Bank Earnings Smoothing, Audit Quality and Procyclicality in Africa

The Case of Loan Loss Provisions

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Bank Earnings Smoothing, Audit Quality and Procyclicality in Africa
The Case of Loan Loss Provisions

Abstract

This paper empirically examine whether the way African banks use loan loss provisions to smooth earnings is influenced by capital market motivations and the type of auditor after controlling for non-discretionary determinants of loan loss provisions and fluctuations in the business cycle. The findings support the income smoothing hypothesis and indicate that (i) African banks use loan loss provisions to smooth reported earnings; (ii) listed African banks use loan loss provisions to smooth earnings to a greater extent than non-listed African banks possibly for capital market reasons; (iii) income smoothing via loan loss provisions is not reduced among African banks with Big 4 auditor; and (iv) bank provisioning in Africa is procyclical with fluctuations in the business cycle. The findings have three implications. One, listed African banks smooth income because they are more visible to investors and investors do not view stock price fluctuation as a good signal. Securities market regulators in African countries should enforce strict disclosure rules that reduce earnings smoothing practices in order to improve the transparency of banks' reported earnings in the region. Two, the presence of Big 4 auditor did not improve the informativeness of loan loss provisions estimates among African banks. Three, the evidence for procyclical provisioning suggest the need for dynamic loan loss provisioning system in Africa.

JEL: G21, M41, O55, N27.

Keywords: Loan Loss Provisions; Earnings Management; Dynamic Provisioning; Income Smoothing; Audit Quality; Procyclicality; Africa, Banks. Economic Cycles.

1. Introduction

The question whether banks use loan loss provisions (LLP) to manipulate reported earnings is examined by a large empirical literature and the literature report mixed conclusions (Ahmed et al, 1999; Lobo and Yang, 2001; Bikker and Metzemakers, 2005; Anandarajan et al, 2007; Fonseca and Gonzalez, 2008; El Sood, 2012; Parker and Zhu, 2012). Some developed country studies examine income smoothing practices among banks in US, Europe, Australia and Asia (see. El Sood, 2012; Leventis et al, 2011; Ozili, 2017; Anandarajan et al, 2007; Parker and Zhu, 2012), while related studies examine other cross-country contexts (e.g. Bikker and Metzemakers, 2005; Fonseca and Gonzalez, 2008). Recently, few studies in Africa have emerged and focus on provisions-based earnings smoothing in a single country context (see. Ahmed et al, 2014; Ozili, 2015). To date, there is little knowledge about provisions-based earnings smoothing practices across African countries. In this paper, we undertake a cross-country analysis of income smoothing via loan loss provisions for African banks. One merit of country-specific studies is that it takes into account the fact that banks across African countries face unique conditions and have dissimilar rules regarding the accounting for loan loss provisions compared to banking institutions in US and Europe. However, it is common practice to investigate whether banks in a region exhibit similar financial reporting behavior with a focus on banks' earnings smoothing behavior.

The purpose of this paper is to investigate whether African banks use loan loss provisions to smooth bank earnings and whether this behavior is influenced by the type of bank auditor and whether the bank is listed or non-listed. Evidence for the use of loan loss provisions to smooth income derives from the positive and significant relation between loan loss provisions and pre-provisions earnings in the literature. By dividing African banks into listed and non-listed category, the main argument is that African banks driven by capital market considerations will use loan loss provisions to smooth earnings possibly to minimize stock price fluctuations. With respect to the type of auditor, the main argument is that the presence of Big 4 auditor in a bank reflects superior audit quality and should deter earnings smoothing practices.

For the purpose of this paper, earnings smoothing is a form of earnings management behavior because it convey the idea that banks have incentives to lower too high earnings and to increase too low earnings. We focus on the use of loan loss provisions to smooth bank earnings because prior studies identify loan loss provisions to be an important earnings smoothing tool in the banking industry due to its direct impact on bank net interest margin and its role in bank credit risk management (Wall and Koch, 2000). The findings indicate that listed African banks significantly use loan loss provisions to smooth income. Also, the findings indicate that African banks audited by Big 4 auditor use loan loss provisions to smooth earnings more than African banks audited by non-Big 4 auditor, and imply that the presence of Big 4 auditor, often associated with superior audit quality, did not discourage the use of loan loss provisions to smooth income, and suggests that the presence of Big 4 auditor does not improve the informativeness or reliability of loan loss provisions estimates among African banks.

This study makes two contributions to the literature. First, the findings in the paper contribute to the bank earning management literature. The study provides the first cross-country evidence on earnings smoothing via loan loss provisions across a large sample of 302 African banks. By providing evidence that African banks smooth income, the finding suggests that provisions-based earnings smoothing practice of banks is a widespread earnings management practice across the globe, even in Africa. Second, the findings in this paper contribute to the debate on procyclical and countercyclical (dynamic) provisioning in the banking literature. Our evidence for procyclical provisioning behavior among African bank supports the debate to adopt a dynamic loan loss provisioning.

The rest of the paper is organized as follows. Section 2 presents the literature review and develops the hypotheses. Section 3 describes the sample selection criteria and methodology. Section 4 reports the empirical results. Section 5 concludes. The term ‘income smoothing’ and ‘earnings smoothing’ are used interchangeably throughout the paper.

2. Literature Review and Hypothesis Development

2.1. Income Smoothing Hypothesis

Income smoothing involves minimizing the fluctuation of reported earnings over time. The income smoothing hypothesis argue that banks decrease high earnings in good years and increase low earnings in bad years to report stable earnings over time (Greenawalt and Sinkey, 1988). An extensive literature document evidence that bank managers use loan loss provisions to smooth earnings (e.g. Leventis et al, 2011; El Sood, 2012; Ozili, 2017). Some cross-country studies also document evidence that banks use loan loss provisions to smooth income after controlling for country-level differences (e.g. Fonseca and Gonzalez, 2008; Parker and Zhu, 2012). For instance, Fonseca and Gonzalez (2008) examine income smoothing practices among banks across 41 countries and find that income smoothing behavior decreases among banks in countries with strong investor protection, accounting disclosure, restrictions on bank activities, official and private supervision. In addition, they find that provisions-based income smoothing increases with market-orientation and financial system development. Leventis et al (2011) examine provisioning practices among 91 listed European banks and find evidence for income smoothing among European banks and the income smoothing behavior is significantly reduced after mandatory IFRS adoption. Similar studies also examine bank income smoothing practices in Asia (Parker and Zhu, 2012) and in emerging European countries (Bonin and Kosak, 2013) and find evidence for income smoothing. Jointly, the above studies draw inference based on the statistical relation between provisions and earnings before tax and provisions. While a positive and significant coefficient for the earnings before tax and provisions variable is indicative of income smoothing, it is unknown whether similar or conflicting evidence may be found among African banks.

