). Desai and Dharmapala (2006); Desai, Dyck, and Zingales (2007) state that tax aggressiveness results in opaque reporting. Likewise, Balakrishnan, Blouin, and Guay (2018) find that tax-avoiding firms are characterized by a less transparent external information environment and that the creditors of a firm that relies on firm disclosures to estimate default risk, are most likely to view negatively more opaque financial statements (Shevlin, Urcan, &Vasvari, 2020). The perceived increased risks could arise from increased information risks (Desai & Dharmapala, 2006; Kim, Li, & Zhang, 2011; Balakrishnan, Blouin, & Guay, 2018), lower and possibly more volatile future cash flows arising through increased agency risks (Desai & Dharmapala, 2006; Chen, Chen, Cheng, &Shevlin, 2010; Chyz, Leung, Li, & Rui, 2013).

### 2.1.2 Corporate Cash flows

The Statement of Cash Flows (also referred to as the cash flow statement) is one of the three key financial statements that report the cash generated and spent during a specific period of time (e.g., a month, quarter, or year). The statement of cash flows acts as a bridge between the income statement and the balance sheet by showing how money moved in and out of the business (Corporate Finance Institute, 2022). The statement of cash flows is broken into three sections: operating activities; investing activities; and, financing activities. The operating activities detail the cash flow that's generated once the company delivers its regular goods or services, and includes both revenue and expenses (Stobierski, 2020). Investing activities include cash flow from purchasing or selling assets-think physical property, such as real estate or vehicles, and non-physical property, like patents-using free cash, not debt (Stobierski, 2020). The financing activities detail cash flow from both debt and equity financing (Stobierski, 2020). A positive cash flow shows that the business is taking in more cash than it's expending; while, a negative cash flow implies that the business is spending more cash than it's receiving.

**2.1.3 Operating Cash flows -**The operating activities are the principal revenue-producing activities and other activities that do not include investing or financing activities. IAS 7.18 requires an entity to present its operating cash flows using either the direct or indirect method: the direct method discloses the major cash inflows and outflows from operating activities (e.g. receipts from customers, payments to suppliers and employees, and tax paid); in contrast, the indirect method starts from the profit or loss and adjusts for the effects of non-cash transactions (e.g. depreciation and amortisation expense), any deferrals or accruals of past or future operating cash receipts or payments (e.g. net changes in accounts receivable and accounts payable), and items of income or expense associated with investing or financing cash flows.

Prior studies have shown a relationship between operating cash flows and the effective tax rate of manufacturing firms. Authors argue that the evidence points that firms that earn high profits with high tax burden more frequently implement tax avoidance to reduce their tax expenses (Frank, Lynch, & Rego, 2006; Kim & Jeong, 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. As in previous studies, the operating cashflows in this study would be calculated using the total operating net inflows and outflows as stated in the cashflow statement. This figure would be scaled by total assets in accordance with past methods used by other writers to normalize it (Eze, 2021; Udeh & Eze, 2021).

