Advances in Research

15(1): 1-13, 2018; Article no.AIR.41226
ISSN: 2348-0394, NLM ID: 101666096

Cash Flows and Earnings in Predicting Future Cash Flows: A Study of Deposit Money Banks in Nigeria

Adebimpe Otu Umoren[1*] and Nsima Umoffong[1]

[1]Department of Accounting, Faculty of Business Administration, University of Uyo, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Author AOU designed the study, performed the statistical analysis and wrote the first draft of the manuscript. Author NU managed the literature searches and read and amended the first draft of the manuscript. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AIR/2018/41226
Editor(s):
(1) Alyona Maksymets, Professor, Department of International Business Management, Ukrainian National Forestry University, Ukraine.
Reviewers:
(1) Victoria. K. Senibi, Covenant University, Nigeria.
(2) Elżbieta Szczepankiewicz, Poznan University of Economics and Business, Poland.
(3) Charles Ngome Eke, Federal Polytechnic Nekede, Nigeria.
Complete Peer review History: http://www.sciencedomain.org/review-history/24698

Original Research Article

Received 25th February 2018
Accepted 2nd May 2018
Published 19th May 2018

ABSTRACT

The researchers examined the abilities of past cash flows and past earnings in predicting future operating cash flows of Nigerian Money deposit banks. Ex-post facto design was used in conducting the study while sampling 13 out of the 14 deposit money banks listed on the Nigerian Stock Exchange from 2011 to 2016. The study employed Descriptive statistics, Pearson correlation and OLS regression techniques; where key findings revealed that past earnings has ability in predicting future operating cash flows than past cash flows. In addition the study revealed that disaggregation of earnings into net income and other comprehensive income generate superior explanatory power compared to total comprehensive income with regards to predicting future operating cash flows. Overall, this study provides evidence on the usefulness of earnings computed under IFRS to predict future cash flows of quoted deposit money banks in Nigeria.

Keywords: Past cash flow; past earnings; future cash flow; prediction; listed money deposit banks; Nigeria.

**Corresponding author: E-mail: bimpeumoren@yahoo.com;*

ABBREVIATIONS

FRC : Financial Reporting Council
IASB : International Accounting Standard Board
IFRS : International Financial Accounting Standard
NASB : Nigerian Accounting Standard Board

1. INTRODUCTION

The main objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to investors, lenders and other creditors in making investment, credit and similar resource allocation decisions [1]. It also enable users, to evaluate the reporting entity's ability to generate future cash flows as part of their decision making process. Decisions by investors, lenders and other creditors about their investments, loans or other forms of credit depend on the returns that they expect and this in turn depend on their assessment of the amount, timing and uncertainty of future net cash inflows to the entity. Consequently, existing and potential investors, lenders and other creditors need information to help them assess the prospects for future net cash inflows to an entity. In order to promote accrual accounting [1] emphasizes that accrual based earnings rather than current cash flows are a superior predictor of future cash flows than current cash flow.

This accounting phenomenon has engaged various researchers in finding out the real position - does accrual based earnings have a better ability in comparison to current cash flows, in predicting a company's future cash flow? The results of the findings on the subject are varied and inconsistent. Some prior studies (such as [2], [3,4,5,6,7,8]) document that historical earnings have more predictive ability than operating cash flows. Others (such as [9,10,11,12,13,14,15,16, 17]) reveal that historical operating cash flows are superior to historical earnings in forecasting future operating cash flows. Yet, [18] and [19] find no evident differences between these two types of accounting information in predicting future operating cash flows. However, most of these studies are evidences from developed economies with not many studies on developing countries. Moreover, only few studies, [20], consider the contribution of net income, comprehensive income and other comprehensive income in the prediction of future cash flows.

Consequently, this paper adds to previous literature by examining the abilities of past cash flow and past earnings in predicting future cash flow of Nigerian Money deposit banks. In examining the predictive ability of current earnings, the specific contributions of net income, other comprehensive income and total comprehensive income were examined because they are keys to discussing financial reporting under International Financial Reporting Standards (IFRS), since Nigeria adopted IFRS in 2012. To our knowledge, this is the first study documenting how effectively current cash flows, net income, other comprehensive income and total comprehensive income under IFRS, predict future cash flows. Disclosed accounting information is expected to be useful and relevant in influencing the process of making economic decisions. This study will provide Nigerian investors, creditors, analysts and other financial statement users with empirical evidence on beneficial role of earnings or cash flows for future cash flows prediction. This study is also relevant to academics, accountancy professional bodies and standard setters.

