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Bank earnings management using commission and fee income

The role of investor protection and economic fluctuation

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Abstract

Purpose – The purpose of this paper is to investigate whether banks use commission and fee (CF) income to manage reported earnings as an income-increasing or income smoothing strategy.
Design/methodology/approach – The authors employ the regression methodology to detect real earnings management.
Findings – The authors find that banks use CF income for income smoothing purposes and this behaviour persists during recessionary periods and in environments with stronger investor protection. The implication of the findings is that bank non-interest income which achieves diversification gains to banks is also used to manipulate reported earnings.
Research limitations/implications – The findings show that real earnings management is prevalent among banks in Africa. Further research into earnings management should examine real earnings management among non-financial firms in developing regions.
Practical implications – From an accounting standard setting perspective, the evidence suggests the need for national/international standard setters to adopt strict revenue recognition rules that ensure that banks or firms report the actual fees they make, and to discourage banks from delaying (or deferring) the collection of fee income to manage or smooth reported earnings opportunistically.
Originality/value – This study contributes to the positive accounting theory (PAT) literature which examines the accounting and non-accounting decisions that influence managers' choice of accounting methods in financial reporting. Extending the PAT, the authors show that certain conditions can incentivize managers to engage in earning management such as during recessions and weak institutional quality or weak investor protection.

Keywords Real earnings management, Africa, Income smoothing, Non-interest income, Economic cycle, Investor protection

Paper type Research paper

1. Introduction

We examine whether banks use commission and fee (CF) income to manage earnings, the incentive to do so, and the influence of institutional and economic factors on this behaviour. We focus on bank CF income because CF income is considered to be a significant component of bank non-interest revenue (Smith *et al.*, 2003; DeYoung and Rice, 2004; Ozili, 2017a). In recent years, the low interest rate environment is claimed to have led to a decline in bank interest income and has encouraged banks to rely more on the non-interest source of funds to remain profitable (DeYoung and Rice, 2004). Although there are strong arguments for banks' reliance on non-interest income, non-interest income is also known to be unstable compared to interest income[1]. The unstable nature of banks' non-interest income can motivate managers to exert some discretion or control on the level of reported non-interest income, and in theory, the variability of income is predicted to create opportunities for

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managers to smooth reported earnings to achieve some desired profit levels (Greenawalt and Sinkey, 1988). However, the extent of this behaviour can be influenced by institutional quality (Leuz *et al.*, 2003), and by differing economic conditions (Ozili and Thankom, 2018). Therefore, it is important to understand how variation in the non-interest income component of earnings can affect bank financial reporting.

Given that CF income is a significant component of non-interest income (Smith *et al.*, 2003; DeYoung and Rice, 2004), we argue that bank managers have incentives to influence the reporting of CF income in an attempt to increase earnings or to smooth out abnormal fluctuations in earnings. Managers can delay the recognition of CF income to a future period or increase CF income in the current period to increase earnings to meet some desired reporting earnings outcomes. We test this prediction using bank data from a region, where there is no uniform regulation or uniform reporting for CF income.

Except for banks in Europe where there are some attempts to regulate and standardise some components of CF income, there is yet no uniform regulation or reporting for CF income among banks in Africa. The lack of standardisation in the accounting for bank revenue recognition among African countries can create opportunities for bank managers in the region to influence the reporting of CF income to manage reported earnings. The absence of non-uniform accounting rules for revenue recognition in the region suggests that managerial discretion will be a significant determinant of revenue recognition for banks in the region; this, therefore, provides a natural setting to investigate managerial discretion in revenue recognition for earnings management. In addition to the reasons above, this study is also motivated by the little focus on bank real activities-based earnings management (REM) compared to the extensive literature on bank accrual earnings management via loan loss provisions[2].

Since we are using data set from Africa, our study also responds and provides some insight into other issues or questions such as: do banks in Africa engage in real activities management? What are the incentives for REM among banks in the African region? Under what circumstances do REM occur among banks in Africa? To provide some answers to these questions, our study investigates whether bank revenues (in this case, CF income) are manipulated to influence the level of reported earnings particularly in an under-researched African region. To date, we are not aware of any study that has examined this question/topic in the context of banks in developed countries. In a developed country context, Stubben (2010) shows that firms have incentives to manipulate their revenue to manage earnings but his analysis did not examine banks. In contrast, we examine revenue-based earnings management among banks, and the banking literature has not considered bank revenue to be a possible earnings management tool.

One common approach used to test for earnings management among banks is to focus on one component of earnings and its relation to earnings before that component while controlling for factors that influence that component of earnings (see McNichols and Wilson, 1988; Ahmed *et al.*, 1999; McNichols, 2001; Ozili and Thankom, 2018). This is the approach we adopt in this paper. This approach is considered to provide a more precise estimate of managerial discretion in bank financial reporting (McNichols, 2001). Accordingly, we model CF income as a function of earnings before CF income while controlling for economic fluctuation, bank size, investor protection and other factors. Similar to Ahmed *et al.* (1999) and Stubben (2010), we model bank CF income as a function of its discretionary components (i.e. earnings before CF income) and its proposed non-discretionary components (i.e. the CF income growth rate, bank size and macroeconomic fluctuation).

Overall, the result indicates that African banks use CF income to smooth earnings and this behaviour is more pronounced when they are in recessionary periods and in environments with stronger investor protection. One implication of our findings is that African banks also use real activities-based techniques to influence the level of earnings not just accruals.

Our findings show that this behaviour is common across banks in most African countries. Our analysis in this paper is useful to accounting standard setters and bank regulators in the region who want to understand the extent to which bank managers exercise discretion in earnings, how they do it and the impact of this behaviour on earnings quality.

Our study makes three contributions to the literature. Our study contributes to the positive accounting theory (PAT) literature which examines the accounting and non-accounting decisions that influence managers' choice of accounting methods in financial reporting (Watts and Zimmerman, 1986). We show that the need to survive a recession and the presence of strong investor protection are two non-accounting decisions that influence bank managers' choice to engage in real earning management. Second, we provide evidence that banks in Africa use CF to manage (or to smooth) earnings, a finding which has not been clearly explored in prior literature. Third, by examining CF income, the study contributes to the literature on the relation between non-interest income and bank diversification by providing additional insight that non-interest income that achieves diversification gains is also used to manipulate (or smooth) reported earnings.

