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Firm Attributes and Discretionary Accruals (Dac) of Public Nigerian Non-Financial Corporate Businesses

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Abstract: Evidences have shown that DAC is an endemic problem present in both developing and developed countries. Most importantly, the influence of corporate attributes upon DAC cannot be over-emphasized. Therefore, this study evaluated the effect of corporate attributes on DAC. The study employed ex-post facto research design, collecting published facts of figures from the financial statements of 56 purposively selected public Nigerian non-financial companies (NFC). The published data obtained were subjected to panel data regression. The outcomes of this investigation showed thus: capital intensity exhibited increasing and cogent influence upon DAC of public Nigerian NFC (coefficient = 0.2746, t-value = 4.3942, and p-value < 0.05); company largeness influence on DAC of public Nigerian NFC was adverse and cogent (coefficient = -0.1223, t-value = -10.4249, and p-value < 0.05); and profitability had increasing and cogent influence upon DAC of public Nigerian NFC (coefficient = 0.3660, t-value = 4.2335, and p-value < 0.05). The study concluded that firm attributes systematically affected the DAC of the sampled firms in Nigeria. Therefore, the investigation advised that firms should manage their leverage so as to reduce pressure on retained earnings.

Key words: Discretionary Accruals, Capital Intensity, Company Largeness, Profitability.

Introduction

Empirical evidences have shown that accrual-based earnings management (ABEM) is an endemic problem present in both developing and developed countries (Lassoued & Khanchel, 2021; Doan, Ta, Pham, Nguyen & Tran, 2021; Brennan, 2021). ABEM has led to the fall or financial downturn of many corporate giants like Lehman Brothers, Barclay Bank, Polly Peck, International News Corporation, Tyco and Cadbury, Oando Plc, Cutix, Premier Paints, Ag Leventist Plc, among others in the last two decades (SEC, 2021; Akande, 2019).

The deliberate use of aggressive accounting manipulations geared by the flexibilities allowed under the IFRSs, that is ABEM practice, to depict accounting numbers that reflect the desires of top officials instead of financial status is a study focus attracting research interest all over the globe (Bamahros & Wan-Hussin, 2015). ABEM has also led to the fall or financial crises of many companies in Nigeria. Among them are Cadbury Nig. Plc, African Petroleum Plc, Oando Plc, NNPC, Lever brothers (Nig) Plc (SEC, 2021).

IFRS adoption notwithstanding, ABEM practices still persist in European code law nations such as Italy and Germany (Garner, 2018). ABEM practices still occur in countries of Central Europe like Poland, Hungary, Czech Republic and Slovakia (Valaskova, Adamko, Michalikova & Macek, 2021). In Nigeria, empirical evidence showed that all listed non-financial firms manipulated earnings with

natural resources sector as the sector with highest ABEM and heath care as the sector with least ABEM (Miko & Sahnun, 2018).

The traits or qualities that businesses possess significantly affect their choices. These traits are factors at the organisational level that influence the decision of the firm through time, both inwardly and outwardly. These traits include the triggering elements, such as shareholdership morphology, company largeness, total debt divided by total asset ratio, performance, current assets divided by current liabilities ratio, and business development (Uwuigbe, Uwuigbe & Bernard, 2015). They serve as the foundation upon which organizations base important decisions. They serve as the foundation for deciding on accounting policy and corporate strategy.

ABEM practices have placed profound challenges upon the survival and prosperity of many corporate entities. Over the years, Nigeria has witnessed business failures. According to Okolie and Agboma (2008), Odia (2007), and Adeyemi and Fagbemi (2010), examples include Oando Plc, Cutix, Accademy Press, Premier Paints, Arbisco Plc; and more recently Skye Bank, Diamond Bank, and Afribank Plc, NNPC (SEC, 2021). Considering the trend of financial reporting failure in Nigeria (for example, Skye Bank issues, Diamond Bank, Intercontinental Bank, etc), not much has been reported of NFC, hence the need for this study.

In the Annual Reports and Accounts for 2005 of Cadbury Nigerian Plc, the Nigerian Securities and Exchange Commission (SEC) identified poor performance, deteriorating total debt divided by total asset ratio, insufficient publication, and poor liquidity as factors contributing to the company's decline (Okaro & Okafor, 2021). Cadbury (Nig.) Plc engaged in risky earnings management by acquiring loans to pay dividends to shareholders while using capital receipts to cover revenue expenditure.

Considering the above problem statement, the study therefore, raises the questions that follow:

i. what is the extent of the influence of capital intensity on the ABEM of public Nigerian NFC?
ii. what is the influence of company largeness on DAC of public Nigerian NFC?
iii. how does profitability affect ABEM of Nigerian public NFC?

The broad aim of this research is to investigate the influence of firm attributes on ABEM of public Nigerian NFC. Specifically, the research is to:

i. investigate the influence of capital intensity on ABEM of public Nigerian NFC;
ii. examine the effect of company largeness upon DAC of public Nigerian NFC;
iii. explore how profitability affect ABEM of public Nigerian NFC.