The research hypotheses developed for the study are posited as follows:

H_{o1}: Past cash flows have significant ability in predicting future operating cash flows of quoted deposit money banks in Nigeria.
H_{o2}: Past net income have significant ability in predicting future operating cash flows of quoted deposit money banks in Nigeria.
H_{o3}: Past total comprehensive income have significant ability predicting future operating cash flows of quoted deposit money banks in Nigeria.
H_{o4}: Past net income and other comprehensive income have superior predictive ability than past cash flows in predicting future operating cash flows of quoted deposit money banks in Nigeria.

This paper is in four sections. Section one deals with the background of study and reviews the relevant literature on the subject matter. The research methods adopted for the study are presented in section two while section three presents the main result. Finally, section four summarizes and concludes the study.

1.1 Review of Related Literature

In Nigeria, a major reform of accounting law took place with the adoption of the IFRS in 2012. IFRSs are the standards and interpretations developed or adopted by International

Accounting Standard Board (IASB). Financial Reporting Council (FRC) of Nigeria is the body responsible for, among other things, developing and publishing accounting and financial reporting standards to be observed in the preparation of financial statement of public entities in Nigeria. FRC came into existence in 2011. The body responsible for setting accounting standards in Nigeria before 2011 was Nigerian Accounting Standard Board (NASB) which was established in 1982. However, this body was abolished in 2011 through the Financial Reporting Council Act, 2011 which culminate in the establishment of FRC of Nigeria. The FRC issued a roadmap to adoption of IFRS in September 2010. Based on this Roadmap, Nigerian listed companies and significant public interest entities ("PIEs") were required to comply with IFRS for periods ending after 1st January 2012. Other PIEs were required to comply for periods ending after 1st January 2013 and small and medium sized entities were required to comply for periods ending after 1st January 2014.

Accounting regulation and enforcement are major determinants of the quality of financial reporting. [1] claimed that accrual accounting provides a better basis for assessing the entity's past and future performance than information solely about cash receipts and payments during that period. Based on the importance of accrual accounting, the framework authorized accrual accounting to be used for the preparation and presentation of the financial statement. Accrual accounting depicts the effects of transactions on a reporting entity's economic resources and obligations in the periods in which those effects occur, and not when cash receipts and payments are made. It recognizes revenues and expenses as they occur and not when the cash transaction takes place. Revenues might differ from the cash inflows because of unearned income and credit portion while expenses will differ from the cash out flows because of accrued and prepaid expenses. This result in a variance of net income from cash flows. Accrual accounting has been critised by scholars ([21,22]), by arguing that accruals suffer from subjective judgments and manipulative tendencies. [21] argued that the subjectivity inherent in estimates embedded in accruals introduces noise that can have a negative impact on their informational value. According to [22], executives may engage in self-serving earnings manipulation by reporting numbers based on distorted estimates, which has been shown to decrease the value relevance of earnings. It is also argued that under inflationary condition, accrual-basis accounting show a tendency of overstating profits and understating assets [23].

The principle of cash accounting recognises only cash transactions, such as recording cash payments as expenses and cash receipts as income. Cash accounting is more prudent than accrual accounting as it reports only actual cash transactions that occurred in a period and it does not anticipate cash flows. Cash accounting is arguably more objective than accrual accounting since it involves less subjective management judgments. In recent years there has been an increasing world-wide interest in cash flows reporting. An entity's liquidity, solvency, financial flexibility and risk can be assessed by investors, creditors and other users of financial statements through the cash flows statement. Cash flows include operating, financing and investing cash flows. Operating cash flows are net of cash inflows and outflows related to the core operations. The financing and investing cash flows are a function of operating cash flows since their level will determine the need for financing and future investments. Cash flows are involved in various economic decision contexts such as performance evaluation, monitoring evaluation and in a prediction function [24]. Cash flows prediction can help the financial statement users to assess how the firm's current cash flows affect their future cash flows. There exists an exhaustive debate in financial literature on cash flows being more value relevant in relation to earnings.

Positive accounting studies seek to establish theory to explain and predict accounting information [25]. The term positive accounting theory was propounded by [26]. They coined the term "positive" from economics to differentiate positive accounting researches that seek to elucidate or predict accounting practice from other normative accounting researches. They suggested that the objective of accounting theory is to explain and predict accounting practices, that is, providing reasons for observed practice and predicting unobserved phenomena. This approach is most appropriate for this study as this research adopts the positivism paradigm to investigate the comparative abilities of earnings and operating cash flows information in predicting future operating cash flows.