The rest of the paper is structured in the following way. Section 2 presents the theory and literature. Section 3 presents the research design, data and methodology. Section 4 reports the empirical results of the analysis. Finally, Section 5 concludes.

2. Theoretical and empirical literature

2.1 Theory

Several hypotheses provide alternative explanations for why firms manage reported earnings. For instance, the PAT's bonus plan hypothesis predicts that managers of firms will use accounting techniques or accounting numbers to increase earnings in order to increase the likelihood of receiving bonuses that depend on the earnings number, while the PAT's political cost hypothesis predicts that firms will use accounting techniques that lower the size of current earnings if reported earnings are expected to be too high in order to avoid regulatory scrutiny and political scrutiny of bank earnings by industry regulators (Watts and Zimmerman, 1986). Overall, PAT argues that the incentive to manage earnings is driven by the presence of explicit contracts (i.e. bonus plans, debt covenant violation and the firm's sensitivity to regulatory/political scrutiny).

On the other hand, the income smoothing hypothesis predicts that firms will use accounting procedures or accounting numbers to lower high earnings or to increase low earnings to smooth out the fluctuations in earnings (Ahmed *et al.*, 1999; Ozili and Thankom, 2018). Also, the information asymmetry hypothesis suggests that geographically diversified firms with complex structures have greater information asymmetry, and managers in such firms may exploit the additional information asymmetry to manage earnings (Amidu and Kuipo, 2015). Taken together, these hypotheses provide alternative theoretical explanations for earnings management practices among firms.

2.2 Literature review

2.2.1 Real earnings management. Zang (2011) shows that earnings management can occur through two channels: accruals earnings management and REM. Many studies focus on earnings management using discretionary accruals (e.g. Dechow and Sloan, 1991; Bens *et al.*, 2002; Kothari, 2001; Ozili and Outa, 2019), while very few studies investigate banks because of the additional regulations, disclosure requirements and the difficulties to determine actual accruals in banks. Regarding earnings management using real techniques, Roychowdhury (2006) defines real earnings management as departures from normal operational practices motivated by managers' desire to mislead some stakeholders into believing certain financial reporting goals have been met in the normal course of operations.

Regarding banks, the literature on REM among banks is rather scant, and Barth *et al.* (2017) confirm this. For instance, Beatty *et al.* (2002) find evidence that publicly traded US banks use real techniques, e.g. realised securities gains and losses, as well as loan loss provisions, to eliminate small decreases in earnings. Also, Barth *et al.* (2017) find evidence that banks use realised gains and losses on available-for-sale securities to smooth earnings. Among developing country studies, Hamdi and Zarai (2012) show that Islamic banks manage losses to avoid reporting losses and earning decreases. Ozili (2017b) investigates the use of accruals (loan loss provisions) to smooth income by African banks, and observes that African banks, particularly listed banks, use accruals to smooth income. Additionally, Ozili (2017b) finds that accruals are procyclical with economic fluctuations. Amidu and Kuipo (2015) examine 330 African banks from 29 African countries from 2002 to 2009 and find that more than two-thirds of the 29 countries use discretionary accruals to manage earnings. Similarly, Ozili (2015) shows that banks in Nigeria use loan loss provisions to smooth earnings over time. These studies do not focus on bank real earnings management via CF income.

Studies that test for the presence of earnings management among firms commonly use the total accrual approach that estimates non-discretionary accruals as a linear function of change in revenues (or cash revenue), change in gross property, plant and equipment; and the residual is taken as the measure of discretionary accruals or managerial discretion (Jones, 1991; Dechow *et al.*, 1995). This approach has been criticised for two reasons. First, it provides noisy and biased estimates of managed earnings (Bernard and Skinner, 1996; Thomas and Zhang, 2000). Second, the approach does not reveal information about the component of earnings that is used to manage earnings (Beneish, 2001; McNichols, 2001). In contrast, banking studies commonly follow the approach of McNichols and Wilson (1988) and Ahmed *et al.* (1999) that examines one component of earnings and its relation to earnings before the component while controlling for factors that influence the component of earnings. We follow this approach in this paper to investigate whether a significant component of bank revenue is used to manage earnings. Because revenues are a positive function of firm earnings, Plummer and Mest (2001), Caylor (2010) and Stubben (2010) have associated revenue-based earnings management with income-increasing earnings management, but these studies did not examine banks.

2.2.2 Bank commission and fee income. CF income is the largest component of bank non-interest income and the second main source of revenue to banks (Smith *et al.*, 2003; DeYoung and Rice, 2004). To date, the banking literature focus on how non-interest income/revenue relates to bank diversification benefits (Smith *et al.*, 2003), and increase in overall profitability of banks, with little or no attention to whether bank managers have incentives to influence or delay the recognition of income from fee-based activities to influence the level of reported earnings. For instance, DeYoung and Rice (2004) suggest that banks engage in non-interest activities to generate non-interest income to boost shortfalls in overall profitability, while Stiroh (2004) and Stiroh and Rumble (2006) argue that banks engage in non-interest activities to generate non-interest income to diversify bank income stream. DeYoung and Roland (2001) show that while income from fee-based activities increased bank earnings, it also increased the volatility of earnings thus signalling little or no diversification gains. Overall, there is yet no consensus on whether bank non-interest income achieves its intended diversification benefits. Taken together, prior literature do not explicitly view bank CF income as a possible earnings management tool for banks, and whether the presence of institutions that constrain managerial behaviour discourages earnings management behaviour, if present. Our study explicitly examines this topic, by isolating CF income component of bank non-interest revenue to examine how bank managers' reporting for CF income relates to bank earnings.

2.2.3 Economic conditions. Some studies show that banks have an incentive to use financial/accounting numbers to increase or lower earnings during upturns and downturns in the economy (e.g. Ozili and Outa, 2017; El Sood, 2012; Beatty and Liao, 2009; Liu and Ryan, 2006). These studies document that banks use discretionary accruals to increase earnings during a recession to avoid reporting losses during the period. For instance, El Sood (2012) finds that US banks use accruals to increase earnings to avoid reporting a loss during a recession (i.e. the 2007–2009 financial crisis period), while Beatty and Liao (2009) find similar evidence for US banks. Liu and Ryan (2006), on the other hand, find that banks smooth income to reduce high profits during economic boom. Ozili and Outa (2017) in their survey of literature demonstrate that the earnings distribution of banks is directly linked to economic fluctuations – high profits during good times and low profits during bad times. We complement these studies and investigate whether banks use CF income to manage/smooth earnings during upturns and downturns in the economy.