The hypotheses of this study are stated in null form as shown below:

H_{01}: The effect of capital intensity on ABEM of public Nigerian NFC is not cogent.

H_{02}: The influence of company largeness on DAC of public NFC in Nigeria is not cogent.

H_{03}: The effect of profitability on ABEM of public Nigerian NFC is not cogent.

The current study concentrated on the effect of firm characteristics upon Nigerian public non-financial firms' ABEM. Given that the strength of the public non-financial business sector is a key determinant of the health of any nation's economy, public non-financial enterprises were selected as the focus of the study (Sharma & Sharma, 2009). Because of how the dependent variable (earnings management) was measured, financial organizations were omitted from this study.

The study covered an investigation period of eighteen years ranging from 2003 to 2020. This period coincided with the time when many listed firms in Nigeria experienced pronounced problems of EM that culminated in restructuring exercises such as recapitalization, mergers and acquisitions (e.g. Oando Plc, NNPC).

Literature Review

Conceptual Review

The broad categories of concepts that could be identified from the study included firm attributes, and DAC. The conceptual meanings of these broad categories of concepts were discussed as follows:

Firm Attributes

The literature (Park, Sung-kyoo & Sangryul, 2021; Khanh & Khuong, 2018; Edi & Jessica, 2020; Al Matbouly, 2021) identified the following firm attributes: leverage, firm size, liquidity, profitability, capital intensity, company age, etc. Firm attributes were the firm-specific characteristics that had direct effect or influence on firm performance, and ABEM. According to studies (Epstein & Buhovac, 2006; Lewis & Mallat, 2009), a few firm characteristics directly influenced the firm performance and ABEM. Firm features have also been empirically related to a company's efficiency of operation in addition to governance practices. Swanson (2009) pointed out that two firms were assumed to have the same worth and rating in ABEM if they had similar company traits and experienced comparable operational circumstances. However, a firm's cheaper price may signal that it is less effective than the competition.

Firm attributes were critical in Nigeria (a developing/emerging economy) considering that majority of the business entities are micro, small, and medium companies (Adenugba, Ige & Kesinro, 2016). In developed economies, such as the United States of America, Russia, and France, there were many studies on the relationship between firm attributes and ABEM. However, this was not the case in developing economies, such as Nigeria, where there was a dearth of literature in this field and significant institutional differences between Nigeria and developed economies. Firm attributes were variables that management had a large amount of control over. Company largeness, current asset divided by current liabilities ratio, total debt divided by total asset ratio, sales growth, and firm age were among the firm characteristics. This implied that firm-specific characteristics may be used to determine the ABEM of non-financial enterprises.

Accrual-based Earnings Management

In the literature, there had not been a precise definition of ABEM (Dechow, Sloan & Sweeney, 1996; Messod, 2001). "Accrual-based earnings management" was often mentioned by SEC, USA sources, but all the SEC USA sources failed to give a concise definition of ABEM (Dechow & Skinner, 2000). There are four different methods that have been used to define ABEM in the bookkeeping encyclopedia. ABEM was a significant intrusion into the preparation of annual reports and accounts, defined in terms of management intent, with the intention of generating personal profits (Schipper, 1989; Cormier & Magnan, 1996; Bagnoli & Watts, 2000) through, for instance, covering the factual aftermaths of top officials' determinations (Levitt, 1998). On the other hand, Healy and Wahlen (1999) posited that ABEM entailed top officials employing their intelligence quotient in the preparation and publication of annual reports and accounts; and in metamorphosing business dealings to tamper with annual reports and accounts so as to on the one hand misdirect given quantum of shareholders about the embedded profitability of the business entity, or to change the results of contract tendering that hinged on published annual reports and accounts figures. This course of action had a problem since managerial intent was invisible. Nobody could be sure if earnings were changed for management or the firm's benefit or to deceive users of the information. As a result ABEM was difficult, if not impossible to be calibrated in a straight jacket way or disclosed verbatim through the characteristics of published annual reports and accounts figures.

Theoretical Review

Agency theory was used to underpin this study. Therefore the study reviewed Agency theory.

Agency Theory (AT)

The first researchers to explicitly advocate for the formation of the theory of agency and to actually initiate that process were Stephen Ross and Barry Mitnick. They did it independently and roughly at the same time (Uwaubani, 2019). Although the fundamental ideas underpinning the two approaches

were similar, Ross was in charge of developing the economic theory of agency while Mitnick was in charge of developing the institutional theory of agency.

It was crucial to remember that a number of explicit and crucial assumptions regarding the behavior of the agents served as the foundation for agency theory. Regarding the presumptions made about the agents, agency theorists explicitly mentioned the issue of opportunism. Opportunism was viewed as a cunning form of self-interest (Williamson, 1975). Therefore, it was anticipated that the economic actors would conceal, falsify, deceive, or scam one another as they entered into a trade. Even with the provision of incentives and oversight, it was expected that opportunism might still win out due to moral hazard or adverse selection.