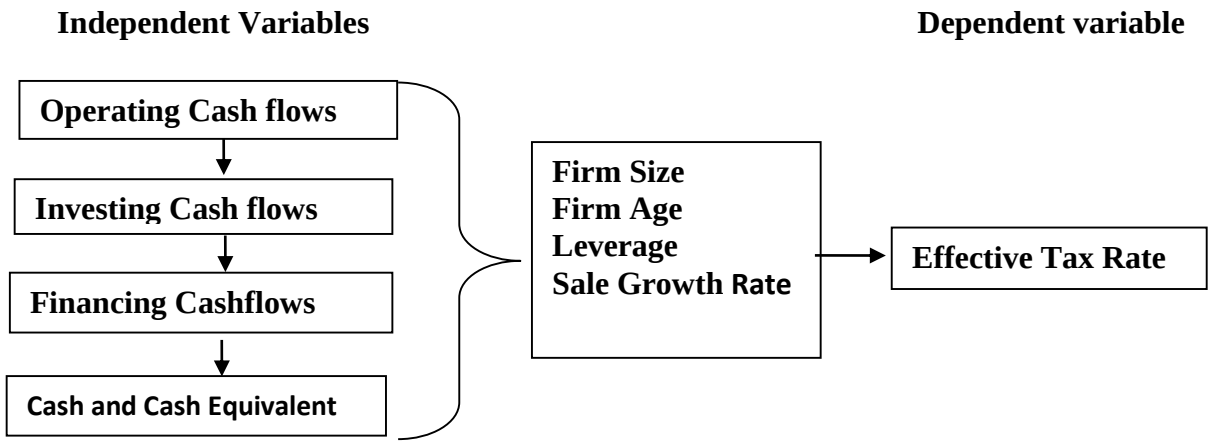
**2.1.4 Investing Cash flows -** The investing activities are the acquisition and disposal of long-term assets and other investments not included as cash-equivalent investments. The standard requires the investing cash flows category to be presented on a *gross* basis. Investing cash flow is useful in evaluating the investment capacity of a company from funds generated either externally (for example, borrowing) or internally (for example, working capital management, or profits). Capital-intensive firms implement tax avoidance strategies to a lesser extent because of the availability of other opportunities to reduce taxes via investment tax credits (Kim & Jang, 2018). Blaylock (2016) finds that a 1-standard-deviation increase in tax avoidance is associated with a 0.2% to 0.6% increase in future returns on assets. As in previous studies, the investing cashflows in this study would be calculated using the total investing net inflows and outflows as stated in the cashflow statement. According to previous techniques employed by other writers to normalize it, this statistic would be scaled by total assets (Eze, 2021; Udeh & Eze, 2021).

**2.1.5 Financing Cash flows -** Financing activities are activities that change the size and composition of equity capital and borrowings. AS 7 requires the financing cash flows category to be presented on a gross basis. Financing cash flow assists in evaluating the ability of a company to generate future positive cash flows and fulfil future obligations, such as liabilities repayment and dividends payment (Knechel, Salterio, &Ballou, 2007). That is whether investing activities can either be financed externally (for example, borrowing) or internally (for example, working capital management, or generated profits). Studies have shown that firms with a financial deficit engage more often in tax avoidance to generate cash (Kweon, Kang, & Kim, 2009). Using a large sample of U.S. firms covering the 1993-2010 period, Goh, Lee, Lim, and Shevlin (2016) document no relation between tax-sheltering activities and a firm's cost of equity.

Similarly, the longitudinal study by Kroes and Manikas (2014) in the USA, evaluated the association between cash flow and financial performance in a sample of 1,233 manufacturing firms from 2008 to 2011. The Generalized Estimating Equations revealed a significant association between financing cash flows and financial performance. As in previous studies, the financing cashflows in this study would be calculated using the total financing net inflows and outflows as stated in the cashflow statement. To normalize this value, it would be scaled by total assets in accordance with earlier techniques employed by various writers (Eze, 2021; Udeh & Eze, 2021).

**2.1.6 Cash and Cash Equivalent -** Cash and cash equivalents are company assets that are either cash or can be converted into cash immediately. According to Bhat and Bachhawat (2005), the incentives for holding cash and cash-equivalent vary among companies. Cash equivalents are held to meet short-term cash commitments rather than for investment or other purposes (Odo & Udodi, 2022). For an investment to qualify as a cash equivalent, it must be readily convertible to a known amount of cash and be subject to an insignificant risk of changes in value. Therefore, an investment normally qualifies as a cash equivalent only when it has a short maturity of, say, three months or less from the date of acquisition (Odo & Udodi, 2022). Investments in shares are excluded from cash equivalents unless they are, in substance, cash equivalents; for example, preference shares of a company acquired shortly before their specified redemption date (provided there is only an insignificant risk of failure of the company to repay the amount at maturity).