3. Research design

3.1 Contextual framework

Banking systems in African countries vary largely in terms of the level of financial development, banking concentration, financial deepening, regulation and supervision, corporate governance, investor protection, banking population, bank transparency, etc. Beck and Cull (2013) point out that banking systems in Africa are relatively more volatile compared to developed countries. They posit that the frequent fluctuations in the income stream of firms and households in the region sometimes make it difficult for individuals and firms to repay loans as at when due; hence, contributing to income instability which can translate to banking system instability in the region. We argue that this claimed banking instability in the African region can create incentives for banks in the region to use earnings management techniques to stabilise reported earnings over time when they are in fluctuating banking environments.

Regarding institutions, an African context to the study of bank real earnings management practices is important because institutions that constrain bank behaviour across African countries significantly differ from institutions that constrain bank earnings management behaviour in Europe or the USA due to differences in the level of development, extent of enforcement and so on. Also, the growing need for African countries to establish institutions that promote increased bank transparency, protection of the rights of minority shareholder and greater director liability makes this study relevant; hence, the need to understand how REM is influenced by institutional quality.

3.2 Data

We based our sample on African banking institutions in Bankscope database which contains accounting information for a large number of banks in the region. The sample consists of banks from 18 African countries during the 2004–2013 period. The sample period selected allows us to focus on the events occurring within the specified pre- and post-crisis event window, where no significant regional change in accounting rules had taken place at the time (2004–2013)[3]. The countries in the sample include: Algeria, Angola, Botswana, Cameroun, Egypt, Ethiopia, Mauritius, South Africa, Nigeria, Kenya, Togo, Tanzania, Ghana, Morocco, Uganda, Tunisia, Senegal and Zambia.

We use three country-level variables: real gross domestic product growth rate, banking competition and investor protection. Bankscope database also provides cross-country data for banking competition (Lerner index) archived in World Bank databank database. We obtain our real gross domestic growth rate variable from the World Economic forum (see Table AI for the overview of data sources used for our empirical analysis). We exclude

countries that do not have institutional data relevant to the study. All banks that report data for CF income for at least three years and have the relevant country-level data are included in the analysis. Regarding bank type, we did not make a distinction between types of African banks.

To clean up the data, we eliminated outliers above the 99th percentile and below the 1st percentile, to minimise outliers and measurement errors. Second, we did not eliminate 2008 bank-year observations to control for the impact of the 2008 financial crisis because we did not have a reason to believe that the balance sheet of African banks was "adversely" affected by the 2008 crisis. The resulting sample comprises of 271 banks. Also, because some banks have missing values, the data are an unbalanced panel.

A first look at the sample descriptive statistics in Table I reveals that CF income for most African countries is around or above the mean CF, while CF is much lower for banks in Mauritius, Morocco and Tunisia. Also, the negative values reported for EBCF for some African countries indicate that CF is a significant portion of bank earnings, if excluded, would lead to negative earnings or losses. Finally, the number of observations is large in most columns in Table I, but the observations in each column are rather unbalanced across all columns due to missing values for some variables which are not reported in Bankscope database.

3.3 Research design

To test whether African banks use CF income to manage or smooth income, we use a variation of the models used by prior studies (e.g. Ahmed *et al.*, 1999; Barth *et al.*, 2017; Ozili and Thankom, 2018), which examine the relation between some bank accounting number and earnings before the accounting number while controlling for other factors that might influence the magnitude of the accounting number. Our main modified multivariate regression model is given as:

$$\mathrm{CF}_{it} = \alpha_0 + \alpha_1 \mathrm{EBCF}_{it} + \alpha_2 \Delta\mathrm{CFR}_{it} + \alpha_3 \mathrm{SIZE}_{it} + \alpha_4 \Delta\mathrm{GDP}_t + \alpha_5 \mathrm{BANKdummies} + \alpha_6 \mathrm{COUNTRYdummies} + e_{it}. \quad (1)$$

All variables are defined in Table II. CF is the dependent variable measured as net CF income deflated by bank total asset. The CF variable captures reported CF income decisions of bank managers that are specific to the bank. EBCF is the earnings management variable of interest, measured as earnings before tax and net CF income. Barth *et al.* (2017) intuitively show that, if firms use a revenue item to increase earnings, a positive relation between the revenue item and reported earnings is expected while a negative sign is expected if banks use a revenue item to smooth earnings which can be achieved by reporting fewer revenue items in order to decrease too high earnings. Accordingly, we predict a positive sign for the EBCF coefficient if African banks use CF income to increase earnings as an income-increasing strategy and we predict a negative sign for the EBCF coefficient if African banks use CF income to smooth reported earnings.

Additionally, we test whether African banks use CF to manage/smooth earnings when they expect losses or when they are more profitable. To test for this, two dummy variables are introduced: NEG that takes the value 1 if EBCF is negative and 0 otherwise; and POS that takes the value 1 if EBCF is above-the-median EBCF and 0 otherwise. The POS and NEG variables are then interacted with EBCF. POS×EBCF tests whether banks have the incentive to use CF to manage/smooth earnings when they are more profitable (i.e. above-median EBCF). NEG×EBCF tests whether banks have the incentive to use CF to manage/smooth earnings when they expect losses. The expanded model is shown below:

$$\mathrm{CF}_{it} = \alpha_0 + \alpha_1 \mathrm{EBCF}_{it} + \alpha_2 \Delta\mathrm{CFR}_{it} + \alpha_3 \mathrm{SIZE}_{it} + \alpha_4 \Delta\mathrm{GDP}_t + \alpha_5 \mathrm{POS}_{it} + \alpha_6 \mathrm{POS} \times \mathrm{EBCF}_{it} + \alpha_7 \mathrm{NEG}_{it} + \alpha_8 \mathrm{NEG} \times \mathrm{EBCF}_{it} + e_{it}. \quad (2)$$