Additionally, the agency theory predicted that agents will act in a risk-expelling manner while making judgements. Nevertheless, agency theorists view variations from risk-expelling as aberrations and confusions that were the exception rather than the rule. When confronted with confusions on the maximizing of expected utility, agency researchers saw examples of non-risk-expelling choices (where agents were risk-pursuers or risk-friendly) as either unique occurrences of agent behavior (Jensen & Meckling, 1976) or plain disgusting (Arrow, 1971). Since the principal might diversify his investments, the assumption of risk cautiousness was modified in agency theory with respect to the shareholders but not the agent. Given that he could only hold one position as CEO at once, it was expected that the agent (the CEO) would be risk cautious (Wright, Mukherji & Kroll, 2001).

Additionally, according to AT, the principal (scattered shareholders) and the agent (management, CEOs) had different goals, used information in different ways (the shareholders could not monitor the management's activities but was aware of the facts of figures the management had), and had different inclinations toward risk (Radovic, 2008). Since each would seek to optimise his benefits, the interests of the shareholders and management differed.

The literature had listed the problems with agency theory. First off, agency theory was overly abstract and its abstraction was unrepresentative of reality (Band, 1992). Human behavior was oversimplified by agency theory. It was a theory that neglected environmental and social context and was methodologically unfalsifiable due to its irrational presumptions that people maximized their own personal pursuits. AT was too mechanical (Arrow, 1971), for it assumed that agent-principal relationships were exclusively hinged on commercial pursuits. When accounting practice changed depending on the social, cultural, and political context, AT was unable to explain these changes. This criticism had the consequence that a researcher undertaking accounting research should not rely entirely on agency theory; instead, the theory should be supported by other theories (Eisenhardt, 1989).

The link between investors and management is examined in AT. The investors agreed to reward the managers for completing specific tasks for the investors (Jensen & Meckling, 1976).

It was stated that managerial behavior did not necessarily maximize the profits to the shareholders in a business when share ownership was widely distributed (Donaldson & Davis, 1991). An investor would be exposed to agent risk if there was any doubt about whether the agent would operate in his or her best interests rather than those specified in the contract (Fiet, 1995).

As regard the application of agency theory to this study, the managers (CEOs) of business organisations that practice EM were the agents of the principals (the shareholders) that employed them. The managers took advantage of the existence of information asymmetry to act opportunistically to practice EM to their advantage to the detriment of other stakeholders.

Empirical Review

Takhtaei, Ojaghi and Esfandabadi (2013) explored the influence of total debt divided by total asset ratio and investment diversification upon income-increasing EM, selecting sample among Tehran Market business enterprises during period from 2002 to 2008. Multiple regression (MR) was used to estimate the results. The results showed that directors' propensity to control profitability by increasing total debt divided by total asset ratio and investment diversification reduced.

Using data taken from the annual reports of the 37 Nairobi Market businesses, Waweru and Riro (2013) evaluated the impact of corporate governance (CG) and firm specific features on EM. The study discovered that the primary CG factors influencing EM were shareholdership morphology and board makeup. It was discovered that highly indebted businesses were more likely to practice EM.

But utilizing a subset of 19 public Tunisian Market businesses between 1999 and 2011, Riahi, Lamiri, and Arab (2013) investigated the effect of profits management on market liquidity in Tunisia. The longitudinal cum cross-sectional data method was used. The study's findings supported the existence of a favorable and cogent association between the market liquidity and the EM attained by Tunisian enterprises.

But Amertha, Ulupui, and Putri (2014) looked at how business largeness, total debt divided by total asset ratio, and CG impacted EM techniques in Indonesia. The results of this study indicated that CG was capable to amplify the link of company largeness and total debt divided by total asset ratio upon EM techniques. The results of this study showed further that business largeness and CG had a cogent influence on EM, whereas the total debt divided by total asset ratio was not found to have a cogent effect.

Ali, Noor, Khurshid, and Mahmood (2015) used MRA to collect annual data for 10 years, from 2004 to 2013, for fifty selected firms, in order to assess the effect of business largeness upon EM for the Pakistani textile industry. The statistical results of the investigation showed that company largeness had a favourable and cogent effect on managing earnings.

Uwuigbe et al. (2015) evaluated the effects of corporate features on EM of public companies in Nigeria. The data were analysed using random effect (RE) model. The study's results revealed that while business size and corporate strategy had a substantial favorable impact on managing earnings, there was no correlation between total debt divided by total asset ratio and DAC for the studied enterprises in Nigeria.

Park (2016) investigated the effect of current liabilities on ABEM and REM in South Korea. The data were analysed using MR analysis. Short-term borrowings only appeared to have a statistically substantial effect on REM, while debt in current liabilities only had a statistically substantial effect on ABEM. These findings showed that managers control debt contained in current liabilities using accrual earnings and manage short-term borrowing from financial institutions using real earnings.