Few African studies examine income smoothing practices in a single country context (e.g. Ahmed et al, 2014; Yahaya et al, 2015; Ozili, 2015). Ahmed et al (2014) examine earnings management through the use of loan loss provision among deposit money banks in Nigeria and find evidence that loan loss provisions is used to manage earnings. Ozili (2015) examine the income smoothing behavior of listed Nigerian banks during the voluntary IFRS adoption period and document evidence for income

smoothing among listed banks in Nigeria. In contrast, Yahaya et al (2015) investigate the effect of IFRS adoption on earnings management behavior of listed deposit money banks in Nigeria. They focus their study on how the change in the recognition and measurement of banks' loan loss provision affects earnings management behavior. They did not find a significant difference in the earnings management behavior of banks in the post-IFRS period relative to the pre-IFRS. The present study extends this growing strand of literature by investigating bank income smoothing practices for a wide sample of African countries while controlling for other influences on bank provisioning behavior.

2.2. Capital Market Motivations

There is the argument that banks smooth earnings because smoothed earnings reduce the variability of earnings which further translate into reduced stock price volatility. Anandarajan et al (2007) demonstrate that if smoothed earnings reduce stock price fluctuation, then listed banks will have some incentive to smooth income to minimize stock price fluctuation and the volatility of stock return. This view argues that existing and potential investors view stable stock price as a good signal for high stock return, which in turn create incentives for managers of listed banks to smooth earnings to stabilize share prices. Anandarajan et al (2007) in their study compare the provisions-based income smoothing behavior of listed banks and non-listed banks in Australia. They find evidence that listed Australian banks use loan loss provisions to smooth income more than non-listed Australian banks, and conclude that listed Australian banks use provisions to smooth income for capital market reasons. Similarly, Leventis et al (2011) examine the case of listed European banks across 18 countries during the 1999 to 2008 period and document evidence that listed EU banks use provisions to smooth income but the income smoothing behavior is significantly reduced in the post mandatory IFRS period. Both study use bank earnings rather than stock returns to test for capital market motivations. With respect to African banks, Ozili (2015) examine listed banks in Nigeria and find evidence for income smoothing via provisions. To date, there is yet no cross-country evidence that examine whether, or not, listed African banks use provisions to smooth earnings relative to non-listed African banks. Therefore, this paper also tests whether listed African banks and non-listed African banks exhibit a significant difference in their provisions-based income smoothing behavior. Consistent with the above

argument, the prediction is that listed African banks will use provisions to smooth income more aggressively than non-listed African banks.

2.3. Auditor Choice

A firm would choose the services of a Big 4 auditor than non-Big 4 auditor if they believe that the reputation of Big 4 auditors reflect superior audit quality (Blackwell et al, 1998). Teoh and Wong (1993) and Francis et al (1999) document evidence that investors perceive reported earnings to be of higher quality when the firm's auditor is a Big 5 auditor. Their findings are consistent with the argument of DeAngelo (1981) who argue that Big 5 auditors are able to detect material misstatements in financial statements and are more willing to report what they find relative to non-Big 5 auditors. More importantly, the type of auditor of a firm is considered to be important for industries where information uncertainty is higher relative to other industries (Billingsley and Schneller, 2009). For instance, the complexity of banking operations and the difficulty to assess the risk of large loan portfolio further contribute to widen the information asymmetry problem between bank owners and managers. Hence, to ensure that managers disclose decision-useful and sufficient information to bank owners, shareholders (or board of directors) are more likely to insist on the need to employ the services of Big 4 auditors with the expectation of superior audit quality (Kanagaretnam et al, 2010). Kanagaretnam et al (2010) show that the presence of Big 4 auditor moderates the extent of bank income smoothing via loan loss provisions, that is, income smoothing is not significantly pronounced or reduced. Following the above argument, the prediction is that there will be less income smoothing behavior among African banks with Big 4 auditor relative to African banks with non-Big 4 auditor.

2.4. Procyclicality

The behavior of bank provisions is often considered to reinforce the current state of the business cycle, implying that bank loan loss provisions exhibits procyclical behavior (Laeven and Majnoni, 2003; Bikker and Metzemakers, 2005). During economic upturns (or economic boom), banks report fewer problem loans and the level of provisions is usually low. Conversely, during economic downturns provisions increase because expected loan defaults are high and the size of provisions is

expected to significantly increase if a recession persist (Bikker and Metzemakers, 2005). However, there is evidence that banks have incentives to overstate provisions (rather than lower provisions) during economic booms in order to lower too high profit that might attract scrutiny from regulators. Liu and Ryan (2006) observe that more profitable banks increase loan loss provisions to lower too high earnings during the 1990 economic boom while El Sood (2012) find that banks increase loan loss provisions to smooth income downwards when they are more profitable and when they are in non-recessionary periods. Consistent with these studies, real gross domestic product growth rate is used to control for fluctuation in the business cycle.

3. Data and Methodology

3.1. Data and Sample Selection Criteria

Pooled cross-section and time-series bank income statement and balance sheet data is obtained for 19 economies in Africa: Algeria, Angola, Botswana, Cameroun, Egypt, Ethiopia, Ghana, Kenya, Mauritius, Morocco, Namibia, Nigeria, Senegal, South Africa, Tanzania, Togo, Tunisia, Uganda and Zambia. The sample period cover 2004 to 2013 and is sufficient to cover a full economic cycle (i.e., a 10-year period). Bank-level balance sheet and income statement data is obtained from Van Dijk Bankscope database while macroeconomic data on real gross domestic product growth rate for each jurisdiction is obtained from the World Economic Forum archived in World Bank database. Description of variables and data source is presented in Table 1A.

[Insert Table 1A]

Data was obtained for 347 banks from Bankscope database. To clean up the data, African banks with observations for crucial variables (e.g. loan loss provisions, earnings, etc.) for less than three consecutive years were excluded to control for the quality of bank reporting. 45 African banks were excluded that did not report data for crucial variables. The sample is then reduced to 302 banks. Second, extreme outliners in the observations for the remaining 302 banks are eliminated (e.g. loan growth above 99% and tier 1 Capital above 50%) to minimize measurement bias commonly

associated with outliers. Third, 2008 bank-year observations were not eliminated to control for the impact of the 2008 financial crisis.[2] The final data distribution is an unbalanced panel because some African banks have missing observations. The resulting final sample yields 302 African banks that provide data on loan loss provisions and other crucial variables for 10 years (2004 to 2013). Finally, a distinction is made between listed and non-listed banks, and banks with and without Big 4 auditor. Of the 302 African banks, 74 are listed banks and 228 are non-listed banks. Of the 74 listed banks, 50 listed banks are audited by Big 4 auditor while 24 are audited by non-Big 4 auditor. Of the 228 non-listed African banks, 129 non-listed banks have Big 4 auditor and 99 non-listed banks have non-Big 4 auditor. See Table 1B for data distribution.