Prior studies such as [2,9,27,18,3,10, 5,12,6,7,15,19,8,17,28,20] have been conducted in both developed and developing nations to

examine the abilities of past cash flows and past earnings in predicting future cash flows. However, their findings are inconsistent.

[2], investigated the relationship between current earnings and current cash flows as an explanatory factor of future cash flows. The data used was taken from financial statements of 157 industrial companies for the year 1963 to 1982. To predict future cash flow, they used yearly lag as well as multiple lag periods of two to three years. Their findings indicate that current earning is a better predictor of future cash flow than current cash flows. In contrast, [9] examined the ability of earnings and five measures of cash flows to predict one- and two-year-ahead cash flows. They used samples of 324 firms for the period 1971 to 1981. The results found a weak evidence about earnings being a better signal for future cash flows as compared to cash flows variables. They discovered that traditional measures of cash flows were statistically superior predictors of future cash flows. [27] simulated the study of [9] on Australian data. Their sample comprises of 107 companies quoted on the Australian Stock Exchange using a time horizon of 1974 to 1985. They extended their study through an industry analysis. Their results were consistent with the evidence from [9]. However, the result indicated that the prediction power differed across various industries.

[18] assessed the power of cash flows and earnings to predict future cash flows. The sample consisted of 4,415 companies and the study period comprised of 1988 to 1990. The simple regression analysis was employed for the analysis using current year cash flow from operations as dependent variable and net income and cash flows from operation for last one or two years as independent variables. The results suggested that neither past net income nor past cash flows from operations provide a better predictor of future cash flows. [3] examined the value relevance of earnings by testing the predictive ability of earnings and cash flows from operations. Earnings ability to predict future earnings and future cash flows from operations one through eight years ahead was tested using annual data of 50 firms for period spanning 1935 to 1987. [3] reported that, the tests of the ability of earnings and cash flows to predict future cash flows from operations show that earnings used alone and together with cash flows are significant predictors of future cash flows.

[10] investigated the capacity of earnings and reported cash flow measures to forecast one- and two-period ahead cash flows. They utilised companies listed on the New Zealand Stock Exchange during the period from January 1989 to December 1992. Their sample contains fifty two firms for the period 1989-91 and forty firms for 1992. They used predictive models based on research methodology applied by [9]. The results provide evidence that cash flow is a better predictor of one- and two-period ahead than earnings.

[5] modelled operating cash flow and accrual earnings using a sample of 1337 firms for the years 1963 to 1992. Results reveal that earnings proxied by net income, is a better predictor of future operating cash flows than current operating cash flows. The difference varies with the operating cash cycle. Barth et al. (2001) built on this work by examining the role of earnings, cash flows and accruals components in predicting future operating cash flows. They used a sample of 164 firm-year observations from Compustat annual industrial and research files over the years 1987 to 1996. The models used several sets of explanatory variables including past earnings data, past cash flows data, aggregate accruals data; and disaggregated accruals data. To find out if the disaggregated accruals or aggregated accruals provide a better rationale for future cash flows. They discovered that disaggregating accrual accounting into components (i.e change in accounts payable, change in accounts receivable, and change in inventory, amortization, depreciation, and other accruals) significantly enhances predictive ability of current earnings to forecast future operating cash flows and is better than current operating cash flows.

[12] examined the relative predictive ability of earnings, cash flow from operations as reported in the cash flows statement, and two traditional measures of cash flows. Their sample includes 323 companies listed on the Australian Stock Exchange between 1992 and 2004 (3,512 firm-years). The results provided evidence that reported cash flows from operations has more power in predicting future cash flows than earnings and traditional cash flows measures. Further, the predictability of both earnings and cash flows from operations significantly increases with firm size. However, the superiority of cash flows from operations to earnings in predicting future cash flows is robust across small, medium and large firms.

[7] investigated the relative capability of current period cash flows and earnings, along with its components, to forecast the future cash flows from operations for a cross section companies listed on the Egyptian stock exchange. The study was for a period of eight years from 1999 to 2007. Multiple linear regression models was utilised, using past one year of earnings, operating cash flows, aggregated accruals and disaggregated accrual components as predictors and scaled by average total assets. The findings revealed that the ability of earnings were superior to operating cash flows when predicting one year-ahead operating cash flows. The predictive ability was enhanced further when accruals were disaggregated as worked out by [6], into the major accruals components and combined with operating cash flows for one year.