Table I.
Descriptive statistics (number of observations per country)

Country	Mean CF	Mean ΔCFR	Mean EBCF	Mean SIZE	Mean ΔGDP	Mean LERNER	Mean INVPRO	Mean LEGAL	No. of banks
Algeria	0.017 (132)	1.39 (115)	0.004 (132)	14.32 (142)	3.1 (150)	0.57 (120)	5 (135)	−0.71 (120)	15
Angola	0.015 (99)	2.49 (86)	0.008 (99)	13.88 (102)	10.8 (130)	0.43 (104)	5.3 (117)	−1.34 (104)	13
Botswana	0.015 (99)	0.31 (84)	0.034 (99)	12.90 (102)	7.6 (120)	0.206 (84)	5.4 (108)	0.63 (96)	12
Cameroun	0.025 (36)	−0.04 (33)	−0.006 (39)	13.09 (54)	3.5 (60)	0.388 (48)	4.3 (54)	−1.12 (54)	6
Egypt	0.013 (345)	0.087 (304)	0.001 ((345)	14.83 (345)	4.6 (360)	0.135 (240)	3.6 (324)	−0.12 (288)	16
Ethiopia	0.014 (82)	1.33 (72)	0.018 (82)	13.28 (82)	11.0 (100)	0.537 (80)	3.3 (90)	−0.72 (80)	10
Ghana	0.027 (109)	0.20 (94)	0.009 (109)	13.11 (109)	7.5 (150)	0.348 (120)	6.3 (135)	−0.07 (120)	15
Kenya	0.018 (234)	0.189 (209)	0.007 (234)	12.47 (237)	5.3 (240)	0.318 (192)	5 (216)	−0.96 (192)	24
Mauritius	0.006 (121)	0.153 (106)	0.009 (121)	13.68 (124)	3.9 (140)	0.475 (112)	7.7 (126)	0.91 (112)	14
Morocco	0.007 (99)	0.116 (86)	0.015 (99)	16.01 (104)	4.4 (130)	0.293 (104)	3.4 (117)	−0.18 (104)	13
Nigeria	0.023 (59)	0.153 (43)	0.185 (59)	15.73 (63)	8.8 (160)	0.185 (128)	5.7 (144)	−1.22 (128)	16
Senegal	0.015 (80)	1.37 (68)	−0.003 (80)	12.70 (92)	3.8 (100)	0.313 (80)	3 (90)	−0.25 (80)	10
South Africa	0.032 (269)	0.309 (239)	−0.002 (269)	14.90 (272)	3.3 (290)	0.264 (232)	8 (261)	0.10 (232)	29
Tanzania	0.020 (147)	0.223 (131)	−0.004 (147)	12.21 (147)	6.7 (160)	0.312 (128)	4.9 (144)	−0.41 (128)	16
Togo	0.017 (55)	0.17 (48)	0.001 (55)	12.41 (59)	3.5 (70)	0.244 (56)	3.7 (63)	−0.94 (56)	7
Tunisia	0.008 (191)	0.12 (166)	0.002 (191)	13.74 (191)	3.9 (200)	0.250 (160)	4.8 (180)	0.13 (180)	20
Uganda	0.025 (138)	0.338 (117)	−0.006 (136)	11.98 (180)	7.1 (136)	0.332 (105)	4.7 (189)	−0.45 (168)	21
Zambia	0.034 (108)	0.246 (94)	−0.027 (108)	11.77 (114)	7.8 (140)	0.279 (112)	5.3 (126)	−0.51 (112)	14
Total									271
Mean	0.019	0.265	0.003	13.51	5.74	0.322	5.23	−0.36	
Median	0.014	0.11	0.005	13.24	5.17	0.302	5.00	−0.39	
SD	0.02	1.97	0.26	1.94	3.91	0.650	1.48	0.58	
Observation	2,215	1,914	2,213	2,328	2,710	2,045	2,439	2,168	

Notes: CF = net commission and fee income to total asset ratio; EBCF = earnings before tax and commission and fee income to total assets; SIZE = natural logarithm of total asset; ΔCFR is change in commission and fee income outstanding; ΔGDP is real gross domestic product growth rate; INVPRO = minority shareholder rights protection; LERNER = banking competition; LEGAL = quality of legal enforcement. Numbers of observations are reported in parenthesis. The final number of observations for each country is reported in parenthesis (below the mean values)

Variable	Description	Source
CF	Net commission and fee income divided by total asset	Bankscope
SIZE	Natural logarithm of total asset	Bankscope
ΔCFR	Change in net commission and fee income outstanding	
EBCF	Earnings before net commission and fee income (profit before tax minus net commission and fee income) divided by total asset	Bankscope
ΔGDP	Real gross domestic product growth rate	World Economic Forum archived in Worldbank database
LEGAL	Rule of law index measures the quality of the legal system across countries	Kaufmann, World Governance indicator
INVPRO	Investor protection variable that measure the extent of protection of minority shareholder rights	La Porta from Doing Business Project archived in Worldbank Database
LERNER	Cross-county banking competitiveness	Bankscope archived in Worldbank database

Table II.
Definition of variables

For the control variables, ΔCFR captures a contemporaneous change in the absolute amount of bank net CF income. This variable controls for the impact of contemporaneous fluctuation in CF income that may influence bank managers' decision on the amount of CF income to be reported in the current period. ΔCFR is change in the absolute value of net CF income given as $[(CFR_t - CFR_{t-1})/CFR_{t-1}]$. When banks expect unstable CF income in the next period, they will have incentives to report more fee income in the current period to compensate for subsequent periods that will yield lower CF income. Hence, we predict a positive relation between CF and ΔCFR.

The SIZE variable is included to control for the effect of bank size on CF income. Anandarajan *et al.* (2003) suggest that large banks are considered to have a high level of business activities and a large client base for which they charge fees and commission in exchange for the services offered. Following this reasoning, we expect banks with a high level of business activities to generate more CF income; that is, large banks should have more fee income; therefore, we expect a positive sign for the SIZE coefficient. SIZE is measured as the natural logarithm of total bank assets.

Real gross domestic product growth rate, ΔGDP, controls for the impact of economic cycle fluctuation on bank CF income. Because bank clients will be able to pay for the services offered to them during good economic conditions compared to periods of economic downturns, bank CF income is expected to be relatively substantial during periods of economic prosperity and lower during economic downturns. Hence, we predict a positive sign for ΔGDP coefficient.