[Insert Table 1B]

3.2. Methodology

To test the propensity to use provisions to smooth earnings, the baseline model specification is given by:

$$LLPit = c + EBTPit + LOANit + NPLit + CARit + SIZEit + CFEERit + \Delta GDPj + BIG4 + BIG4 * EBTPit + LISTEDi + LISTED * EBTPit + BIG4 * LISTED * EBTPit + \varepsilon it.$$

LLP is the ratio of loan loss provision to bank total asset. EBTP is the ratio of earnings before taxes and provisions to total asset. LOAN is the change in gross loan outstanding. NPL is the ratio of non-performing loans to gross loan. CAR is the ratio of Tier 1 bank capital to risk-weighted assets. SIZE is the natural logarithm of bank total assets. CFEER is the ratio of net commission and fee income to total asset. ΔGDP is the real gross domestic product growth rate.

The model estimates the propensity to use loan loss provisions to smooth income after controlling for differences in nonperforming loans, loan growth, tier 1 capital ratio, size, commission and fee income

[2] At the time of the 2008 global financial crisis, banks in African were not systemically integrated with the global financial system, hence, there is no reason to believe that balance sheet of most African banks were adversely affected by the 2008 global financial crisis.

and gross domestic product growth rate. The model is estimated using panel least square with White's robust standard error correction, as well as, with and without period fixed effect.

The income smoothing variable of interest is EBTP. A positive sign on EBTP coefficient is indicative of bank income smoothing via loan loss provisions. Loan growth (LOAN) is a proxy for contemporaneous credit risk (Laeven and Majnoni, 2003). A positive sign on LOAN coefficient indicates that loan loss provisions increases as loan supply increases due to contemporaneous credit risk concerns. However, Lobo and Yang (2001) point out that a negative relation may be expected if banks lower provisions due to improved quality of incremental loans. Non-performing loans (NPL) capture the riskiness of bank loan portfolio. A positive sign on the NPL coefficient is predicted because banks will increase provision when they expect loan defaults (Beaver and Engel, 1996).

CAR is the ratio of Tier 1 capital to risk-weighted assets, and control for the use of provisions to manage regulatory capital (e.g. Kilic et al, 2012; Bonin and Kosak, 2013). The capital management hypothesis argues that banks are more likely to use discretionary provisions to increase regulatory capital levels to avoid the costs associated with violating minimum regulatory capital requirements (Ahmed et al, 1999). Consistent with Kilic et al (2012) and Bonin and Kosak (2013), a negative sign on CAR coefficient is expected.

The use of the natural logarithm of total asset (SIZE) as a proxy for bank size is consistent with Kilic et al (2012) and Ozili (2015). Large banks are considered to have higher levels of business activities and may set aside higher provisions to commensurate for their high business levels relative to smaller banks, hence, a positive sign on SIZE coefficient is expected (Anandarajan et al, 2007).

Hasan and Hunter (1994) suggest that higher fees and commission income (CFEER) for banks may indicate an interest in non-depository banking activities and banks may allocate additional reserves (or provisions) to mitigate risk arising from providing multiple services that are non-depository in nature. Following this reasoning, a positive sign is expected on the CFEER coefficient.

At country level, real gross domestic product growth rate (ΔGDP) control for provisioning that depend on the state of the economic cycle (Leaven and Majnoni, 2003; Bikker and Metzemakers,

2005). BIG4 dummy variable take the value of '1' for African banks with Big 4 auditor and '0' for African banks with non-Big 4 auditor. LISTED dummy variable take the value of '1' if the bank is listed and '0' otherwise.

Finally, to test the influence of bank-type on income smoothing behavior among African banks, each bank-type dummy is interacted with the bank income smoothing variable. The coefficients of each interaction term measure the influence of the bank-type on provisions-based income smoothing among African banks. The incorporation of interaction terms is the main rationale for using separate regressions rather than a single regression with sandwiched variables.

4. Discussion of Results

4.1. Descriptive Statistics

Table 2A&B report the summary of the descriptive statistics. In Table 2A, LLPs average 0.9% of total assets. Banks in Nigeria report the highest provisions while Botswana, Namibia, Kenya[3], Uganda and Mauritius report lower LLPs. NPL averages 7.89% of gross loan, and is higher for banks in North African countries (e.g. Egypt 14.07% and Tunisia 15.01%). Loan growth (LOAN) is about 19.2%, but exhibits substantial cross-country differences. For instance, loan growth rates are much lower in Egypt and much higher in Ghana and Angola while other countries experience a double-digit increase in gross loans over the sample period. ΔGDP, on average, is about 5.7% and much lower for Algeria and higher for Ethiopia. CFEER is higher for banks in Zambia, South Africa, Nigeria and Ghana but lower for banks in Morocco and Tunisia. For banks in countries that report Tier 1 capital ratio (CAR), banks in Angola, Nigeria and Uganda report higher CAR compared to banks in Morocco and Namibia that report much lower CAR.

[3] The low LLPs for Kenyan banking industry is not surprising as the IMF recently released a statement to confirm that Kenyan banks allocated too low provision for bad debts that were insufficient to cover the mounting bad debts in the country's banking system. (See: http://www.businessdailyafrica.com/IMF-says-Kenyan-banks-exposed-to-bad-loans-danger/-/539552/2613532/-/apcc8h/-/index.html)

For listed and non-listed banks in Table 2B, the mean value of LLPs is 1%, respectively, and suggests that there is no significant difference in LLPs for listed and non-listed African banks. NPLs are, on average, 7.55% and 8.03% of gross loan for listed and non-listed African banks, respectively; and indicate that listed African banks report lower NPLs than non-listed African banks. This implies that listed African banks have better asset quality compared to non-listed African banks and also reflect superior credit risk management practices by listed African banks. With respect to CAR, listed African banks record lower CAR compared to non-listed African banks. Also, LOAN is lower for listed African banks compared to non-listed African banks. Also, listed African banks have higher total assets (SIZE) relative to non-listed African banks, and suggest that larger African banks are more likely to have their shares listed on a recognized stock exchange, compared to smaller African banks. On average, CFEER is 2% for both banks and suggest that both banks have similar incentive to engage in non-depository activities. Finally, the difference of means between listed African banks and non-listed African banks is low and SIZE has the highest mean difference indicating that listed banks are larger than non-listed African banks.

For the Big 4 and non-Big 4 category, the mean value of LLP is 1%, respectively; and suggests that there is no significant difference in LLPs for both banks. NPLs are, on average, 7.27% and 9.19%, and indicate that banks with Big 4 auditors report lower NPLs than banks with non-Big 4 auditor. Also, banks with Big 4 auditor record lower CAR compared to banks with non-Big 4 auditor. Also, LOAN is lower for banks with Big 4 auditor. Also, total assets (SIZE) are marginally higher for banks with Big 4 auditor compared to banks with non-Big 4, and suggest that large African banks are more likely to employ the services of a Big 4 auditor compared to smaller African banks. CFEER is higher for banks with Big 4 auditor and imply that banks with Big 4 auditor have higher interest in non-depository activities compared to banks with non-Big 4 auditor. Finally, the difference of means for EBTP and LLP variables are sufficiently low (i.e., about 1% for EBTP and 0% for LLP) for both bank categories and implies that the average values do not convey much difference in the earnings and provisions estimates of the two bank categories.