[15] evaluated the relative predictive ability of current accrual earnings and current operating cash flows for the prediction of future operating cash flows. The sample consisted of sixty eight service and seventy seven industrial shareholding companies listed on the Amman Stock Exchange (ASE) in Jordan for the period 2000 to 2009. Pooled OLS and fixed effect regressions were used to analyse the data. The results revealed that the predictive ability of operating cash flows is more significant than that of earnings for forecasting future operating cash flows for one- to three year ahead forecast horizon. It was found that such predictive ability is stronger for companies reporting positive operating cash flows, companies with short operating cycle, and large companies.

[19], examined the capacity of accruals to forecast future cash flows using shareholders industrial firms found on the Amman Stock Exchange, Jordan from 2005-2011. The study sample included 66 companies and the number of observations was 419 company-years. The study exposed that both current operating cash flows and the earnings have forecasting ability for the future operating cash flows within Jordan. On the other hand, these findings did not reveal any superior forecasting ability for future operating cash flows, to the current operating cash flows nor for the current aggregate earnings.

[16] explored the role of past accrual based earnings and past operating cash flows in the prediction of future operating cash flows of quoted non-financial companies in Nigeria. A sample of 40 quoted non-financial companies in the Nigeria Stock Exchange was used over the period 2001 to 2013. Employing the OLS method, the results suggested that cash flows are better predictors of future operating cash flows than past earnings, although both past cash flows and earnings have predictive ability in predicting future operating cash flows.

[8] explored the comparative predictive ability of earnings and operating cash flows variables on future operating cash flows within Ghana. They utilised panel data from listed companies on the Ghana Stock Exchange (GSE) from 2002 to 2012. They utilised Ordinary Least Squares (OLS) method in developing regression models. They employed current operating cash flows as a proxy for future cash flows Results from the findings revealed that earnings and operating cash flows are significant in predicting future operating cash flows but have different predictive powers. They found that earnings are better predictors of future operating cash flows than historical operating cash flows.

[17] explored the ability of operating cash flow and earnings in predicting future cash flow from operations. A sample of 26 Indian companies listed in Bombay stock exchange from 2002 to 2014 was utilised. OLS was used to explore the estimated regression model. The findings revealed that models of cash flows from operations have more predictive power than models of earnings. [28] investigated the relationship between earnings and cash flow in estimating future cash flow of banks in Nigeria. Data was obtained from financial statements of 21 commercial banks during the period 2004-2013. The least square regression analysis was used to design the models and estimate the corresponding parameters. This result revealed that past earnings has significant impact on future operating cash flows of firms in Nigeria. It was observed that a positive relationship exist between past earnings and future operating cash flows of banks in Nigeria.

[20] tested the ability of earnings computed under IFRS to predict future cash flows while examining the relative costs and benefits of IFRS adoption in the European Union. The study considers the contribution of net income, total comprehensive income and other comprehensive income to the usefulness of earnings to predict cash flows. Using samples from Continental European banks, the results shows that IFRS improve the ability of net income to predict future cash flows. They also found that comprehensive

income, too, provides relevant information to predict future cash flows, although with a measurement error which is higher than that in net income for greater lags of time.

In summary, the empirical evidences reviewed relating to the prediction of future cash flows by using past earnings and cash flows as predictors provide mixed results.

2. METHODOLOGY

Ex-post facto design is used in conducting this study. This design relies on previously generated data that will be used in exploring the relationship between accrual based earnings and cash flow of listed deposit money banks in Nigeria. As at 31st December 2016, Nigerian Stock Exchange had 14 money deposit banks that were quoted on the exchange. Due to the small population, the researcher adopts the study population as the sample size. However, a bank, Ecobank Transnational Incorporated, was eliminated because the reporting currency is dollars. The study sample therefore contains 13 deposit money banks listed on the Nigerian Stock Exchange from 2011 to 2016. The accounting data that is used must at least include one successive year. After applying the needed criteria, the study sample included 13 money deposit banks and the number of observations was 82 company-years. The data is obtained from the company financial statements, particularly the statement of comprehensive income and the statement of cash flows. The study uses [6] model to forecast the relationship that is found between earnings computed under IFRS and operating cash flows measures. It also investigated whether comprehensive income is a better predictor of future cash flows than net income. The comprehensive was disaggregated into net income and other comprehensive income in order to assess the specific contribution provided by the latter to the prediction of a firm's future cash flows. Univariate and multiple linear regression model are developed to test the hypotheses using the ordinary least squares method. The regression model adopted is consistent with prior studies of [6] which takes the form of:

$$Y_t = a^0 + a^1 X_{t-1} + a^2 X_{t-2} + \ldots a_i X_{t-i} + \varepsilon$$

Where,

Y_t is the outcome or predicted variable for the current year t

X_{t-i} are the predictor variables,
i is the number of years lagged from year t , which is one, two, or three years,
a^0 is the value of the outcome when the predictor is zero and
ε captures error terms (the omitted factors).