As an additional test, we check whether banks use CF income to manage earnings when they are going through periods of economic recession or prosperity. To capture this, we introduce two dummy variables into the analysis: REC that takes the value 1 when ΔGDP is negative and 0 otherwise, and BOOM that takes the value 1 when ΔGDP is above-the-median ΔGDP and 0 otherwise. REC and BOOM variables are then interacted with EBCF to test whether the relation between earnings and CF income depends on transient states of the economy:

$$CF_{it} = \alpha_0 + \alpha_1 EBCF_{it} + \alpha_2 \Delta CFR_{it} + \alpha_3 SIZE_{it} + \alpha_4 \Delta GDP_t + \alpha_5 REC_{it} + \alpha_6 REC \times EBCF_{it} + \alpha_7 BOOM_{it} + \alpha_8 BOOM \times EBCF_{it} + e_{it}. \quad (3)$$

Our country-level variables control for the influence of cross-country investor protection and competition that might influence the reporting of bank CF income. Fonseca and González (2008) and Ozili (2018) argue and show evidence that strong investor protection and legal enforcement discourages bank income smoothing behaviour via discretionary accruals.

Similarly, we use "INVPRO" and "LEGAL" to control for the protection of minority shareholder rights and the quality of the legal system across African countries, respectively. Higher values of the two variables indicate the stronger protection of minority shareholders rights and higher legal enforcement quality. We also use the Lerner index to control for banking competitiveness across countries. Beck *et al.* (2013) also use the Lerner index to control for cross-country banking competition. Banks in highly competitive banking environments may charge lower fees for services offered to clients in order to attract new clients and/or to retain existing clients. Therefore, we expect a negative relation between CF and the Lerner index variable. Finally, we include the error term. The expanded equation is given as:

$$\begin{aligned} \mathrm{CF}_{it} = {} & \alpha_0 + \alpha_1 \mathrm{EBCF}_{it} + \alpha_2 \Delta\mathrm{CFR}_{it} + \alpha_3 \mathrm{SIZE}_{it} + \alpha_4 \Delta\mathrm{GDP}_t \\ & + \alpha_5 \mathrm{REC}_{it} + \alpha_6 \mathrm{REC} \times \mathrm{EBCF}_{it} + \alpha_7 \mathrm{BOOM}_{it} \\ & + \alpha_8 \mathrm{BOOM} \times \mathrm{EBCF}_{it} + \alpha_9 \mathrm{LEGAL} + \alpha_{10} \mathrm{LEGAL} \times \mathrm{EBCF} \\ & + \alpha_{11} \mathrm{INVPRO} + \alpha_{12} \mathrm{INVPRO} \times \mathrm{EBCF} + \alpha_{13} \mathrm{LERNER} \\ & + \alpha_{14} \mathrm{LERNER} \times \mathrm{EBCF} + e_{it}. \end{aligned} \tag{4}$$

To test the robustness of the main econometric results, we first run the fixed effects OLS estimation to account for bank and period unobserved heterogeneity between banks and across periods. Also, by controlling for bank fixed effect, the fixed effect estimation addresses omitted variables bias that may be associated with the main model in Equation (1). Also, since our explanatory variables and institutional variables are time-varying, we also find it more appropriate to use the fixed effect estimation rather than pooled OLS. The Hausman test also shows that fixed effect estimation is a more appropriate estimation technique. However, we later use pooled OLS estimation when we introduce two time-invariant variables.

Finally, we test whether the use of CF to manage/smooth bank earnings exhibits forward-looking properties. Bushman and Williams (2012) use this approach and find that managers exploit their discretion in forward-looking reporting of discretionary accruals to manage earnings. To test for forward-looking behaviour, we take the lag (or beginning values) of the explanatory variables in Equation (1) except for EBCF and ΔGDP variables. This approach ensures that the CF coefficient only picks up the extent to which banks' reporting of CF income is influenced solely by earnings consideration and macroeconomic considerations without reference to current information about bank non-interest income determinants. This lagged approach also allows us to test for the persistence of CF income over time. The model we adopt for this analysis is similar to Bushman and Williams (2012), and is given as:

$$\mathrm{CF}_{it} = \mathrm{CF}_{it-1} + \alpha_1 \mathrm{EBCF}_{it} + \alpha_2 \Delta\mathrm{CFR}_{it-1} + \alpha_3 \mathrm{SIZE}_{it-1} + \alpha_4 \Delta\mathrm{GDP}_t + e_{it}. \tag{5}$$

We estimate the model in Equation (5) by using Arellano and Bond (1991) generalised-method-of-moments first difference estimator. This technique addresses the presence of unobserved bank-specific effects, which is eliminated by taking first differences of all variables; the autoregressive process in the data regarding the persistence of bank CF income and the potential endogeneity of the explanatory variables with the error term.

4. Result

4.1 Main result

The main result is reported in Column 1 of Table III. The EBCF coefficient is negative and significant at the 1 per cent level and indicates that banks in the African region use CF income to smooth earnings. This is consistent with the income smoothing hypothesis and