[Insert Table 2A&B here]

4.2. Correlations

Table 3A reports the Pearson correlation coefficients and the associated p-values for the full sample. LLPs are positive and significantly correlated to bank earnings, EBTP (0.454***) among African banks. LLPs are positive and weakly correlated with SIZE (-0.008) and suggest that provisions decrease as the size of banks increase. Nonetheless, the correlation coefficient is not significant. LLPs are negative and significantly correlated with ΔGDP (-0.088**), indicating that provisioning among African banks is procyclical with fluctuations in the business cycle. LLPs are significantly correlated with NPLs and indicate that provisions increase as credit risk increases. LOAN is positive and significant at 10% level, and suggest that African banks' provisions are positively correlated with contemporaneous credit risk. CAR is positively correlated with LLPs and indicate that provisions increase as Tier 1 capital increase among African banks. LISTED and BIG4 are positive and weakly correlated with LLPs. Overall, the correlation coefficients in Panel A are sufficiently low, and suggest that multicollinearity is not an issue in the analysis. In Table 3B, the correlation coefficient of interest is EBTP. LLPs are positively correlated with EBTP for Big 4, non-Big 4, listed and non-listed bank categories. The correlation of LLP with EBTP is higher for listed banks (74.5%) compared to non-listed banks (24.8%), and higher for banks with Big 4 auditor (48.8%) compared to banks with non-Big 4 auditor (8.4%). This indicates that provisions increase as earnings increase, particularly, for listed African banks and banks with Big 4 auditor.

[Insert Table 3A&B here]

4.3. Income Smoothing

4.3.1. Main Result: Full Sample

Table 4 reports the main results. EBTP coefficient reports a positive and significant sign at the 1% level in Column 1, indicating that African banks use provisions to smooth bank earnings during the period of analysis. This is consistent with Anandarajan et al (2007) and Ozili (2015, 2017), and implies that African banks increase provisions estimates to lower high earnings and report lower

provisions estimates to increase low earnings. For the control variables, NPL, SIZE, LOAN, CFEER and CAR coefficients report the expected signs. The positive and significant sign for NPL coefficient indicate that African banks increase provisions when they expect increase in loan defaults. The positive and significant sign on CFEER coefficient indicate that African banks that have an interest in non-depository activities will keep more provisions to cover risk arising from engaging in non-depository activities. The negative and significant sign on CAR coefficient indicate that African use provisions to manage Tier 1 capital levels. Also, ΔGDP coefficient reports a negative and significant sign, indicating that provisioning by African banks is procyclical with fluctuation in the business cycle. Overall, the coefficient signs are consistent with theoretical expectations.

4.3.2. Listed vs Non-Listed Banks

EBTP is interacted with LISTED dummy variable in Column 2 of Table 4. LISTED*EBTP coefficient reports a positive and significant sign at the 10% level, indicating that income smoothing via provisions is more pronounced among listed African banks compared to non-listed African banks. Anandarajan et al (2007) and Leventis et al (2011) find similar evidence for listed banks in Australia and Europe, respectively. LISTED coefficient reports a negative and significant sign at 1% level, and implies that listed African banks report fewer provisions compared to non-listed African banks.

4.3.3. Audit Quality

BIG4*EBTP coefficient measure whether the use of provisions to smooth income is significantly associated with African banks with Big 4 auditor relative to African banks with non-Big 4 auditor. BIG4*EBTP coefficient reports a positive and insignificant sign in Column 3 of Table 4, and indicates that the presence of Big 4 auditor did not discourage bank income smoothing via loan loss provisions. This finding is consistent with Kanagaretnam et al (2010). There are possible explanations for this. One, because Africa is a new client base for Big 4 auditors who seek to penetrate the audit services market by obtaining new bank clients and/or retaining existing bank clients during the period of analysis, Big 4 auditors may have less incentive to provide high-quality audit that discourage banks' manipulation of loan loss provisions estimate to smooth or manage income during the period

to avoid losing bank clients. Two, the presence of other auditors "affiliated" with Big 4 auditors who provide less-than-superior audit services may be responsible for the weak impact of Big 4 audit quality on bank provisions-based earnings smoothing. African banks may be more willing to pay the lower fee charged by auditors affiliated with Big 4 auditors than to pay high fees to Big 4 audit firms. Three, the existence of weak bank supervision and legal enforcement institutions in the region might also create weak incentive for Big 4 auditors to provide superior audit quality for banks in the region so as to retain their bank clients who pay for the favorable audit services offered to them.

[Insert Table 4 here]

4.4. Sensitivity Analysis:

4.4.1. Sub-Sample

The full sample is divided into four subsamples to check whether the main result (Table 4) is sensitive to sub-sample bank category. EBTP is the variable of interest and Table 5 report the results. EBTP coefficient is positive and significant at 1% level in Column 1 of Table 5, indicating that African banks use provisions to smooth earnings for capital market reasons. This confirms the earlier result and is consistent with the argument of Anandarajan et al (2007). On the other hand, EBTP coefficient is not significant for non-listed African banks in Column 2 of Table 5. This indicates that income smoothing via provisions is not significantly associated with non-listed African banks. Overall, this confirms the earlier result (see Table 4) that bank income smoothing via provisions is more pronounced among listed banks compared to non-listed banks. For African banks with Big 4 auditor, EBTP coefficient is positive and significant at 1% level in Column 3 of Table 5, and imply that bank income smoothing is pronounced among African banks with Big 4 auditor compared to African banks with non-Big 4 auditor. On the other hand, EBTP coefficient is positive but not significant for African banks with non-Big 4 auditor in Column 4 of Table 5. Overall, the results confirm the earlier results that the presence of Big 4 auditors did not discourage or reduce the extent of bank income smoothing among African banks

[Insert Table 5 here]

4.4.2. Additional Checks

Next, we adjust the analysis to take into account bank-type complementarity. A bank may be listed (or non-listed) and have a Big 4 (or non-Big 4) auditor. In our sample, some listed and non-listed banks have Big 4 auditor while other listed and non-listed banks have non-Big 4 auditor. To account for this complementarity, each subsample is examined separately and a binary dummy variable is used to capture whether each sub-sample has the property of another sub-sample. For instance, in the listed African bank subsample, listed banks that have Big 4 auditor take the value 1 and listed banks with non-Big 4 auditor take the value '0'. The same procedure is applied to the non-listed bank subsample. In the Big 4 subsample, banks that are also listed take the value '1' and banks that are not listed take the value '0'. The sample procedure is applied to the non-Big 4 subsample. The variables of interest are the interaction variables in each subsample. The results are reported in Table 6. LISTED*EBTP and BIG4*EBTP coefficients are statistically insignificant. The result does not confirm earlier result in Table 4. Additionally, Column 4 of Table 4 use two-way interaction terms based on the full sample. The two-way interaction term, LISTED*BIG4*EBTP measure whether provisions-based income smoothing is significantly associated with African banks that are listed and have Big 4 auditors relative to African banks that are non-listed and without Big 4 auditor. LISTED*BIG4*EBTP coefficient is insignificant sign. Overall, this suggests that the results are not sensitive to whether African banks in the sample are jointly listed and have a Big 4 auditor.