Four models are formulated for the study. For the first model, the ability of past cash flows to predict future cash flows is tested (eqns.1-3).

$$CFO_t = b1 + b_1 CFO_{t-1} + \varepsilon \text{ (one year lag)} \quad (1)$$

$$CFO_t = b1 + b_1 CFO_{t-1} + b_2 CFO_{t-2} + \varepsilon \text{ (two year lag)} \quad (2)$$

$$CFO_t = b1 + b_1 CFO_{t-1} + b_2 CFO_{t-2} + b_3 CFO_{t-3} + \varepsilon \text{ (three year lag)} \quad (3)$$

The second model is the net income accrual model (eqns.4-6). It tests the ability of net income to predict future cash flows. This is in line with the previous researches of [5] and [6] who found that earnings has the ability to predict future cash flows. It is expected that since net income includes realised or very short-time realisable gains, it will be more statistically significant than comprehensive income for one lag of time [20].

$$CFO_t = b1 + b_1 NI_{t-1} + \varepsilon \text{ (one year lag)} \quad (4)$$

$$CFO_t = b1 + b_1 NI_{t-1} + b_2 NI_{t-2} + \varepsilon \text{ (two year lag)} \quad (5)$$

$$CFO_t = b1 + b_1 NI_{t-1} + b_2 NI_{t-2} + b_3 NI_{t-3} + \varepsilon \text{ (three year lag)} \quad (6)$$

Model three tests the ability of comprehensive income in predicting future cash flows (eqns 7-9). In line with the previous studies of [20], since comprehensive income includes unrealised gains and losses, we expect comprehensive income to be more statistically significant for greater lags of time, as it usually takes a longer time to result in cash flows.

$$CFO_t = b1 + b_1 TCI_{t-1} + \varepsilon \text{ (one year lag)} \quad (7)$$

$$CFO_t = b1 + b_1 TCI_{t-1} + b_2 TCI_{t-2} + \varepsilon \text{ (two year lag)} \quad (8)$$

$$CFO_t = b1 + b_1 TCI_{t-1} + b_2 TCI_{t-2} + b_3 TCI_{t-3} + \varepsilon \text{ (three year lag)} \quad (9)$$

Lastly, in Model four, earnings is disaggregated into components of net income and other comprehensive income. Previous researchers

(Barth et al., 2001) have found that disaggregating earnings into components enhances the prediction of future performance. The following model (eqns 10-12) is formulated to achieve this.

$CFO_t = b1+b_1NI_{t-1}+b_2OCI_{t-1}+\varepsilon$ (one year lag) (10)

$CFO_t = b1+b_1NI_{t-1}+b_2OCI_{t-1}+b_3NI_{t-2}+b_4OCI_{t-2}+\varepsilon$ (two year lag) (11)

$CFO_t = b1+b_1NI_{t-1}+b_2OCI_{t-1}+b_3NI_{t-2}+b_4OCI_{t-2}+b_5NI_{t-3}+b_6OCI_{t-3}+\varepsilon$ (three year lag) (12)

Table 1 presents the measurement of the variables.

Data was analysed using descriptive statistics, Pearson correlation and OLS regression techniques. The descriptive statistics were used in data analysis to describe the research variables in terms of location and the dispersion of the data, it includes mean, standard deviation, minimum and maximum. Pearson correlation was employed to test for the presence of multicollinearity. To test the hypotheses, the study utilised F-statistic, Adjusted R^2 and the t-statistic with their associated p-values.