Whereas, Saftiana, Mukhtaruddin, Putri and Ferina (2017) investigated CG worth, company largeness and EM, population comprising Indonesian public enterprises between 2010 and 2014, using OLS. According to the study's findings, only total debt divided by total asset ratio had a cogent impact on managing earnings, whereas institutional ownership, managerial ownership, the frequency of board meetings, the frequency of audit committee (AC) meetings, and company largeness did not. However, all of the previously mentioned variables had a simultaneous cogent impact on managing earnings.

Debnath (2017) explored the effect of business development and performance upon EM in India. The results of a subset from the industrial sector between 2007 and 2015 showed that while performance was adversely connected to DAC, business development was favourably related.

Cuong and Ha (2018) chose a subset of 320 public Vietnam Market NFC for the years 2008 to 2016 to study the impact of accounting representative factors upon the EM of public Vietnam enterprises. The fixed effect (FE) model's findings demonstrated that key metrics such as return on asset, cash flow from operations ratio, asset growth ratio, total assets turnover, and current ratio significantly impacted how public companies in Vietnam managed their earnings.

Purnama, Nurdiniah, and Bisnis (2018) used MRA to examine the moderating effect of management shareholdership on performance, business size, and EM in a subset of sixty Indonesian public enterprises between the years of 2012 and 2016. The findings indicated that business size had an adverse impact on EM while performance had a favourable impact.

Nalarreason, Sutrisno, and Mardiati (2019) investigated the effects of total debt divided by total asset ratio and company size upon EM in Indonesia using a subset of published accounting figures from Indonesian public processing enterprises for the years 2013 to 2017. The data was examined using OLS. The investigation's conclusions showed that total debt divided by total asset ratio and company largeness had a favourable impact on how Indonesian manufacturing businesses managed their profitability.

Furthermore, Perdana (2019) looked at how organizational shareholdership, total debt divided by total asset ratio, and AC affected Indonesian public enterprises in terms of EM. Findings of this study indicated that: (1) institutional ownership exhibited a substantial favourable influence upon EM; (2) total debt divided by total asset ratio had a substantial negative influence upon EM; and (3) AC had a substantial positive influence upon EM.

The nexus between short-term loan maturity and ABEM was examined by Trung, Liem, and Thuy (2020), using a subset of Vietnam public businesses over the years 2010 to 2017. To estimate the results, MR analysis was performed. Results indicated that at low levels of short-term debt, short-term debt maturity had a favorable impact on reducing EM; however, at high levels, it increased EM, illustrating a concave shape.

The impact of company-specific characteristics upon EM of Nigerian public conglomerate enterprises was explored by Okika, Omoregbee, and Echobu (2020). The results of the study, which used an ex-post facto research design and a FE model to analyze the data, showed that total debt divided by total asset ratio and corporate years of existence exhibited a negative substantial influence upon EM of Nigerian public conglomerate enterprises, while current asset divided by current liabilities ratio and firm non-current assets turnover had a positive substantial effect.

Edi and Jessica (2020) used a RE model to analyze the effects of company characteristics and good governance features on profits management behavior using Indonesian public companies from 2014 to 2018. The study found that firm features might greatly enhance the behavior of EM.

Using DAC, Chudia, Cruz, and Estabillo (2021) examined the impact of business features and CG methods on EM. Utilizing MRA, the data were examined. Findings showed that for Philippine real estate enterprises, cash flows from operations (CFO), company largeness, and CEO duality were statistically cogent determinants of EM.

In Korea, Park, Sung-kyoo, and Sangryul (2021) investigated the management of bankrupt enterprises' earnings and the ability to foresee corporate defaults through DAC. According to the study's findings based on OLS, non-externally audited (NEA) private enterprises had the highest DAC in the year before bankruptcy, followed by NEA SMEs, externally audited (EA) SMEs, and EA large firms.

Methodology

Research Design

The investigation used an ex-post facto research design, gathering and analyzing published figures contained in the financial statements of Nigerian public NFC. The researcher was unable to change the data; instead, he used it exactly as it appeared in the Nigerian public NFC' financial statements.

Population of the Study

All public NFC on the NSE, a division of the Nigerian Exchange Group, between 2003 and 2020, comprised the investigation sample space. 105 NFC were on the NSE throughout the analysis's time frame.

Sample Size and Sampling Technique

The study employed the formula for "Small Sample Techniques" of Krejcie and Morgan (1970) to select the subset size for the secondary data. Employing the formula, a total of ninety (90) public Nigerian NFCs were selected as the subset size out of the total of one hundred and five (105). The

ratio of the number of companies in each sector to 105 companies forms the basis of selecting the subset size. However, only 56 out of the 90 companies were selected which accounted for 62%.