[Insert Table 6 here]

4.4.3. Country-Specific Regression

Further, we recognize the bias associated with cross-country analysis because it fails to take into account national characteristics that might affect bank provisions-based income smoothing practices. Thus, we run additional country-specific regression to minimize this bias. The result is reported in Table 6. After applying White's robust standard error correction, cross-country variations in provisions-based income smoothing can be observed. However, the reported sign for EBTP for most countries is positive and consistent with the prediction. Only few countries report a negative sign.

Also, there is evidence of provisions-based earnings smoothing among banks in Uganda, Morocco, Namibia, Senegal, Cameroun, and Ethiopia, while there is no evidence of provisions-based income smoothing practices in other African countries in our sample. The positive but insignificant sign on EBTP coefficient for some countries might be due to the small number of sample banks in the country analysis.

[Insert Table 7 here]

5. Summary and Conclusion

This paper explores the use of discretionary provisions to smooth earnings by African banks after controlling for non-discretionary provisions and macroeconomic fluctuation. Using a sample of 302 banks from 19 countries, the findings are consistent with the income smoothing hypothesis. The findings indicate that African banks use provisions to smooth earnings. Also, the finding indicate that listed African banks use provisions to smooth income compared to non-listed African banks. The findings also suggest that the presence of Big 4 auditors did not discourage income smoothing via provisions among African banks with Big 4 auditor, and suggest that the presence of Big 4 auditor did not improve the informativeness of bank loan loss provisions estimates. After controlling for macroeconomic fluctuation, there is also evidence that provisioning is procyclical with fluctuations in the business cycle. Finally, there is evidence of cross-country variation in the use of provisions to smooth earnings.

The main message (and implication) of the findings in this paper are three-fold. First, the practice of provisions-based income smoothing is wide spread even among African banks. Second, the evidence for procyclical provisioning suggest that macro-prudential regulators in the African region should seek ways to reduce the cyclicality of loan loss provisions in the region possibly by adopting a dynamic loan loss provisioning system. Third, this study adds new evidence to the literature on audit quality by showing that earnings smoothing via provisions among African banks is not significantly reduced by the presence of Big 4 auditor. Because the type of auditor is employed as a proxy for audit

quality in our study, the implication is that the choice of auditor (in this case, Big 4 auditor or non-Big 4 auditor) does not improve the reliability or informativeness of loan loss provisions estimates and the quality of earnings in the region. Contrary to popular understanding that having a Big 4 auditor is a necessary condition to improve overall earnings quality among firms in the region, the findings in this paper show that this is not the case. Accordingly, a natural follow-up question for future research could be to examine whether the quality of bank provisions estimates and bank earnings among Big 4 auditor banks in the African region improves in environments with strong bank regulatory and supervisory institutions. Another interesting question for future research could be to investigate whether African banks audited by Big 4 auditors engage less aggressively in provisions-based earnings management when they are in environments or countries with strong legal and investor protection institutions.

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Tables

Panel 1A: Data Source and Description		
Variables	Description	Data Source
LLP	Bank loan loss provision to bank total asset	Bankscope database
EBTP	Loan loss provisions added back to profit before tax divided by total asset.	Bankscope database
NPL	Ratio of bank non-performing loans to gross loan.	Bankscope database
LOAN	Percentage change in gross loan outstanding	Bankscope database
CFEER	Net commission and fee income to total asset ratio. Net commission and fee income is commission and fee revenue minus commission and fee expense	Bankscope database
SIZE	Natural logarithm of bank total assets.	Bankscope database
ΔGDP	Real gross domestic product growth rate.	World Bank database
CAR	Ratio of Tier 1 bank capital to risk-weighted assets.	Bankscope database
LISTED	Bankscope database provides information on whether a bank is listed or unlisted (or non-listed).	Bankscope database
BIG4	Bankscope database provides information on type of auditor of a bank.	Bankscope database

Panel 1B: Summary of Data Distribution					
Bank	Full Sample	Listed Banks	Non-listed Banks	Big 4 Bank	Non-Big 4 Bank
Number of Banks	347	-	-	-	-
Less: Banks with missing crucial variables	(45)	-	-	-	-
Final Sample:	302	74	228	179	123
Bank Category Matrix:					
Listed Banks	-	-	-	50	24
Non-listed Banks	-	-	-	129	99
Country- Specific Bank Category:					
Country	Listed Banks	Non-listed Banks	Big 4 Bank	Non-Big 4 Bank	# Banks
Algeria	1	15	1	15	16
Angola	0	14	10	4	14
Botswana	4	8	12	0	12
Cameroun	0	11	5	6	11
Egypt	10	6	9	7	16
Ethiopia	0	12	0	12	12
Ghana	4	11	13	2	15
Kenya	8	16	20	4	24
Mauritius	0	15	10	5	15
Morocco	5	13	7	11	18
Namibia	2	8	9	1	10
Nigeria	10	6	13	3	16
Senegal	1	9	1	9	10
South Africa	9	20	23	6	29
Tanzania	0	16	12	4	16
Togo	1	6	2	5	7
Tunisia	14	12	3	23	26
Uganda	3	18	16	5	21
Zambia	2	12	13	1	14
Total	74	228	179	123	
Big 4 bank = African banks with Big 4 auditor. Non-Big 4 bank = African banks with non-Big 4 auditor. The bank category matrix reflect the number of banks that are (i) listed and also have a Big 4 auditor, (ii) listed and have a non-Big 4 auditor, (iii) non-listed and have a Big 4 auditor, and (iv) non-listed and have a non-Big 4 auditor.					

Table 2A: Summary of Descriptive Statistics

Table 2a reports the descriptive statistics obtained from 302 sample banks from 19 countries. Data cover the period 2004-2013. All variables remain as previously defined. The variables of interest are LLP and EBTP.