***The diagram below represents the conceptual framework of the study***




**Source; Researcher's Concept (2022)**

## 2.2 Theoretical Framework

### 2.2.1 Agency Theory

This study is anchored on the agency theory. Agency theory originated from the early works of Berle and Means (1932) and was initially theorised by Ross in the '70s (Ross, 1973). The theory was associated with agency costs by Jensen and Meckling (1976). According to Jensen and Meckling (1976), an agency relationship is a "contract under which one or more persons (the principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent". Agency costs are the sum of the monitoring expenditures by the principal, the bonding expenditures by the agent, and the residual loss (Jensen &Meckling, 1976). In the business context, agents correspond to managers, whereas principals correspond to shareholders (Shafai, Amran, &Ganesan, 2018). In the modern-day corporation, DeFond (1992) identified two features of the agency problem; first, divergence in preferences of the manager and owner with respect to the manager's actions; and the imperfect observability of the managers' actions by the owner (DeFond, 1992).

Two problems usually occur when one party (the principal) delegates work to another (the agent). First, is the conflict of goals between the two parties and costs associated with the minimisation of such discrepancy; and, second, the problem of risk sharing when the risk preference of both parties differs (Eisenhardt, 1989). The theory provides "a useful way of explaining relationships where the parties' interests are at odds and can be brought more into alignment through proper monitoring and a well-planned compensation system" (Davis, Schoorman, & Donaldson, 1997).

According to Daily, Dalton and Canella (2003), two factors have influenced the prominence of agency theory. First, the theory is conceptually simple by reducing the corporation to two participants, managers and shareholders. Second, the notion of human beings as self-interested is a generally accepted idea. Agency theory may be applied to any contractual relationships in which the principal and agent have partly differing goals and risk preferences, for example, compensation, regulation, leadership, impression management, whistle-blowing, vertical integration, merge & acquisition, and transfer pricing (Eisenhardt, 1989).

**Assumptions of the theory:**

1. There is a divergence of interest between shareholders (principals) and mangers (agents).
2. The presence of information asymmetry, as mangers have inside access to information about the entity's position. This implies that agents have private information which the principal cannot gain access to without cost.
3. The agent is usually assumed to be work and risk-averse.

## 2.3 Empirical Review

Odo and Udodi (2022) conducted a study titled 'Influence of cash management on financial performance of selected manufacturing companies in Nigeria'. The authors relied on an ex post facto research design. The sample comprised 26 firms from the industrial and consumer goods sectors of the NSE. The study utilised secondary data obtained from annual reports of the companies. The data were analysed using the panel least square regression analysis. The results revealed a significant negative effect of cash and cash equivalent on ROA and Tobin's Q. cash and cash equivalent had a negative non-significant effect on ROE.

Yun, Ahmad, Jebran, and Muhammad (2021) conducted a study titled 'Cash holdings and firm performance relationship: Do firm-specific factors matter?' The sample comprised 2,575 firms

for the period 2003 to 2016. The study utilised secondary firm-level data from the Chinese Stock Market and Accounting Research Database (C.S.M.A.R.). The data were analysed using moderated regression approach. The results showed a positive significant effect of cash holding on ROA in the OLS, Fixed effects and Random effects model.

Abubakar, Mansor, and Wan-Mohamad (2021) conducted a study titled 'Corporate tax avoidance, free cash flow and real earnings management: Evidence from Nigeria'. The sample comprised 72 non-financial firms for five years (2014-2018). The study relied on secondary data obtained from annual financial statements. The data were analysed using multiple regression techniques. The results show that corporate tax avoidance proxied as ETR had a significant positive effect on real earnings management. Others such as free cash flow and firm age also had a positive effect; while, firm size, firm growth and audit quality had a negative effect on real earnings management. They recommended that greater attention be paid to internal control mechanisms including the role of the risk management committee to help curtail corporate earnings manipulations and enhance the financial reporting quality.

Udeh and Eze (2021) undertook a study titled 'Effect of corporate tax avoidance on operating cashflow performance: An empirical study of manufacturing firms in Nigeria'. The study looked at how Nigerian manufacturing enterprises' operating cash flow performance was affected by corporate tax evasion. The study used an ex post facto research, consisted of 62 listed manufacturing companies in Nigeria. The financial statement data were examined using multiple regression method, specifically the Random-GLS estimation method. According to the empirical findings, the effective tax rate had a non-significantly positive impact on operating cash flows.