Table III. Main regression (fixed effect)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C	0.105*** (4.24)	0.103*** (4.35)	0.103*** (4.38)	0.105*** (4.17)	0.108*** (4.14)	0.101*** (4.22)	0.129*** (4.01)	0.133*** (3.95)
ΔCFR	0.0002 (1.27)	0.0002 (1.25)	0.0002 (1.25)	0.0002 (1.24)	0.0002 (1.28)	0.0002 (1.21)	0.0002 (1.26)	0.0002 (1.20)
EBCF	−0.136*** (−3.72)	−0.152*** (−3.07)	−0.103* (−1.94)	−0.133*** (−3.58)	−0.130*** (−2.92)	0.266** (2.12)	−0.230*** (−3.58)	−0.322** (−2.49)
SIZE	−0.006*** (−3.43)	−0.006*** (−3.52)	−0.006*** (−3.58)	−0.006*** (−3.43)	−0.007*** (−3.42)	−0.006*** (−3.74)	−0.008*** (−3.50)	−0.008*** (−3.37)
ΔGDP	0.00003 (0.41)	0.00002 (0.30)	0.00002 (0.22)	0.0001 (0.88)	−0.0001 (−1.51)	0.00007 (0.88)	0.00006 (0.81)	0.00003 (0.42)
POS		−0.0004 (−0.51)						
NEG			0.001* (1.67)					
REC				0.001 (1.04)				
BOOM					0.002** (2.15)			
INVPRO						0.001*** (3.22)		
LEGAL							−0.006 (−1.61)	
LERNER								−0.005 (−1.01)
POS×EBCF		0.043 (0.65)						
NEG×EBCF			−0.038 (−0.57)					
REC×EBCF				−0.175** (−1.99)				
BOOM×EBCF					−0.011 (−0.25)			
INVPRO×EBCF						−0.070*** (−2.60)		
LEGAL×EBCF							−0.169** (−2.43)	
LERNER×EBCF								0.494 (1.39)
Adjusted R^2	76.35	76.36	76.40	76.50	76.43	77.86	81.63	81.19
F-statistic	22.81	22.66	22.71	22.83	22.74	24.65	24.39	23.05
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observation	1,912	1,912	1,912	1,912	1,912	1,910	1,406	1,365

Notes: All estimations include robust standard errors clustered by bank and year. Bank and year fixed effects are included. CF = net commission and fee income to total asset ratio; POS = dummy variable that takes the value 1 when EBCF ratio is above-the-median EBCF ratio and 0 otherwise; NEG = dummy variable that takes the value 1 when EBCF is negative and 0 otherwise; REC = dummy variable that takes the value of 1 during periods of economic downturns, that is, periods with negative ΔGDP growth rate, and 0 otherwise; BOOM = dummy variable that takes the value of 1 for periods of economic prosperity, that is, periods with above-the-median ΔGDP growth rate, and 0 otherwise; LEGAL = quality of legal systems across countries; INVPRO = protection of minority shareholders rights; and LERNER = banking competitiveness. *t*-Statistics are reported in parentheses with *,**,***Indicating 10, 5 and 1 per cent significance levels, respectively

is consistent with Barth *et al.* (2017) who find that banks use real techniques to smooth income. The result implies that African banks report fewer CF income to lower high earnings and report higher CF income to increase low earnings, so that reported earnings are never too high or too low, to achieve income smoothing. Ozili (2015) also find evidence for income smoothing among Nigerian banks, and Ozili and Thankom (2018) find evidence for income smoothing among European systemic banks.

The control variables report the predicted signs except for SIZE. ΔCFR reports the expected positive sign but is insignificant while SIZE coefficient is negatively significant, indicating that large banks report fewer CF income. ΔGDP coefficient reports the predicted positive sign but is insignificant, implying that reported CF income by African banks does not exhibit significant cyclical behaviour in response to changing economic conditions in the African region.

4.2 Additional analysis: transient effect

Columns 2 and 3 of Table III show that the POS×EBCF and NEG×EBCF coefficients are insignificant. Column 4 reports a negative sign for REC×EBCF coefficient and is significant at the 5 per cent level, indicating that the use of CF income to smooth income by African banks is more pronounced during economic downturns/recessions. Beatty and Liao (2009) and El Sood (2012) document similar evidence for accruals. BOOM×EBCF, on the other hand, reports a negative but insignificant sign and is inconsistent with Liu and Ryan (2006).

Regarding investor protection and banking competition, INVPRO×EBCF coefficient reports a negative sign and is significant at the 1 per cent level. This indicates that bank income smoothing via CF income is more pronounced in environments that have stronger protection of minority shareholders rights. LEGAL×EBCF is negatively significant at the 5 per cent level, indicating that bank income smoothing via CF income is also pronounced in environments with higher legal enforcement quality. Taken together, these findings indicate that African bank managers are more likely to use real techniques to smooth bank earnings when they are in strong legal and investor protection environments. Also, LERNER×EBCF coefficient reports a positive but insignificant sign. Overall, the results indicate that African banks use CF income to smooth earnings and this behaviour is more pronounced when they are in recessionary periods and in environments with stronger investor protection.

4.3 Cross-country analysis

Next, we undertake country-specific analysis to control for the bias that international analysis ignores national aspects that differ by country. We re-run the model for each country and include real GDP growth rate but exclude the institutional variables from the model. EBCF and ΔGDP are the variables of interest here. Table IV reports the results. As can be observed, EBCF coefficient reports a negative sign for 14 countries (Algeria, Angola, Botswana, Cameroun, Egypt, Ethiopia, Ghana, Kenya, Nigeria, Senegal, South Africa, Tanzania, Tunisia and Zambia). Of these, EBCF coefficient is negatively significant for banks in eight African countries (Algeria, Cameroun, Ethiopia, Ghana, Nigeria, Senegal, South Africa and Tanzania), indicating evidence for earnings smoothing via CF income. Also, EBCF coefficient is positively significant for banks in Mauritius, indicating evidence for income-increasing earnings management. ΔGDP coefficient is negatively significant in Zambia, Togo and Morocco, indicating a counter–cyclical relation between CF and economic cycle fluctuations. Also, procyclical CF income behaviour is observed in Cameroun and Ethiopia as indicated by the positively significant ΔGDP coefficient. Overall, the result suggests that earnings smoothing is common among countries in our sample. Also, the link between CF income and the economic cycle across countries in the sample is mostly weak (insignificant). This weak link provides some justification for banks' involvement in non-interest activities as income generated from such activities are not significantly correlated with business cycle fluctuations.