Country	Mean LLP	Mean EBTP	Mean LOAN	Mean NPL	Mean SIZE	Mean CAR	Mean SIZE	Mean CFEER	Mean ΔGDP	# Banks
Algeria	0.003	0.028	19.377	5.751	14.171	-	14.171	0.017	3.140	16
Angola	0.008	0.036	33.346	5.734	13.847	21.800	13.847	0.014	10.798	14
Botswana	0.002	0.057	22.539	9.257	12.879	13.726	12.879	0.015	7.596	12
Cameroun	0.004	0.026	12.240	8.152	12.899	-	12.899	0.017	3.485	11
Egypt	0.006	0.024	9.446	14.071	14.911	18.558	14.911	0.013	4.522	16
Ethiopia	0.004	0.041	25.690	7.000	13.093	-	13.093	0.013	11.014	12
Ghana	0.003	0.045	31.044	10.202	13.121	17.145	13.121	0.027	7.432	15
Kenya	0.0003	0.034	22.589	10.183	12.466	19.037	12.466	0.018	5.242	24
Mauritius	0.002	0.015	12.393	4.183	13.496	13.205	13.496	0.006	3.977	15
Morocco	0.003	0.028	11.267	5.182	15.497	11.618	15.497	0.005	4.427	18
Namibia	0.002	0.035	14.496	2.987	13.743	11.432	13.743	0.018	5.284	10
Nigeria	0.010	0.032	20.071	4.919	15.557	20.671	15.557	0.022	8.782	16
Senegal	0.006	0.019	15.479	7.312	12.703	-	12.703	0.015	3.828	10
South Africa	0.004	0.048	16.951	7.749	14.887	15.849	14.887	0.032	3.281	29
Tanzania	0.007	0.024	26.438	4.060	12.212	15.566	12.212	0.019	6.674	16
Togo	0.008	0.025	23.641	10.911	12.413	17.348	12.413	0.017	3.529	7
Tunisia	0.008	0.023	12.655	15.104	13.263	16.379	13.263	0.007	4.049	26
Uganda	0.002	0.033	21.445	3.711	11.991	21.155	11.991	0.025	7.070	21
Zambia	0.006	0.021	28.968	9.143	11.786	16.767	11.786	0.034	7.759	14
Total										**302**
Mean	0.009	0.032	19.206	7.899	13.454	19.059	13.454	0.017	5.741	
Median	0.005	0.027	15.750	4.940	13.216	15.375	13.216	0.013	5.170	
Standard Deviation	0.019	0.034	23.739	9.779	1.909	11.635	1.909	0.020	3.906	
Observations	2435	2433	2317	1620	2572	1022	2572	2440	3017	

Table 2B: Descriptive Statistics: Bank Sub-Sample

Table 2b reports the mean, standard deviation (in parenthesis) and the arithmetic difference of means. All variables remain as previously defined. The variables of interest are LLP and EBTP.

Variable	Listed Banks	Non listed Banks	Difference of Mean**	Big 4 Banks	Non-Big 4 Banks	Difference of Mean**
LLP	0.01 (0.02)	0.01 (0.02)	0.00	0.01 (0.02)	0.01 (0.02)	0.00
EBTP	0.04 (0.04)	0.03 (0.03)	0.01	0.04 (0.04)	0.03 (0.03)	0.01
LOAN	17.31 (19.55)	19.82 (24.91)	-2.51	20.87 (24.17)	16.79 (22.73)	4.08
NPL	7.55 (8.88)	8.03 (10.11)	-0.48	7.27 (9.64)	9.19 (9.93)	-1.92
CAR	16.83 (7.22)	17.10 (9.27)	-0.27	16.77 (8.48)	17.93 (9.57)	-1.18
SIZE	14.51 (1.70)	13.09 (1.84)	1.42	13.48 (2.01)	13.41 (1.75)	0.07
CFEER	0.02 (0.03)	0.02 (0.02)	0.00	0.02 (0.02)	0.01 (0.01)	0.01
No of Banks	74	228		179	123	

**Difference of mean = This is the arithmetic difference of means

Table 3A: Full Sample Correlation Matrix

Panel A report the correlation matrix. ***, ** and * represent significance at the 1%, 5% and 10% level, respectively. LLP is loan loss provision. EBTP is earnings before taxes and provisions to total asset ratio. CFEER is net commission and fee income to total asset ratio. LOAN is the change in gross loan outstanding. NPL is non-performing loan to gross loan. CAR is Tier 1 capital ratio to risk-weighted assets. SIZE is the natural logarithm of total asset. ΔGDP is gross domestic product growth rate. LISTED take the value '1' if the bank is listed and '0' otherwise. BIG4 take the value '1' if the bank is audited by a Big 4 auditor, otherwise, '0'.

Variable	LLP	NPL	LOAN	CFEER	EBTP	ΔGDP	SIZE	CAR	BIG4	LISTED
LLP	1.000									
NPL	0.391***	1.000								
	0.000									
LOAN	0.063*	-0.122***	1.000							
	0.072	0.000								
CFEER	0.468***	0.078**	0.160***	1.000						
	0.000	0.026	0.000							
EBTP	0.454***	0.056	0.137***	0.455***	1.000					
	0.000	0.109	0.000	0.000						
ΔGDP	-0.088**	-0.057	0.257***	-0.006	0.019	1.000				
	0.012	0.104	0.000	0.862	0.570					
SIZE	-0.008	-0.115***	-0.219***	-0.077**	0.087**	-0.282***	1.000			
	0.825	0.001	0.000	0.029	0.013	0.000				
CAR	0.149***	0.0499	0.102***	0.271***	0.251***	0.089**	-0.251***	1.000		
	0.000	0.156	0.004	0.000	0.000	0.011	0.000			
BIG4	0.053	-0.073**	0.002	0.175***	0.102***	0.048	0.221***	-0.053	1.000	
	0.130	0.039	0.965	0.000	0.004	0.173	0.000	0.131		
LISTED	0.051	0.014	-0.053	0.104***	0.258***	-0.099***	0.408***	0.009	0.119***	1.000
	0.148	0.686	0.128	0.003	0.000	0.005	0.000	0.789	0.001	

Table 3B: Correlation Matrix

LLP is loan loss provision. NPL is non-performing loans. EBTP is earnings before taxes and provisions. LOAN is the change in gross loan. CAR is Tier 1 capital ratio. CFEER is net commission and fee income. ΔGDP is gross domestic product growth rate. SIZE is the natural logarithm of bank total asset.