Azam and Wang (2020) conducted a study titled 'The effects of tax avoidance on corporate value'. The sample comprised 34 Palestinian-listed non-financial firms. The study utilised secondary data retrieved from annual financial statements from 2011 to 2018. The data were analysed using OLS regression. The results show that the effective tax rate had a significant positive effect on return on assets while, the effective tax rate proxied by income tax expense scaled by operating cash flow, also had a significant positive effect on ROA. The model's adjusted R-squared value was .375; and, they concluded that firms tend to take advantage of cash flow saved from aggressive tax practices in the Palestinian context.

Wang, Xu, and Huang (2019) conducted a study titled 'Operating cash flow, earnings management and tax aggressiveness: Evidence from listed companies in China'. They analysed the relationship between operating cash flow, profit management, and tax aggression in this research using data from Chinese listed manufacturing companies from 2011 to 2015. The multiple regression showed that tax aggression has a v-shaped association with operating cash flow and a significant positive correlation with earnings management, i.e., when operational cash flow before taxes is less than zero, tax aggressiveness has a negative connection with operating cash flow; yet, when operating cash flow is larger than zero, it has a positive correlation.

Khuong, Ha, Minh, and Thu (2019) undertook a study titled 'Does corporate tax avoidance explain cash holdings? The case of Vietnam'. The sample comprised 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 the 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 casual and correlational research designs. The sample comprised 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 techniques. The results showed a positive significant relationship between cash flow from operating activities and financial performance. The results showed a negative significant relationship between cash flow from investing activities and financial performance. The results showed a positive significant relationship between cash flow from financing activities and financial performance.

Rui (2019) conducted a study titled 'Effect of corporate tax avoidance on the investment-cash flow sensitivity'. The final sample comprised 5056 firm-year observations from enterprises listed on the Shanghai and Shenzen stock exchanges (a-share enterprises) from 2009 to 2015. The study used secondary data obtained from the Wind Economic Database. The data were analysed using the regression technique analysis. The results confirm that firms with higher levels of tax avoidance have higher investment-cash flow sensitivity.

Bizņa, Jurušs, Laizāns, and Šnikvalds (2018) undertook a study titled 'Assessment of impact of corporate income tax suspension on financial performance of businesses. The study used the difference in differences (DiD) analysis method. The sample comprised firms in Latvia following the tax reform of 2018. The study is based on secondary data retrieved from the Amadeus database. The results showed that corporate income tax reform changes the capital structure of a business and improves business sustainability.

Goldman (2016) evaluated 'The effect of tax aggressiveness on investment efficiency'. The final sample comprised a total of 12,876 firm-year observations. The study relied on secondary data obtained from Compustat and Execucomp with fiscal year ends between 1992 and 2014. The data were analysed using multiple regression techniques. The results revealed that tax aggressiveness is associated with more investment for firms with access to investable funds. Secondly, auditor-provided tax services significantly moderate the relationship between tax aggressiveness and investment efficiency.

Santa and Rezende (2016) evaluated 'Corporate tax avoidance and firm value: From Brazil'. The sample comprised 323 publicly traded firms (i.e., 1,704 firm-year observations) listed on the BM & FBovespa. The study relied on secondary financial statements data; obtained from CVM (Brazilian regulatory agency), and Economatica from the period 2006 to 2012. The data were analysed using multiple regression techniques. The results showed a negative significant effect of tax avoidance proxied as BTD on Tobin's q; however, the variable of net income scaled by total assets had a positive significant effect.

Kim and Jang (2018) conducted a study titled 'Relationship between tax avoidance and key financial indicators in Koreas construction waste disposal industry'. The final sample consisted of 23 Korean construction waste disposal companies from the year 2006 to 2016. The study relied on secondary data obtained from the financial results in the DART system of the Korean Financial Supervisory Service's website. 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 study adopted the descriptive research design. 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. The results showed a positive relationship between investing 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 adopts the analytical descriptive approach. The sample comprised of 3 Industrial Joint Stock Companies in Jordan. 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 study relied on secondary data obtained from annual reports and accounts from 2009 to 2013. 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. The results showed that net cash flows from investing activities have a significant negative effect on ROA. The results showed that net cash flows from financing activities had a non-significant negative effect on ROA.