Sources of Data and Data Collection Method

Through text analysis, published figures were gathered from the financial statements of 56 Nigerian public NFC between 2003 and 2020.

Operational Definitions and Measurements of Variables

The explained variable was DAC. The explanatory variables included firm-level attributes (profitability, firm size, and capital intensity); control variables included asset growth, leverage, liquidity, company age and sales growth. Table 3.2 depicted the acronyms for each variable, definitions, variable type (VT); measurements approach and construct validity sources (CVS).

Table 3.2 Independent Variables Operational Definitions and Measurements

SN	DEFINITION	VT	SYMBOL	MEASUREMENT	CVS
1	**Firm size**	**Independent variable**	**FSIZE**	Natural log of total assets.	Bassiouny et al. (2016)
2.	**Financial Leverage**	**Control variable**	**LEV**	Total debt divided total asset.	Prihastomo & Khafid (2018)
3.	**Profitability**	**Independent variable**	**PROF**	Profit before interest and tax divided by total asset.	Denis & Denis (1994)
4.	**Liquidity**	**Control variable**	**LIQ**	Current assets divided by current liabilities.	Megaladevi (2018)
5.	**Capital intensity**	**Independent variable**	**CAPINT**	Non-current assets divided by total assets	Paul, Peter & Dang (2014)
6.	**Company age**	**Control variable**	**AGE**	Number of years passed since foundation	Demir & Bahadir (2014)
7.	**Sales growth**	**Control variable**	**SG**	Current year sales divided by previous year sales minus one	Harvey (2015)
8.	**Asset growth**	**Control variable**	**AG**	Current year total asset divided by previous year total asset minus one	Harvey (2015)

Source: Author's Conceptualisation (2022)

Model Specification

Based upon literature review, the following model was specified for the relationship between firm attributes and DAC:

DAC = f (firm attributes)……..3.1

DAC = f (Firm size, Firm financial leverage, Firm profitability, Firm liquidity, Firm capital intensity, Firm age, Sales growth, and Asset growth)……3.2

The study then transformed equation 3.2 into the following linear equation:

$DAC_{jt} = \beta_{0jt} + \beta_1 FSIZE_{jt} + \beta_2 LEV_{jt} + \beta_3 PROF_{jt} + \beta_4 LIQ_{jt} + \beta_5 CAPINT_{jt} + \beta_6 AGE_{jt} + \beta_7 SG_{jt} + \beta_8 AG_{jt} + \mu_{jt}$……3.3

Where:

Table 3.3 Model Variables and their Definitions

Variables	Definitions
DAC_{jt}	Discretionary accruals
$FSIZE_{jt}$	Size of the firm
LEV_{jt}	Financial leverage level
$PROF_{jt}$	Profitability
LIQ_{it}	Liquidity ratio
$CAPINT_{jt}$	Capital intensity
AGE_{jt}	Company age
SG_{jt}	Sales growth
AG_{jt}	Asset growth
B_0	Intercept
β_1 *to* β_8	Coefficients
μ_{jt}	Error term

Source: Author's conceptualisation (2022)

Method of Data Analysis

Descriptive and inferential statistics were used to analyze published figures taken from the financial statements of Nigerian public NFCs for the years 2003 to 2020.

The descriptive statistics that were used in this study included average, standard deviation (Std. Dev.), minimum (MIN) and maximum (MAX) values. While the average was used to have a snapshot of the magnitude of the data, the Std. Dev. measured the variation of values for each variable to determine the reliability of the average. The range of values for each variable was shown with the help of MIN and MAX.

Correlation analysis, which was a prerequisite for longitudinal cum cross-sectional data regression analysis to determine the degree of multicollinearity among the variables (Gujarati, 2003) was also used to determine the potency of a linear relationship between firms' attributes and DAC. The study conducted other preliminary tests such as variance inflation factor (VIF) and panel unit root test.

Panel data regression (PDR) constituted the inferential statistic that was employed in this study. The PDR model was divided into three models, namely Common Effect model (CE), Fixed Effect model (FE) and Random Effect model (RE). Of the three models, the most appropriate model was chosen based on the characteristics of the data to answer the objectives of the study.

Results and Discussion of Findings

Descriptive Statistics of the Variables

The variables' descriptive statistics are displayed in Table 4.1. Understanding the properties of the variables before analysis is critical since it will help to reduce the presence of outliers that can result in an inaccurate model estimate.