Bank/Variable	LLP	LOAN	SIZE	CAR	CFEER	EBTP	ΔGDP	NPL
Listed Banks								
LLP	1.000							
LOAN	0.217*** (0.000)	1.000						
SIZE	-0.082 (0.188)	-0.243*** (0.000)	1.000					
CAR	0.326*** (0.000)	0.181*** (0.004)	-0.305*** (0.000)	1.000				
CFEER	0.529*** (0.000)	0.216*** (0.001)	-0.145** (0.019)	0.527** (0.019)	1.000			
EBTP	0.745*** (0.000)	0.329*** (0.000)	-0.309*** (0.000)	0.461*** (0.000)	0.674*** (0.000)	1.000		
ΔGDP	-0.139** (0.025)	0.234*** (0.000)	-0.294*** (0.000)	-0.019 (0.757)	-0.076 (0.224)	0.051 (0.415)	1.000	
NPL	0.367*** (0.000)	-0.186*** (0.003)	-0.093 (0.136)	0.177*** (0.004)	0.024 (0.702)	0.172*** (0.005)	-0.097 (0.119)	1.000
Non-Listed Banks								
LLP	1.000							
LOAN	-0.007 (0.864)	1.000						
SIZE	-0.002 (0.966)	-0.205*** (0.000)	1.000					
CAR	0.073* (0.089)	0.078* (0.068)	-0.271*** (0.000)	1.000				
CFEER	0.417*** (0.000)	0.149*** (0.005)	-0.128*** (0.003)	0.141*** (0.001)	1.000			
EBTP	0.248*** (0.000)	0.072* (0.090)	0.153*** (0.000)	0.169*** (0.000)	0.227*** (0.000)	1.000		
ΔGDP	-0.056 (0.193)	0.260*** (0.000)	-0.253*** (0.000)	0.129*** (0.002)	0.063 (0.141)	0.046 (0.277)	1.000	
NPL	0.407*** (0.000)	-0.094** (0.027)	-0.153*** (0.000)	-0.002 (0.959)	0.127*** (0.003)	-0.022 (0.601)	-0.037 (0.391)	1.000
Big 4 Banks								
LLP	1.000							
LOAN	0.083** (0.036)	1.000						
SIZE	-0.017 (0.665)	-0.236*** (0.000)	1.000					
CAR	0.174*** (0.000)	0.131*** (0.001)	-0.206*** (0.000)	1.000				
CFEER	0.497*** (0.000)	0.174*** (0.000)	-0.118*** (0.002)	0.323*** (0.000)	1.000			
EBTP	0.488*** (0.000)	0.121*** (0.002)	0.047 (0.234)	0.315*** (0.000)	0.523*** (0.000)	1.000		
ΔGDP	-0.105*** (0.008)	0.233*** (0.000)	-0.331*** (0.000)	0.064 (0.105)	-0.058 (0.141)	-0.015 (0.702)	1.000	
NPL	0.406*** (0.000)	-0.096** (0.015)	-0.132*** (0.001)	0.044 (0.262)	0.079** (0.045)	0.084** (0.033)	-0.015 (0.697)	1.000
Non-Big 4 Banks								
LLP	1.000							
LOAN	-0.049 (0.527)	1.000						
SIZE	-0.045 (0.563)	-0.178** (0.022)	1.000					
CAR	0.063 (0.423)	0.012 (0.875)	-0.420*** (0.000)	1.000				
CFEER	0.236*** (0.002)	0.113 (0.146)	-0.132* (0.089)	0.148* (0.057)	1.000			
EBTP	0.084 (0.281)	0.245*** (0.002)	0.212*** (0.006)	0.002 (0.977)	-0.102 (0.189)	1.000		
ΔGDP	-0.019 (0.807)	0.342*** (0.000)	-0.169** (0.029)	0.183** (0.019)	0.179** (0.020)	0.186** (0.017)	1.000	
NPL	0.388*** (0.000)	-0.221*** (0.004)	0.036 (0.643)	0.053 (0.499)	0.159** (0.039)	-0.045 (0.562)	-0.191** (0.013)	1.000

Table 4: Bank Income Smoothing: Main Results

Regressions are estimated using the Panel least square. White's robust standard error correction is applied. All bank-level variables remain as previously defined. EBTP is the income smoothing variable. LISTED take the value '1' if the bank is listed and '0' otherwise. BIG4 take the value '1' if the bank is audited by a Big 4 auditor, otherwise, '0'. LISTED*EBTP measure the extent that listed banks use provisions to smooth income relative to non-listed banks. BIG4*EBTP measure whether there is a significant difference in the income smoothing behavior of African banks with Big 4 auditor relative to banks with non-Big 4 auditor. BIG4*LISTED*EBTP measure whether provisions-based income smoothing is significantly associated with African banks that are listed and have Big 4 auditor relative to African banks that are not listed and without Big4 auditor. T-statistics are reported in parentheses with ***, **, and * indicating 1%, 5%, and 10% significance level, respectively.

Variables	Exp. Sign	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
c		-0.005 (-1.08)	-0.005 (-1.15)	-0.009* (-1.69)	-0.009* (-1.78)	-0.003 (-0.65)	-0.003 (-0.71)	-0.009* (-1.88)	-0.010** (-2.01)
EBTP	+	0.164*** (3.31)	0.162*** (3.28)	0.114 (1.57)	0.111 (1.54)	0.075 (1.55)	0.070 (1.46)	0.042 (1.00)	0.036 (0.88)
LOAN	+/-	0.00003 (1.14)	0.00005* (1.72)	0.00003 (0.99)	0.00004 (1.55)	0.00003 (1.25)	0.00005* (1.82)	0.00003 (1.15)	0.00005* (1.67)
NPL	+	0.0007*** (4.71)	0.0007*** (4.74)	0.0007*** (4.94)	0.0007*** (4.98)	0.0007*** (4.74)	0.0007*** (4.77)	0.0007*** (4.89)	0.0007*** (4.94)
CAR	-	-0.00004 (-0.48)	-0.00005 (-0.61)	-0.00002 (-0.23)	-0.00003 (-0.36)	-0.00004 (-0.54)	-0.00006 (-0.68)	-0.00002 (-0.21)	-0.00003 (-0.34)
SIZE	+	0.00009 (0.39)	0.00009 (0.36)	0.0006** (2.00)	0.0006** (2.01)	-0.030*** (-2.76)	0.0001 (0.50)	0.0007** (2.19)	0.0007** (2.26)
CFEER	+	0.237*** (4.22)	0.236*** (4.20)	0.202*** (3.21)	0.202*** (3.21)	0.228*** (4.02)	0.227*** (4.01)	0.203*** (3.38)	0.203*** (3.42)
ΔGDP	-	-0.0004** (2.10)	-0.0004* (-1.71)	-0.0004* (-1.85)	-0.0003 (-1.48)	-0.003 (0.10)	-0.0004 (-1.58)	-0.0004* (-1.80)	-0.0003 (-1.39)
BIG4	?					-0.003 (-1.16)	-0.003 (-1.23)	-0.001 (-0.52)	-0.002 (-0.56)
BIG4*EBTP	-					0.102 (1.38)	0.105 (0.44)	0.084 (0.89)	0.087 (0.94)
LISTED	?			-0.009*** (-3.35)	-0.010*** (-3.30)			-0.011*** (-3.65)	-0.011*** (-3.64)
LISTED*EBTP	+			0.168* (1.66)	0.169* (1.68)			0.330*** (2.66)	0.338*** (3.64)
LISTED*BIG4*EBTP	?							-0.169 (-1.43)	-0.175 (-1.49)
Period Fixed Effect?		No	Yes	No	Yes	No	Yes	No	Yes
Adjusted R^2		41.69	42.23	44.06	44.57	41.83	42.39	44.31	44.85
F-Statistic		83.65	37.96	71.79	37.14	65.65	34.07	54.63	32.33

Table 5: Bank Income Smoothing for Four Subsamples

Regressions are estimated using Panel least square. All regression include White's robust standard error correction. All bank-level variables remain as previously defined. EBTP is the income smoothing variable. T-statistics are reported in parentheses with ***, **, and * indicating 1%, 5%, and 10% significance level, respectively.