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. The results showed a positive significant effect of investing cash flow on financial performance proxied as ROTE. The results showed a non-significant positive effect of financing 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: Cashflow 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. The results showed a negative significant effect of investing cash flow on operating profit and profit before tax. The results showed a negative significant effect of financing cash flow on operating profit and profit before tax.

Kinyanjui, Kiragu, & Kamau, (2017) conducted a study titled 'Cash management practices on financial performance of small and medium enterprises in Nyeri Town, Kenya'. They employed a descriptive research design. The study utilised primary data from a self-administered semi-structured questionnaire on a sample of 62 SMEs in Nyeri town. The data were analyzed using multiple linear regression technique. The results revealed that cash holding, technology use and cash pooling practices had a positive significant effect on financial performance of SMEs.

Amahalu and Ezechukwu (2017b) conducted a study titled 'Effect of cash holding on financial performance of selected quoted insurance firms in Nigeria'. The study employed the ex-post facto research design. The sample comprised of 16 insurance firms listed on the Nigerian Stock Exchange and the authors utilised secondary data from 2011 to 2015 retrieved from annual reports. The data were analysed using multiple regression technique. The results showed that cash holding (proxied by cash to total book value of assets and cash & cash equivalents) had a positive statistical significant effect on financial performance measures such as the Return on Asset, Return on Equity and Tobin's Q at 5% significant level.

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. The results revealed a negative relationship between investing cash flow and the performance of the sampled banks. The results showed that financing cash flow had a weak negative relationship with performance.

## 3.0 Methodology

The study adopted *ex-post facto* research design to evaluate the effect of cash flow on tax aggressiveness. The population of the study comprised of all the 21 quoted consumer goods firms on the Nigerian Exchange Group (NGX) from 2012 to 2021 financial year. The study employed a purposive sampling technique to select 16 quoted consumer goods firms out of the total population, who are consistent in their publication of their annual financial report data on the Nigeria Exchange Group from 2012- 2021. Secondary data were collected and analysed in the form of descriptive statistics, correlation and regression analysis using EVIEW. A multiple regression technique was used to validate the hypotheses.

**Operationalization of Variables**

The measurement of the variables which are included in the model specified in the model above to test the hypotheses:

**Variables included in the regression model**

| Acronym | Description | Source |
|---|---|---|
| ETR | Income tax expenses in the profit and loss account divided by profit before tax | Abubakar, Mansor, & Wan-Mohamad (2021); Azam & Wang (2020). |
| OpCF | Operating cash flow for the statement of cash flow | Azam & Wang (2020). |
| InvCF | Investing cashflow for the statement of cashflow | Stom & Wepukhulu (2019). |
| FinCF | Financing cashflow for the statement of cash flow | Stom & Wepukhulu (2019). |
| CCE | Cash and cash equivalent scaled by total assets | Yun, Ahmad, Jebran, & Muhammad (2021). |
| SIZE | Log of the total assets in thousands. | Abubakar, Mansor, & Wan-Mohamad (2021); Bhat & Bachhawat (2005); Yun, Ahmad, Jebran, & Muhammad (2021). |
| LEV | Total Liabilities divided by Total Equity (in percentage) | Duru, Okpe, & Ifunanya (2015); Bingilar & Oyadenghan (2014); Yun, Ahmad, Jebran, & Muhammad (2021). |
| SGR | Current year revenue minus previous year revenue divided by previous year revenue (in percentage) | Abubakar, Mansor, & Wan-Mohamad (2021); Yun, Ahmad, Jebran, & Muhammad (2021). |
| Age | Firm listing age in numbers is the difference between current years minus the year of listing in the stock exchange + 1 | Abubakar, Mansor, & Wan-Mohamad (2021). |

**Source: Author's Compilation (2023)**

**Model Specification**

The following models, stated below were adopted to empirically test the hypotheses. The first model is that of Udeh and Eze (2021):

The first model is that by Udeh and Eze (2021) that utilised empirical data in Nigeria.