Table 4.1: Descriptive Statistics of the Variables

	Average	Median	MAX	MIN	Std. Dev.
CAPINT	0.4570	0.4040	3.9324	0.0000	0.3373
AGE	74.9464	74.0000	135.0000	15.0000	35.0206
FSIZE	15.7023	15.7175	21.2979	9.8313	1.9974
PROF	0.0570	0.0560	3.3282	-1.3074	0.2314
AG	1.0524	0.9220	11.9397	-17.9205	2.4599
SG	0.2377	0.0013	59.6410	-3.0243	3.2405
LEV	1.9657	1.0535	98.8129	-68.0420	9.6926
LIQ	0.5225	0.1696	161.5849	-141.7600	10.7906

Source: Author's Computation (2022)

As shown in Table 4.1, CAPINT variable reported average of 0.4570 and Std. Dev. of 0.3373. The average was more than the Std. Dev, which implied that CAPINT, as a variable, exhibited low degree of disparity. AGE had the mean of 74.9464 and Std. Dev. of 35.0206. In the same vein, the sample average of the FSIZE was 15.7023 with Std. Dev. of 1.9974. More so, the result of the descriptive statistics showed that average profitability, AG, SG, LEV, and LIQ of the selected firms were 0.0570, 1.0524, 0.2377, 1.9657, and 0.5225 respectively.

Pre-estimation Tests

The following pre-estimation tests were carried out. They included correlation matrix, VIF, and panel unit root test.

Correlation Matrix

Table 4.2 displayed the variables' correlation matrix. In order to determine the degree of link between the variables, the study performed a correlation analysis on them.

Table 4.2: Correlation Matrix of the Variables

	CAPINT	AGE	FSIZE	PROF	AG	SG	LEV	LIQ
CAPINT	1							
AGE	0.0131	1						
FSIZE	-0.1302	0.0235	1					
PROF	-0.1529	-0.0681	0.1717	1				
AG	0.0677	-0.0391	0.1634	0.0786	1			
SG	-0.0129	-0.021	-0.0958	-0.0647	-0.0083	1		
LEV	-0.0300	-0.0382	0.0671	-0.0061	0.233	-0.0008	1	
LIQ	-0.0528	0.1047	-0.0412	0.0159	-0.005	0.345	0.0056	1

Source: Author's Computation (2022)

As shown in Table 4.2, all the variables (CAPINT, AGE, FSIZE, PROF, LEV, LIQ, AG and SG) did not exhibit strong correlation with each other.

VIF

In order to exhume the problem of multi-collinearity that may not be evident in the correlation matrix presented in Table 4.2, further collinearity review was carried out by calculating VIF coefficients (Table 4.3).

Table 4.3: VIF

	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
AG	0.0001	1.7923	1.5059
AGE	3.24E-0	3.6178	1.0079
CAPINT	0.0036	3.0076	1.0579
FSIZE	0.0001	1.8201	1.0843
LEV	6.13E-0	1.5207	1.4595
LIQ	1.21E-0	3.5769	3.5685
PROF	0.0078	1.1417	1.0739
SG	0.0001	3.6149	3.5955

Source: Author's Computation (2022)

According to the Table 4.3 test's findings, none of the variables utilized in the model's estimation had a VIF greater than 10, which suggested that multicollinearity was not an issue with any of the model's variables. If a variable's VIF is greater than 10, then there is a problem with multicollinearity.

Panel Unit Root Test

The study used the LLC and LPS test methods as shown in Table 4.4 to conduct the panel unit root test in order to prevent the issue of false regression.

Table 4.4: Panel Unit Root Test

Variable	LLC		LPS		Order of Integration
	Statistics	p-value	Statistics	p-value	
CAPINT	16.2458	0.0000	10.4460	0.0000	I(0)
AGE	19.3241	0.0000	11.4634	0.0000	I(0)
FSIZE	16.0614	0.0000	9.6848	0.0000	I(0)
PROF	17.9029	0.0000	13.5229	0.0000	I(0)
AG	22.4301	0.0000	15.1256	0.0000	I(0)
SG	10.1030	0.0000	8.9434	0.0000	I(0)
LEV	20.3513	0.0000	10.6462	0.0000	I(0)
LIQ	19.9709	0.0000	7.2805	0.0000	I(0)

Source: Author's Computation (2022)

The test's findings, which are shown in Table 4.4, demonstrated that none of the variables had unit root at level issues. This suggested that all the variables were level and stationary.

Restatement and Testing of Hypotheses

In order to answer the research questions, the following hypotheses were tested:

H_{01}: The impact of capital intensity on DAC of public NFC in Nigeria is not cogent.

H_{02}: The effect of company largeness on DAC of public NFC in Nigeria is not cogent.

H_{03}: The influence of profitability on DAC of public NFC in Nigeria is not cogent.

This section reported the dependent variable of DAC as presented in Table 4.5. The post estimation test of the model as shown by the serial correlation test and heteroskedasticity test indicated that the model was free from the problem of autocorrelation and heteroskedasticity. A model is not free from the serial correlation and heteroskedasticity when the p-value of the test statistics is less than 0.05, however, when the p-value is greater than 0.05, the model is free from autocorrelation and heteroskedasticity. The result of the serial correlation test reported test statistics of 2.4506 and p-value of 0.4629. Also, heteroskedasticity test reported test statistics value of 1.7486 with p-value of 0.5182. The result indicated that the model was free from the problem of serial correlation and heteroskedasticity because the p-values of the two tests were greater than 0.05.