Table IV. County-specific (pooled OLS) regression

Country	β_0	EBCF	ΔCFR	SIZE	ΔGDP	Adj. R^2	F-stat.
Algeria	−0.060** (−2.44)	−0.293*** (−2.77)	−0.0004*** (−3.54)	0.006*** (3.29)	0.0003 (0.54)	78.14	23.63
Angola	0.042** (2.51)	−0.009 (−0.38)	0.0001*** (4.51)	−0.002* (−1.71)	0.00006 (0.55)	78.66	20.59
Botswana	0.135*** (2.87)	−0.016 (−0.63)	0.0005 (1.24)	−0.009** (−2.54)	−0.0002 (−1.14)	79.98	23.11
Cameroun	0.159*** (4.44)	−0.547** (−2.36)	−0.0009 (−1.41)	−0.012*** (−4.14)	0.005*** (3.97)	88.34	26.25
Egypt	0.331*** (4.02)	−0.042 (−0.23)	0.005 (0.57)	−0.022*** (−3.91)	−0.0004 (−0.91)	59.71	11.69
Ethiopia	−0.085*** (−3.17)	−0.343*** (−5.17)	−0.0001** (−2.54)	0.007*** (3.98)	0.0009** (1.96)	66.70	11.94
Ghana	0.028 (0.99)	−0.045* (−1.84)	0.004 (1.17)	−0.0001 (−0.06)	0.00002 (0.08)	22.29	2.48
Kenya	0.047*** (4.91)	−0.038 (−1.13)	0.003** (2.38)	−0.002*** (−2.98)	−0.00008 (−0.64)	84.56	43.21
Mauritius	0.016 (1.38)	0.068* (1.74)	0.0009*** (2.85)	−0.0008 (−0.93)	−0.0001 (−0.64)	68.57	14.48
Morocco	0.028 (1.59)	0.031 (0.31)	0.005** (2.40)	−0.001 (−1.17)	−0.0003* (−1.84)	86.65	35.47
Nigeria	0.128*** (3.52)	−0.043** (−1.97)	0.002 (1.27)	−0.007*** (−3.01)	−0.0005 (−1.02)	98.56	137.4
Senegal	−0.021 (−0.92)	−0.146** (−2.47)	−0.0001 (−0.87)	0.003* (1.71)	−0.0002 (−0.33)	71.61	14.00
South Africa	0.382*** (5.42)	−0.423*** (−3.75)	0.0009 (0.66)	−0.025*** (−5.09)	0.0004 (0.91)	85.34	44.40
Tanzania	0.034** (1.90)	−0.119*** (−2.76)	−0.00001* (−1.88)	−0.001 (−0.97)	0.0005 (1.19)	81.17	30.49
Togo	0.036*** (3.87)	0.002 (1.60)	0.006 (0.43)	−0.001* (−1.67)	−0.0001*** (−2.77)	84.52	26.66
Tunisia	−0.001 (−0.12)	−0.011 (−0.88)	0.0009** (2.37)	0.0007 (0.91)	0.00002 (0.29)	80.33	30.29
Uganda	0.066 (1.07)	0.015 (0.33)	−0.0008 (−0.68)	−0.004 (−0.72)	0.0001 (0.37)	71.51	12.92
Zambia	0.239*** (3.64)	−0.061 (−0.40)	−0.0003* (−1.92)	−0.016*** (−2.98)	−0.002** (−2.32)	59.25	8.95
Model	$CF_{it} = \alpha_0 + \alpha_1 EBCF_{it} + \alpha_2 \Delta CFR_{it} + \alpha_3 SIZE_{it} + \alpha_4 \Delta GDP_t + e_{it}$						

Note: Robust standard error correction is applied

4.4 Pre- and post-financial crisis

Next, we test whether earnings management is pronounced in the post-financial crisis period relative to the pre-financial crisis period. To do this, we create a financial crisis dummy variable (CRISIS) and assign a value "1" for the post-crisis period (2009–2013) and assign a value of "0" for the pre-financial crisis period (2004–2007)[4]; thereafter, we interact the financial crisis variable with the earnings management variable (EBCF). The result is reported in Column 3 of Table V. The EBCF coefficient is significant but the interaction of EBCF with CRISIS is insignificant, indicating that there is no evidence for bank earnings management via CF income in the post-crisis period. More so, the CRISIS variable is not statistically significant, indicating that the post-crisis period did not have a significant effect on bank earning management using CF income in Africa, after the financial crisis.

4.5 Robustness

First, the correlation matrix in Table AI shows that the correlation among the variables is sufficiently low and suggests that multicollinearity is not an issue in the analysis. Second, we re-estimate the models using the natural logarithm of real GDP growth rate as an alternative measure to capture non-negative fluctuations in the economic cycle instead of

	Forward-looking discretion (Arellano–Bond GMM)		Pre-and post-financial crisis	Listed vs Unlisted	Without South Africa
	(1)	(2)	(3)	(4)	(5)
C			0.037*** (11.81)	0.043*** (12.07)	0.069*** (4.21)
CF_{t-1}	0.754** (2.43)	0.759** (15.59)			
CF_{t-2}		0.033 (0.99)			
ΔCFR			0.00002 (0.53)	0.0002 (0.61)	0.0001 (1.06)
ΔCFR_{t-1}	0.001 (0.47)	0.002** (2.55)			
EBCF	−0.040 (−0.16)	−0.056 (−1.16)	−0.266*** (−3.14)	−0.213*** (−6.47)	−0.053*** (−3.24)
SIZE			−0.001*** (−7.16)	−0.002*** (−8.04)	−0.004*** (−3.20)
$SIZE_{t-1}$	0.001 (0.06)	0.006 (0.80)			
ΔGDP	0.0007 (0.49)	0.0007*** (2.80)	0.0001 (1.25)	0.0001 (1.26)	0.00009 (1.29)
LISTED				0.008*** (4.25)	
LISTED×EBCF				−0.006 (−0.06)	
CRISIS			0.0009 (0.67)		
CRISIS×EBCF			0.077 (0.84)		
Sarjan (J) test	27.81	25.24			
Hansen p-value	0.63	0.66			
No. of instrument	44	44			
AR(1)	0.000	0.000			
AR(2)	0.378	0.448			
Adjusted R^2			13.39	15.78	74.34
F-statistic			54.26	63.13	20.08
Observation	1,638	1,365	1,990	1,990	1,673

Notes: Columns 1-4 are estimated with Arellano–Bond GMM estimation and include robust standard errors clustered by bank and year (Petersen, 2009). The Hansen J statistic tests the adequacy of GMM instruments. AR(1) and AR(2) test for the presence of first-order and second-order serial correlation. Columns 5 and 6 are estimated using pooled OLS because of the presence of time-invariant variables. Column 7 is estimated with fixed effect OLS and excludes bank samples from South Africa. CF_{t-1} = one-year lagged commission and fee income to total asset ratio for bank i at year $t-1$; CF_{t-2} = two-year lagged commission and fee income to total asset ratio for bank i at year $t-2$; $SIZE_{t-1}$ = one-year lagged natural logarithm of total asset; ΔCFR_{t-1} = lagged change in the absolute value of net commission and fee income for bank i at year $t-1$; $SIZE_{t-1}$ = natural logarithm of total asset for firm i at year $t-1$; LISTED = dummy variable that takes the value 1 if the African bank is listed and 0 otherwise; CRISIS = dummy variable that takes the value 1 during the period 2009–2013, and 0 otherwise. t-Statistics are reported in parentheses with *,**,***Indicating 10, 5 and 1 per cent significance levels, respectively