$FCF_{it} = \eta_0 + \eta_1 etr_{it} + \eta_2 fsize_{it} + \eta_3 flev_{it} + \eta_4 sgrow_{it} + \eta_5 roa_{it} + \eta_6 fira_{it} + \sum_t$……Eq. (1)

$OCF_{it} = \eta_0 + \eta_1 etr_{it} + \eta_2 fsize_{it} + \eta_3 flev_{it} + \eta_4 sgrow_{it} + \eta_5 roa_{it} + \eta_6 fira_{it} + \sum_t$……Eq. (2)

Where:

OCF: Operating cash flow

FCF: Financing cash flow

etr: Effective tax rate

fsize: Firm size

flev: Firm leverage

sgrow: Sales growth

roa: Return on assets

fira: Firm Age

Secondly, is the model by Odo and Udodi (2022) on cash management:

$ROA_{it} = \alpha + \beta_1 CCE_{it} + \beta_2 Firm\ Size_{it} + \beta_3 Leverage_{it} + \mu$……Eq. (3)

Where:

ROA: The proxy for return on assets

CCE: The surrogate for cash and cash equivalent

Firm Size: The surrogate for firm size

Leverage: The surrogate for leverage

The researcher adapted the models in the implicit and explicit forms, as follows:

ETR = *f* (OpCF, InvCF, FinCF, CCE, SIZE, LEV, SGR, AGE, BS)

The model is stated in econometric form as follows, and to be used for the empirical test the hypotheses:

$ETR_{it} = \beta_0 + \beta_1 OpCF_{it} + \beta_2 InvCF_{it} + \beta_3 FinCF_{it} + \beta_4 CCE_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 SGR_{it} + \beta_8 AGE_{it} + \varepsilon_t$ ……Eq. (4)

Where:

ETR: The proxy for effective tax rate

OpCF: The surrogate for operating cashflow

InvCF: The surrogate for investing cashflow

FinCF: The surrogate for financing cashflow

CCE: The surrogate for cash & cash equivalent

SIZE: The surrogate for firm size

LEV: The surrogate for leverage

SGR: The surrogate for sales growth ratio

AGE: The surrogate for firm age

**Decision Rule**

Accept the alternate if p<5% and reject the null or,

Accept the null if p>5% and reject the alternate.

To verify the hypotheses, the random effects model multiple regression was utilized. This allows for an examination of the relationship between a dependent variable and several independent variables by estimating coefficients for the equation on a straight line. The below-specified model was utilized in the study to test the formulated hypotheses in the study, as stated in Chapter One.

$$ETR_{it} = \beta_0 + \beta_1 OpCF_{it} + \beta_2 InvCF_{it} + \beta_3 FinCF_{it} + \beta_4 CCE_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 SGR_{it} + \beta_8 AGE_{it} + \varepsilon_t \quad \ldots\ldots Eq.\ (5)$$

**Random effects model output for the test of hypotheses**

Dependent Variable: ETR
Method: Panel EGLS (Cross-section random effects)
Date: 01/23/23 Time: 14:19
Sample: 2012 2021
Periods included: 10
Cross-sections included: 16
Total panel (balanced) observations: 160
Swamy and Arora estimator of component variances

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -299.4871 | 270.0027 | -1.109200 | 0.2691 |
| OpCF | 437.8278 | 190.5633 | 2.297545 | 0.0140 |
| InvCF | 786.0158 | 353.8098 | 2.221578 | 0.0278 |
| FinCF | -594.9436 | 222.4884 | -2.674043 | 0.0083 |
| CCE | -2.252364 | 3.005696 | -0.749365 | 0.4548 |
| SIZE | 66.87568 | 37.42146 | 1.787094 | 0.0760 |
| LEV | -0.719807 | 1.265140 | -0.568955 | 0.5702 |
| SGR | 0.152846 | 0.219535 | 0.696227 | 0.4874 |
| AGE | -5.521619 | 2.207746 | -2.501022 | 0.0135 |