3. RESULTS AND DISCUSSION

Table 2 presents the descriptive statistics of the data obtained for this study (minimum, maximum, mean and standard deviation). The cash flows values ranges from -79% to 28.07%, net income from -8.75% to 4.55%, other comprehensive income from -1.32% to 1.26% and total comprehensive income from -8.79% to 13.7%. This shows that the minimum for all the variables are negative while the maximum are positive. The table reveals that cash flows are negative on the average (- 0.08%,- 0.2%,- 0.42%) except for period t-3 (2.65%), conversely the net income, other comprehensive income and total comprehensive income are all positive in mean (between 0.01% and 1.41%). This suggests that on the average, Nigerian banks report negative net cash flow and positive net and total comprehensive incomes. This means the quoted banks are not liquid but profitable on the average. The standard deviation for all the variables are positive, however the standard deviation of cash flow is higher than that of earnings. This suggests a higher variability in cash flows than earnings.

Table 3 shows the correlation matrix of past cash flows and current cash flows while Table 4 presents the correlation matrix of current cash flows and accrued based earnings (net income, other comprehensive income and total comprehensive income). The correlation coefficient between current cash flows and future cash flows are considerably low between 0.055 and 0.195. The correlation coefficient between cash flows and net income is significantly higher than that of cash flows and total comprehensive income at period t -1 and t - 2. This is due to the fact that total comprehensive income includes unrealized gains and losses. The correlation coefficients between cash flows and other comprehensive income are negative for period t-1 and t - 2. This might be due to unrealized gains that negatively affect the resulting cash flows. The correlation between net income, other comprehensive income and total comprehensive income does not indicate any multicollinearity except for total comprehensive income and net income at t_3 (99%) which is above 90%.

Table 1. Operationalization of variables

Variable type	Acronym	Measurement	Apriori
Dependent	CFO_t	Current operating cash flow / Average Total Assets	
Independent	CFO_{t-1}	Past operating cash flow / Average Total Assets	+
Independent	NI_{t-1}	Past Profit for the Year / Average Total Assets	+
Independent	OCI_{t-1}	Past Other Comprehensive Income / Average Total Assets	+
Independent	TCI_{t-1}	Past Total Comprehensive Income / Average Total Assets	+
Scale	Average Total Assets	Total Assets at beginning of period + Total Assets at the end of period / 2	

Source: Compiled by Researchers (2018)

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CFO	82	-.7900	.2807	-.0008	.1262
CFO_{t-1}	68	-.7900	.2807	-.0020	.1324
CFO_{t-2}	54	-.7900	.2807	-.0042	.1444
CFO_{t-3}	40	-.2294	.2807	.0265	.0971
NI_{t-1}	68	-.0875	.0455	.0118	.0195
NI_{t-2}	54	-.0875	.0455	.0112	.0214
NI_{t-3}	40	-.0875	.0455	.0083	.0237
OCI_{t-1}	68	-.0132	.0126	.0006	.0032
OCI_{t-2}	54	-.0132	.0126	.0001	.0032
OCI_{t-3}	40	-.0132	.0126	.0002	.0036
TCI_{t-1}	68	-.0879	.1370	.0141	.0249
TCI_{t-2}	54	-.0879	.1370	.0135	.0277
TCI_{t-3}	40	-.0879	.0442	.0082	.0241

Source: SPSS Output (2018)

Table 3. Cash flow model correlation

	CFO_t	CFO_{t-1}	CFO_{t-2}	CFO_{t-3}
CFO_t	1			
CFO_{t-1}	0.055	1		
CFO_{t-2}	0.112	0.056	1	
CFO_{t-3}	0.159	0.195	0.027	1

Source: SPSS Output (2018)

Table 4. Correlation matrix of Current Cash flow and Accrued Based Earnings

	CFO_t	NI_{t-1}	NI_{t-2}	NI_{t-3}	OCI_{t-1}	OCI_{t-2}	OCI_{t-3}	TCI_{t-1}	TCI_{t-2}	TCI_{t-3}
CFO_t	1									
NI_{t-1}	0.30*	1								
NI_{t-2}	0.08	0.31*	1							
NI_{t-3}	0.17	0.35*	0.32*	1						
OCI_{t-1}	-0.02	-0.01	-0.08	-0.48**	1					
OCI_{t-2}	-0.26	-0.11	0.01	-0.20	-0.19	1				
OCI_{t-3}	0.16	0.06	-0.11	0.03	0.21	-0.22	1			
TCI_{t-1}	0.18	0.80**	0.23	0.21	0.11	-0.09	0.05	1		
TCI_{t-2}	0.01	0.16	0.79**	0.23	-0.08	0.12	-0.09	0.11	1	
TCI_{t-3}	0.20	0.36*	0.30	0.99**	-0.44**	-0.22	0.18	0.21	0.22	1

Source: SPSS Output (2018)