Table V.
Sensitivity test

real GDP growth rate. Taking the natural log drops out the negative values. We then interact the new measure with EBCF and re-run the model and the results remain insignificant. We also modify the BOOM variable to take the value 1 for all positive values of real GDP growth rate while negative values take 0. The result is not significantly affected by this change. Hence, we did not report these analyses due to lack of space in the manuscript. Further, regarding the high earnings dummy variable "POS", we use an alternative measure where the POS dummy variable take the value 1 when EBCF is positive and 0 otherwise. The result was not significantly affected by this change.

Third, with respect to the sample size, we used active banks in the region, and use all banks that have data for three consecutive years in any order in the time series. The latter allows us to include active banks that do not have full reporting data on CF income; therefore, we are confident that survivorship bias is not an issue in the analysis. Fourth, we test whether the use of CF to smooth earnings is achieved when banks do not consider current information about the structure of CF income. The result is derived from the model in Equation (5). The Columns 1 and 2 of Table V show that the CF coefficient is negative but not significant, indicating that bank managers do not use CF to smooth earnings when they do not take into account current information about non-interest income or CF income (or non-interest income structure). The observed negative sign further confirms the main result that bank managers use CF to smooth earnings. Also, CFt-1 is positively significant in Columns 1 and 2, indicating that previous information about CF income is a major determinant of reported CF income in the current period. Also, we check whether listed and unlisted African banks use CF to smooth or manage earnings and the results are not significant.

Finally, we address concerns that the large number of sample banks for South Africa may affect our inference. We excluded South African banks from the sample and the results do not change significantly as can be observed in Column 7 of Table V.

5. Conclusion

Earnings management among banks in emerging and developing countries is an emerging area in the literature and has received considerable attention among researchers, regulators and analysts in the banking sector. This study re-examines the question on earnings management focusing on the African banking sector. We focus on how banks use CF income to influence reported earnings. Using African bank data, over a 10-year period 2004–2013, the result and conclusions indicate that African banks use CF income to smooth reported earnings and this behaviour is more pronounced when they are in recessionary periods and in environments with stronger investor protection.

From a prudential perspective, research on bank CF income is important to banking supervisors who have concerns that banks in the region charge high fees to clients but disguise this behaviour by understating earnings to avoid reporting too high earnings possibly to evade scrutiny of bank profits. Hence, our evidence sheds some lights into this issue and underlines the need for sound prudential guidelines to supervise and monitor the reporting of CF income and other revenue items by African banks. From an accounting standard setting perspective, our findings stress the need for national/international standard setters to adopt strict revenue recognition rules that ensure that banks/firms report the actual fees they make, and to discourage banks from delaying (or deferring) the collection of fee income to manage or smooth reported earnings opportunistically.

One limitation of the study is that recent developments in African countries could alter the results, particularly in the post-2014 era. Another limitation is that the years after 2008 could also be affected by the crisis. Therefore, future research should explore the potential for revenue management as an earnings management strategy in the post-crisis period.

A natural direction for future research is the need for future studies to undertake an in-depth analysis of specific factors, including accounting and regulatory practices in

individual countries that influence this behaviour in the region. Future research can replicate this study to developed country contexts where the reporting of revenue is not regulated or standardised. Finally, future research could also investigate whether Basel capital regulation has any influence on banks reported CF income. For instance, banks with more regulatory capital can have incentives to engage in risky activities for which they can charge higher fees and commission.

Notes

1. By "unstable", we mean that clients/customers can quickly change banks to patronise the service of another bank, which leads to unstable commission and fee during such periods (Smith *et al.*, 2003).
2. E.g. Ahmed *et al.* (1999) and Fonseca and González (2008).
3. Also, the number of available bank years used for this study is 10 years (i.e. 2004–2013). A 10-year period is sufficient for the study because a 10-year is generally considered to reflect a full economic cycle which can capture both upswings and downturns in an economy.
4. The year 2008 data are excluded from the analysis. This is because most banks had significant write-offs in the crisis years and including such crisis data into the models often constitute outliers which can bias the empirical results due to the extreme or large values for some variables. Furthermore, African banks experienced significant write-offs during the crisis-years due to their heavy exposure to fluctuating oil prices in 2008. The financial crisis made oil prices volatile and transmitted huge losses on the balance sheet of African banks that had significant exposure in the oil sector. Much of the losses were written-off in their year 2008 financial statement, hence the need to exclude 2008 year observations.

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Appendix

Variables	CF	ΔCFR	EBCF	SIZE	ΔGDP	INVPRO	LEGAL	LERNER
CF	1.000							
ΔCFR	0.039 (0.144)	1.000						
EBCF	−0.376*** (0.000)	−0.018 (0.484)	1.000					
SIZE	−0.173*** (0.000)	−0.037 (0.164)	0.135*** (0.000)	1.000				
ΔGDP	−0.004 (0.886)	0.058** (0.030)	0.085*** (0.002)	−0.179*** (0.000)	1.000			
INVPRO	0.207*** (0.000)	−0.012 (0.656)	−0.044 (0.105)	0.123*** (0.000)	−0.192*** (0.000)	1.000		
LEGAL	−0.062** (0.023)	−0.029 (0.282)	0.035 (0.191)	0.154*** (0.000)	− 0.164*** (0.000)	0.425*** (0.000)	1.000	
LERNER	−0.074*** (0.006)	0.064** (0.019)	0.071*** (0.008)	−0.026 (0.333)	0.034 (0.207)	0.072*** (0.008)	−0.143*** (0.000)	1.000

Note: *p*-values are in parentheses. *,**,***Represent 10, 5 and 1 per cent significance levels, respectively

Table AI.
Full sample
correlation matrix