***Source: E-Views 10***

**Table 7: Random effects model specification output**

| Effects Specification | | | |
|---|---|---|---|
| | | S.D. | Rho |
| Cross-section random | | 46.25410 | 0.0225 |
| Idiosyncratic random | | 304.7251 | 0.9775 |
| Weighted Statistics | | | |
| R-squared | 0.872650 | Mean dependent var | -45.36575 |
| Adjusted R-squared | 0.827544 | S.D. dependent var | 328.8534 |
| S.E. of regression | 306.9945 | Sum squared resid | 14042599 |
| F-statistic | 5.794794 | Durbin-Watson stat | 1.239231 |
| Prob(F-statistic) | 0.000337 | | |

***Source: E-Views 10***

**Interpretation:** The random effects model output shown in the Table above shows the following factors which are taken into account when validating a model: the coefficient of determination $R^2$ and the adjusted $R^2$ for both the weighted and unweighted statistics. The F-statistics and its associated probability level are also indicated. As can be seen above, the R-squared is 0.873 while the adjusted R-squared, which accounts for the error, is 0.828. As a result, the IVs and CVs can account for approximately 82% of the variation in the dependent

variable. The model is valid, as shown by the F-statistic of 5.794 with an absolute p-value of less than .05.

**$Ho_1$: There is no significant effect of operating cash flow on the effective tax rate of quoted non-financial firms**.

The results shown in Table 6 provide the parameters for testing this hypothesis. The operating cash flow had a positive coefficient of 437.8278 and a t-statistic of 2.297545, both of which are statistically significant at a threshold of 5%. (P-value of.05). The null hypothesis is rejected and the alternate hypothesis is accepted since there is a significant effect of operating cash flow on the effective tax rate of quoted non-financial firms.

**$Ho_2$: There is no significant effect of financing cash flow on the effective tax rate of quoted non-financial firms**.

The results shown in Table 6 provide the parameters for testing this hypothesis. The financing cash flow had a positive coefficient of -594.9436 and a t-statistic of -2.674043, both of which are statistically significant at a threshold of 5%. (P-value of.05). The null hypothesis is rejected and the alternate hypothesis is accepted since there is a significant effect of financing cash flow on the effective tax rate of quoted non-financial firms.

**$Ho_3$: There is no significant effect of investing cash flow on the effective tax rate of quoted non-financial firms.**

The results shown in Table 6 provide the parameters for testing this hypothesis. The investing cash flow had a positive coefficient of 786.0158 and a t-statistic of 2.221578, both of which are statistically significant at a threshold of 5%. (P-value of.05). The null hypothesis is rejected and the alternate hypothesis is accepted since there is a significant effect of investing cash flow on the effective tax rate of quoted non-financial firms.

**$Ho_4$: There is no significant effect of cash and cash equivalent on the effective tax rate of quoted non-financial firms**.

The results shown in Table 6 provide the parameters for testing this hypothesis. The cash and cash equivalent had a negative coefficient of -2.252364 and a t-statistic of -0.749365, both of which are statistically insignificant at a threshold of 5%. (P-value of.05). The null hypothesis is accepted and the alternate hypothesis is rejected since there is no significant effect of cash and cash equivalent on the effective tax rate of quoted non-financial firms.

**Discussion of Findings**

**Operating Cash Flow and Effective Tax Rate**

The first hypothesis finds that there is a significant (positive) effect of operating cash flow on the effective tax rate of quoted non-financial firms. This is somewhat consistent with the study by Stom and Wepukhulu (2019) in Kenya on a sample of 54 firms analysed using the multiple linear regression techniques found a positive significant relationship between cash flow from operating activities and financial performance. Using a sample of Korean construction firms, Kim and Jang (2018) consisted of 23 construction waste disposal companies from the year 2006 to 2016 analysed using multiple regression techniques showed a positive significant relationship between cash flow from operations and book-tax difference. And, Soet, Muturi, and Oluoch (2018) in Kenya showed that operating cash flow had a significant positive effect on return on assets; however, an insignificant positive effect on return on equity.

The sample comprised 5 conglomerates, Liman and Mohammed (2018) using secondary data obtained from annual reports and accounts for a period of 10 years (2005 to 2014) analyzed using multiple regression techniques 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.