3.1 Hypotheses Testing

The study hypotheses will be tested in this section. Table 5 presents the results of the regression analysis carried out on the cash flows model, while Tables 6, 7 and 8 provides the result of the regression analysis on the accruals based earnings model. Table 5 highlights the regression results of lagged cash flows (1 year lag, 2 years lag, and 3 years lag) on future cash flows. The p-value for the F-Statistics for the lagged cash flows are 0.792, 0.683, 0.657 respectively. This shows that the cash flows model at all lags are not significant in explaining future cash flows. The Adjusted R^2 are 0.053, -0.024 and -0.012 for 3 years lag, 2 years lag, and 1 year lag respectively. This means that the cash flows models explain about 5.3% of future operating cash flows for 1 year lag, -2.4% of future operating cash flows for 2 years lag and –1.2% of future operating cash flows for 3 years lag. The coefficients on CFO_{t-1}, CFO_{t-2} and CFO_{t-} are all positive expect for CFO_{t-1} for 3 years lag that is negative. The T-statistic (and their P-values), for all the variables are not significant at 1% level, 5% level or 10% level. The Durbin Watson statistics under the cash flows model were all less than 2, this an indicates that the residuals of the cash flows regression model were independent and uncorrelated.

Table 5. Summary statistics of regression of past cash flows on future operating cash flows

	Three-year lag	Two-year lag	One-year lag
Intercept	-1.461	-0.633	-0.288
p value	(0.153)	(0.530)	(0.774)
CFO_{t-1}	-0.145	0.340	0.447
p value	(0.885)	(0.735)	(0.657)
CFO_{t-2}	0.297	0.787	-
p value	(0.768)	(0.435)	-
CFO_{t-3}	0.968	-	-
p value	(0.340)	-	-
Adj R^2	0.053	-0.024	-0.012
F-Statistics	0.346	0.38s4	0.199
Prob(F-Stat)	(0.792)	(0.683)	(0.657)
Durbin-Watson	1.766	1.516	1.612
N	40	54	68

Source: SPSS Output (2018)

The result on Table 6 reveals the regression results of lagged net income (1 year lag, 2 years lag, and 3 years lag) on future cash flows. The Adjusted R^2 for 3 year lag, 2 year lag and 1 year lag are 0.462, 0.394 and 0.076 respectively. This reveals that the model explains 46.2%, 39.4% and 7.6% of the future cash flows for 3year lag, 2 year lag and 1 year lag respectfully. The F-Statistics shows that they are all significant, 3 and 2 years lag at 1% level ($p<0$) and 1 year lag at 5% level ($p<0.05$). This means that net income for 3year lag, 2 year lag and 1 year lag are highly significant in explaining future cash flows. The 3 years lag has the highest predictive ability of 46.4%. The p-values (p=0.000) of the T-statistic of NI_{t-1} for 3 year lag and 2 year lag are significant at 1% level, while the p- value (p=0.013) of NI_{t-1} for and 1 year lag is significant at 5% level. This confirms the validity of the findings of [5] and [6] who found that earnings has the ability to predict future cash flows. The result is in line with our expectation that since net income includes very short-time realisable gains, it will be more statistically significant for one lag of time. This also suggests that accounts prepared on net income basis are able to assist investors in predicting future cash flows of their investment over a one year horizon.

Table 7 reports the summary of the Ordinary Least Squares regression analysis which tests that ability of past total comprehensive income to predict the future operating cash flows.. The results show that the TCI_{t-1} for 3 year lag and 2 year lag are significant at 5% (p=0.018 and 0.031 respectively) in predicting the variations in

Table 6. Summary statistics of regression of past net income on future operating cash flows

	Three-year lag	Two-year lag	One-year lag
Intercept	-4.861	-4.719	-1.592
p value	(0.000)	(0.000)	(0.116)
NI_{t-1}	5.790	5.989	2.559
p value	(0.000)	(0.000)	(0.013)
NI_{t-2}	0.011	-1.165	-
p value	(0.992)	(0.250)	-
NI_{t-3}	-0.663)	-	-
p value	(0.512)	-	-
Adj R^2	0.462	0.394	0.076
F-Statistics	12.185	18.205	6.547
Prob(F-Stat)	(0.000)	(0.000)	(0.013)
Durbin-Watson	1.903	1.835	1.607
N	40	54	68

Source: SPSS Output (2018)

Table 7. Summary statistics of regression of past total comprehensive income on future operating cash flows