The study reported the three models of pooled OLS, panel FE and panel RE. Hausman test was conducted to compare the cross FE and cross RE. The result of the test as shown in the Table 4.5 reported that p-value of the test was greater than 0.05, which implied that RE was the best fit model. Therefore, testing the hypotheses, the study analysed the cross sectional RE. The model explanatory power which represented coefficient of determination was captured by the r-squared and adjusted r-squared. The r-squared result showed that 58.2% of the sources of variation of DAC were accounted for by the independent variables, while 57.56% was accounted for after correcting for the loss in degree of freedom. The f-value of the model (27.5884, $p<0.05$) reported the overall significance of the variables. The result showed that model was valid and statistically cogent at 5% level.

Size of firm had adverse cogent relationship with the DAC of the selected firms with coefficient of -0.1223($t=-10.4249$, $p<0.05$), thereby rejecting **H_{02}**. This implied that increase in size of the firm would lead to decline in the firm DAC. The result indicated that big firms were less likely to engage in EM. The result followed the submission of Echobu, Audi and Mailafia (2019).

Capital intensity had favourable relationship with the firm DAC with coefficient of 0.2746. The t-value of 4.3942 and p-value of less than 0.05 showed that the capital intensity exhibited cogent relationship with DAC of the selected firms. Thus, **H_{01}** was rejected. The result implied that firms with strong capital intensity would likely engage in EM as measured by DAC. This was in line with

the result of Ogiriki and Iweias (2020). The age of the firm with coefficient 0.0011 showed that old firms had tendency to engage in EM than the young firms. Age reported favourable cogent relationship with the DAC of the firms with t-value of 2.1366 and p-value of 0.0329 (less than 0.05). The result of the analysis corroborated the finding of Soyemi and Olawale (2019).

Profitability of the firms exhibited favourable cogent relationship with the DAC with coefficient of 0.3660, t-value of 4.2335 and p-value of less than 0.05. **H_{03}** was, therefore, rejected. This corroborated the earlier submission of Okika, Omoregbee and Echobu (2020). Although, there seem to be positive association between liquidity of the firm and DAC, the relationship was not cogent (coefficient = 0.0064, t-value = 1.9416 and p-value > 0.05). Total debt divided by total asset ratio of the firms had adverse influence on DAC with a coefficient of -0.0042, although the influence was not statistically cogent (t-value = -1.7991, p-value > 0.05).

Table 4.5: Parameter Estimate of the Effect of Firm Attributes on DAC

Dependent Variable: DAC									
	Pooled OLS			Fixed Effect Model			Random Effect Model		
Variable	Coef.	t-value	p-value	Coef.	t-value	p-value	Coef.	t-value	p-value
CAPINT	0.2698	4.4457	0.0000	0.2758	4.2488	0.0000	0.2746	4.3942	0.0000
AGE	0.0010	1.8171	0.0695	0.0011	2.1576	0.0312	0.0011	2.1366	0.0329
FSIZE	-0.1101	-10.6315	0.0000	-0.1282	-10.1211	0.0000	-0.1223	-10.4249	0.0000
PROF	0.4403	4.9605	0.0000	0.3423	3.8861	0.0001	0.3660	4.2335	0.0000
AG	0.0073	0.7351	0.4624	0.0157	1.6381	0.1017	0.0138	1.4499	0.1474
LEV	-0.0038	-1.5595	0.1192	-0.0043	-1.8283	0.0678	-0.0042	-1.7991	0.0723
LIQ	0.0068	1.9575	0.0506	0.0063	1.8774	0.0608	0.0064	1.9416	0.0525
SG	0.0204	1.7595	0.0788	0.0267	2.3412	0.0194	0.0252	2.2426	0.0251
C	-0.5970	-3.4675	0.0005	-0.3259	-1.5538	0.1206	-0.4168	-2.1077	0.0353
R-squared	0.1781			0.3549			0.5822		
Adjusted R-squared	0.1715			0.3114			0.5756		
f-value	26.8298			8.1659			27.5884		
P(f-value)	0.0000			0.0000			0.0000		
Post Estimation Test									
Serial correlation	2.4506 (p = 0.4629)								
Hausman Test	6.2343 (p = 0.1210)								
Heteroskedasticity	1.7486 (p = 0.5182)								

Source: Author's Computation (2022)

Discussion of Findings

Firm attributes, as a whole, jointly had cogent effect on DAC of public Nigerian NFC. With respect to the effects of capital intensity on DAC, the study found that capital intensity had favourable and cogent effect on DAC (coefficient = 0.2746, t-value = 4.3942 and p-value < 0.05). The results implied that high capital intensity firms tended to have high DAC. These findings were in agreement with the evidence provided by Edi and Jessica (2020) that discovered that firm characteristics accentuated the EM behaviour cogently. The findings were also supported by Agency theory prediction that managers of firms with large non-current assets base would invariably have large buffer to manipulate earnings.