**Financing Cash Flow Effective Tax Rate**

The second hypothesis finds that there is a significant (positive) effect of investing cash flow on the effective tax rate of quoted non-financial firms.

This is supported by the study of Stom and Wepukhulu (2019) using a sample of 54 firms listed at the Nairobi Securities Exchange, Kenya showed a negative significant relationship between cash flow from investing activities and financial performance. Also, Rui (2019) using a sample of enterprises listed on Shanghai and Shenzen stock exchanges (a-share enterprises) from 2009 to 2015 analysed using regression confirms that firms with higher levels of tax avoidance have higher investment-cash flow sensitivity.

Likewise, Oyieko, Nyang'au, and Chesoli (2018) on a sample of 7 manufacturing firms listed on the Nairobi Securities Exchange showed a positive relationship between investing cash flows and financial performance proxied via return on assets. Using the sample of firms of 323 publicly traded firms listed on the BM&FBovespa, Santa and Rezende (2016) analysed using multiple regression techniques showed a negative significant effect of tax avoidance proxied as BTD on Tobin's q; however, net income scaled by total assets had a positive significant effect.

**Investing Cash Flow and Effective Tax Rate**

The third hypothesis finds that there is a significant (negative) effect of financing cash flow on the effective tax rate of quoted non-financial firms. This is supported by the study of Stom and Wepukhulu (2019) in Kenya the results showed a positive significant relationship between cash flow from financing activities and financial performance. Using a sample of 23 insurance firms, Alslehat and Al-Nimer (2017) found that net cash flows from financing activities had a non-significant negative effect on ROA. Ogbeide and Akanji (2017) using a sample of 27 listed insurance firms and time series data for the period 2009-2014 analysed the panel estimates generalized least squares (EGLS) technique found a non-significant positive effect of financing cash flow on financial performance proxied as ROTE.

**Cash and Cash Equivalent Effective Tax Rate**

The fourth hypothesis finds that there is no significant (negative) effect of cash and cash equivalent on the effective tax rate of quoted non-financial firms. The results are supported by Odo and Udodi (2022) on a sample of manufacturing companies in Nigeria finds a significant negative effect of cash and cash equivalent on ROA and Tobin's Q. The cash and cash equivalent had a negative non-significant effect on ROE. However, in contrast, the study by Yun, Ahmad, Jebran, and Muhammad (2021) on a sample of 2,575 Chinese firm-level data showed a positive significant effect of cash holding on ROA in the OLS, Fixed effects and Random effects model.

This is also consistent with Khuong, Ha, Minh and Thu's (2019) study in Vietnam using a two-step GMM estimator showed that current ETR, cash ETR and BTD all had a significant positive relationship with the firm's cash-holding.

## Conclusion

The study concludes that the statement of cash flow components affects the effective tax rate of consumer goods firms in Nigeria. The study employed the use of a regression model to analyse the impact of cash flow on performance. It was found that there is a significant effect of operating cash flow, cash and cash equivalent on the effective tax rate; while, there is a significant effect of financing cash flow and investing cash flow on the effective tax rate of quoted non-financial firms. It was found that there is a substantial joint influence of cash flow components on the financial performance of listed manufacturing companies in Nigeria. Similarly, the control variables of firm size and firm age affect the effective tax rate.

## Recommendations

Based on the findings empirical findings the following recommendations were made:

1. Investors should be mindful of the operating cash flow for its ability to explain the effective tax rate of quoted non-financial firms. A high effective tax rate is associated with more operating income for firms with access to investable funds. Therefore, such firms may be subject to improved financial ratings as they provide greater resources to the government for sustainable development.
2. Investors are advised by the study to pay closer attention to the quality of financing cash flow of the companies. The investing cash flow ensures the best resources are put in place that managers actively pursue to accomplish their short- and long-term goals and securely meet the needs of shareholders.
3. Managers should utilise the financing cash flow as an alternative resourceful management to ensure the survival and development of the firm as a going concern.
4. Managers should manage the cash and cash equivalents for their negative effect on the effective tax rate. This is because unusual cash retention would be detrimental to the firm's performance as idle cash yields no benefit.

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