	Three-year lag	Two-year lag	One-year lag
Intercept	-2.480	-2.217	-0.995
p value	(0.018)	(0.031)	(0.323)
TCI_{t-1}	2.284	2.783	1.488
p value	(0.028)	(0.008)	(0.142)
TCI_{t-2}	0.277	-0.207	-
p value	(0.783)	(0.837)	-
TCI_{t-3}	0.690	-	-
p value	(0.495)	-	-
Adj R^2	0.091	0.098	0.018
F-Statistics	2.299	3.877	2.213
Prob(F-Stat)	(0.094)	(0.027)	(0.142)
Durbin-Watson	1.857	1.591	1.589
N	40	54	68

Source: SPSS Output (2018)

Table 8. Summary statistics of regression of past net income and other comprehensive income on future operating cash flows

	Intercept	NI_{t-1}	NI_{t-2}	NI_{t-3}	OCI_{t-1}	OCI_{t-2}	OCI_{t-3}
T Statistics	-4.471	5.751	-0.239	-0.215	0.949	-0.844	0.527
p value	(0.000)	(0.000)	(0.812)	(0.831)	(0.350)	(0.405)	(0.602)
Adj R^2	0.460						
F-Statistics	6.529						
Prob(F-Stat)	(0.000)						

Source: SPSS Output (2018)

future operating cash flows (CFO). The Adjusted R^2 values of 0.091, 0.098 and 0.018 for 3year lag, 2 year lag and 1 year lag respectively suggest that the past earnings lagged over the period of analysis can predict about 9.1%, 9.8% and 1.5% of the future operating cash flows of the listed money deposit banks. The p-value for the F-Statistics is significant at 10% level (p=0.094) for the 3 year lag, significant at 5% level for the two year lag (p=0.027) and not significant (p=0.142) for the 1 year lag. This shows that the total comprehensive model are only significant in explaining future cash flow for 2 and 3 years lag.

Table 8 presents the summary of the Ordinary Least Squares regression, which disaggregates the TCI variable into NI and OCI. The Adjusted R^2 is reported to be 0.46, this suggests that the past net income and other comprehensive income lagged over the period of analysis can predict about 46% of the future operating cash flow of the listed money deposit banks. On the basis of T-statistic, only the net income, NI_{t-1} for 1 year lag is positively significant (0.000), others are insignificant, The F-statistics reveals that the model is significant (p=0.000), this means that the net income together with the other comprehensive income are significant in explaining future cash flows.

4. CONCLUSION

In summary, the findings of this study confirms the hypotheses that past net income have significant ability in predicting future operating cash flows of quoted deposit money banks in Nigeria. This finding is consistent with the assertion of [1] and other scholars [5,6,7,8] that earnings provide a better indicator of future cash flows. It is also consistent with the studies of [20] that confirms the argument that net income which includes realised or very short-time realisable gains are more statistically significant for one lag of time.

The findings of this study also confirms the hypothesis that past total comprehensive income and its disaggregated components (NI and OCI) have significant ability in predicting future operating cash flows of quoted deposit money banks in Nigeria. This result is consistent with other studies that show that disaggregating earnings into components enhances the

prediction of a firm's future performance (e.g. [6], [20]). On the other hand, the hypothesis that past cash flows have significant ability in predicting future operating cash flows of quoted deposit money banks in Nigeria is not supported. This contradicts the previous work of [14,15,16,17].

Overall, this study provides evidence on the usefulness of earnings computed under IFRS to predict future cash flows of quoted deposit money banks in Nigeria. This results may be relevant to practitioners, academics, standard setters, policy makers and analysts. However, this result may not be applicable to other sectors of the Nigerian economy because deposit money banks have specific business characteristics and regulatory rules. Additional studies may consider other sectors of the Nigerian economy and the effect of company attributes on the forecasting abilities of past earnings and past cash flows. Further studies could also examine the influence of external non-economic parameters.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

List of Sampled Money Deposit Banks

1	Access Bank of Nigeria Plc
2	Diamond Bank Plc
3	First City Monument Bank Plc
4	Fidelity Bank Plc
5	First Bank Nigeria Plc
6	Guaranty Trust Bank Plc
7	Stanbic IBTC Bank Ltd
8	Sterling Bank Plc
9	United Bank for Africa Plc
10	Union Bank of Nigeria Plc
11	Unity Bank of Nigeria Plc
12	Wema Bank Plc
13	Zenith Bank Nigeria Plc

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Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history/24698