The study evidence further revealed that firm age had favourable effect on DAC (coefficient = 0.0011). The effect of firm age on DAC (t-value = 2.1366, p-value < 0.05) was cogent. These implied that as firm age increases, EM also increases. In other words, older firms tend to engage in EM practices than younger firms. These study findings partially agreed with Al Matbouly (2021) who found that the relationship was insignificant between both forms of EM and the company age.

Furthermore, the study found that the effect of company largeness on DAC was adverse (coefficient = -0.1223). This implied that increase in company largeness will lead to a decrease in DAC in the context of public Nigerian NFC. The effect of company largeness on DAC was cogent (t-value = -

10.4249, p-value < 0.05). The implication of these findings was that, in the context of public Nigerian NFC, big firms tended to decrease ABEM. These study findings on company largeness were consistent with Amertha, Ulupui and Putri (2014) whose result showed that company largeness had a cogent effect on EM. These results of the study also agreed with Chudia, Cruz and Estabillo (2021) whose findings revealed that company largeness was a statistically cogent predictor of EM for property firms in Philippines.

Also, the study investigated the influence of profitability of public Nigerian NFC on EM practices. It found that profitability influence on DAC was favourable (coefficient = 0.3660) and statistically cogent (t-value = 4.2335, p-value < 0.05). This implied that public Nigerian NFC that were more profitable tended to increase DAC. These empirical evidences of the study were in line with Purnama, Nurdiniah and Bisnis (2018) whose result showed that profitability had a favourable effect on EM.

Another firm attribute examined by the study was financial leverage. The study found that the influence of total debt divided by total asset ratio on DAC was adverse and not cogent (coefficient = -0.0042, t-value = -1.7991, p-value > 0.05). This implied that public Nigerian NFC with increasing total debt divided by total asset ratio tended to decrease DAC (ABEM). These study findings were consistent with Uwuigbe et al (2015) that showed the relationship between firms' total debt divided by total asset ratio and DAC of the selected firms in Nigeria was not cogent. However, they contradicted Yero (2012) who found that cogent favourable relationship existed between total debt divided by total asset ratio and DAC. These study findings disagreed with Al Matbouly (2021) whose findings showed that highly indebted companies engaged more in ABEM than the REM.

As regards liquidity (current ratio) and EM, the study found that the effect of current ratio on DAC (coefficient = 0.0064, t-value = 1.9416, p-value > 0.05) in public Nigerian NFC was favourable and not cogent. This study finding on the effect of current ratio on DAC corroborated Okika, Omoregbee and Echobu (2020) whose results showed that current ratio had favourable cogent effects on EM of public conglomerate firms in Nigeria. It was worthy of note that this study finding was at variance with the results of Cuong and Ha (2018) that current ratio had cogent influence on the EM of public Vietnam companies.

Summary, Conclusions and Recommendations

Summary

This study's goal was to investigate the association between firm characteristics and DAC across Nigerian public NFC from 2003 to 2020. The audited financial statements of the non-financial public firms in Nigeria as well as the facts-book of the NSE served as the study's primary sources of secondary data. To describe the statistical characteristics of the variables, descriptive statistics were used. Given the nature of the data series, the study used econometric analysis techniques and performed a number of tests, including the Panel Unit Root Test, Multi-Collinearity Test, VIF, Hausman, and Heteroskedasticity Test, as well as multiple regressions to estimate the model coefficients.

Several empirical literatures were perused to verify the results of previous researchers such as Dachomo and Bala (2020), Kelvin (2020), Okika, Omoregbee and Echobu (2020), and Edi and Jessica (2020) on the effect of firms attributes on the EM among the public companies. Drawing from the result of the relationship between firm attributes and EM practices among Nigerian public NFC, the outcomes of the analysis showed that all the measures of the firm attributes were essential in affecting the EM of the firm. With the DAC, the study found that capital intensity, firm age, firm size, and profitability had cogent relationships with DAC of the public Nigerian NFC; however only current ratio and total debt divided by total asset ratio effects on DAC were not cogent.

Conclusions

Based upon the empirical results of this study, it can be concluded that: (i) capital intensity had favourable and cogent effect on the DAC of public Nigerian NFC; (ii) the influence of company largeness on the DAC of public NFC in Nigeria was adverse and statistically cogent; and (iii) profitability favourably and cogently affected DAC of selected public NFC in Nigeria.

Recommendations

Based on the conclusions of this study, it was recommended that: (i) Capital intensity should be aided among the firms, because it would place them on sound investment framework; (ii) based upon the study's findings that big firms were less likely to engage in EM, the government of Nigeria should promote the growth of public Nigerian NFC by providing better and more infrastructural facilities; and (iii) since profitability favourably and cogently affected DAC, Financial Reporting Council of Nigeria should monitor and scrutinise the annual reports and accounts of NFC that are declaring increasing profits before tax.

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