Variable	Exp. Sign	Listed Banks		Non-Listed Banks		Big-4 Banks		Non-Big4 Banks	
		1a	1b	2a	2b	3a	3b	4a	4b
c		-0.026**	-0.026**	-0.010	-0.010	-0.008	-0.009*	0.007	0.007
		(-2.53)	(-2.49)	(-1.36)	(-1.42)	(-1.64)	(-1.72)	(0.74)	(0.63)
EBTP	+	0.389***	0.388***	0.099	0.097	0.165***	0.163***	0.075	0.071
		(6.69)	(6.48)	(1.55)	(1.51)	(2.98)	(2.96)	(1.63)	(1.55)
LOAN	+/-	0.00009**	0.0001**	-0.00005	0.00001	0.00005	0.00007**	-0.00002	-0.00001
		(2.49)	(2.49)	(-0.22)	(0.37)	(1.52)	(2.09)	(-0.33)	(-0.11)
NPL	+	0.0006***	0.0006***	0.0007***	0.0007***	0.0008***	0.0008***	0.0004**	0.0005**
		(3.46)	(3.13)	(3.79)	(3.87)	(4.36)	(4.39)	(2.29)	(2.17)
CAR	-	-0.0002	-0.0002	0.00004	0.00003	-0.00007	-0.0001	-0.00002	-0.00001
		(-0.82)	(-0.74)	(0.46)	(0.31)	(-0.65)	(-0.91)	(-0.30)	(-0.22)
SIZE	+	0.001***	0.001***	0.0005	0.0004	0.0003	0.0003	0.0007**	-0.0004
		(2.79)	(2.64)	(1.16)	(1.16)	(1.06)	(1.09)	(2.19)	(-0.54)
CFEER	+	0.052	0.054	0.311***	0.307***	0.258***	0.260***	0.113**	0.122**
		(0.74)	(0.72)	(4.16)	(4.11)	(3.74)	(3.78)	(2.06)	(2.08)
EBTP	+	0.389***	0.388***	0.099	0.097	0.165***	0.163***	0.075	0.071
		(6.69)	(6.48)	(1.55)	(1.51)	(2.98)	(2.96)	(1.63)	(1.55)
ΔGDP	-	-0.0009***	-0.0008**	-0.0003	-0.0003	-0.0005**	-0.0004	-0.0004	-0.00008
		(3.16)	(-2.57)	(-1.12)	(-0.86)	(-1.97)	(-1.41)	(-0.12)	(-0.27)
Period Fixed Effect?		No	Yes	No	Yes	No	Yes	No	Yes
Adjusted R^2		65.43	64.79	33.29	33.47	45.02	45.77	16.56	14.07
F-Statistic		70.74	30.68	40.21	18.29	76.22	34.92	5.68	2.69

Table 6: Interactions for EBTP and LISTED in four subsamples

Regressions are estimated using the Panel least square. All regression include White's robust standard error correction. All bank-level variables remain as previously defined. EBTP is the income smoothing variable. T-statistics are reported in parentheses with ***, **, and * indicating 1%, 5% and 10% significance level, respectively

Variable	Exp. Sign	Listed Banks		Non-Listed Banks		Big 4 Banks		Non-Big 4 Banks	
		1a	1b	2a	2b	3a	3b	4a	4b
c		-0.035**	-0.037**	-0.009	-0.009	-0.015**	-0.016**	0.006	0.004
		(-2.47)	(-2.58)	(-1.36)	(-1.41)	(-2.32)	(-2.46)	(0.57)	(0.44)
EBTP	+	0.610*	0.636*	0.057	0.052	0.121	0.119	0.051	0.048
		(1.69)	(1.74)	(1.50)	(1.37)	(1.48)	(1.46)	(1.19)	(1.13)
LOAN	+/-	0.00009**	0.0001***	-0.00003	0.00001	0.00005	0.00007**	-0.00003	-0.00002
		(2.54)	(2.66)	(-0.10)	(0.47)	(1.46)	(1.97)	(-0.50)	(-0.33)
NPL	+	0.0006***	0.0006***	0.0007***	0.0007***	0.0008***	0.0008***	0.0005***	0.0005***
		(3.39)	(3.08)	(3.73)	(3.80)	(4.36)	(4.39)	(3.23)	(3.02)
CAR	-	-0.0002	-0.0002	0.00004	0.00002	-0.00004	-0.00007	-0.00004	-0.00004
		(-0.83)	(-0.74)	(0.43)	(0.27)	(-0.37)	(-0.63)	(-0.72)	(-0.63)
SIZE	+	0.002***	0.002***	0.0005	0.0005	0.0009**	0.0009***	-0.0003	-0.0002
		(2.91)	(2.94)	(1.16)	(1.17)	(2.56)	(2.65)	(-0.39)	(-0.24)
CFEER	+	0.069	0.073	0.304***	0.299***	0.235***	0.237***	0.083*	0.093*
		(0.98)	(0.96)	(4.36)	(4.31)	(3.19)	(3.26)	(1.89)	(1.90)
ΔGDP	-	-0.0008***	-0.0007**	-0.0003	-0.0002	-0.0004*	-0.0003	-0.00004	-0.00002
		(-2.92)	(-2.35)	(-1.14)	(-0.86)	(-1.84)	(-1.22)	(0.12)	(-0.07)
BIG4		0.004	0.004	-0.001	-0.001				
		(0.29)	(0.33)	(-0.36)	(-0.41)				
BIG4*EBTP	-	-0.224	-0.251	0.051	0.055				
		(-0.59)	(-0.66)	(0.59)	(0.64)				
LISTED						-0.010***	-0.010***	-0.015	-0.015
						(-3.41)	(-3.33)	(-1.27)	(-1.28)
LISTED*EBTP	+					0.146	0.146	0.432	0.443
						(1.37)	(1.38)	(1.09)	(1.11)
Period Effect?		No	Yes	No	Yes	No	Yes	No	Yes
Adjusted R^2		65.77	65.28	33.16	33.35	47.44	48.09	18.72	16.35
F-Statistic		56.09	27.95	31.32	16.29	65.47	34.09	5.22	2.79

Table 7: Country-Specific Regression

Pooled Regression with White's robust standard error correction. Sample banks in Algeria, Cameroun, Ethiopia and Senegal did not report data for CAR.

Country	c	EBTP	LOAN	NPL	CAR	SIZE	CFEER	ΔGDP	Adj R^2	F-stat
Algeria	0.013	0.035	-0.0001***	0.0001	-	-0.001	-0.248***	0.003***	72.0	7.87
	(0.82)	(0.92)	(-4.31)	(0.59)		(-1.01)	(-3.77)	(13.21)		
Angola	0.023	0.178	-0.00005	0.0005***	-0.0005**	-0.0009	-0.398	0.0003	41.9	2.24
	(0.41)	(1.15)	(-1.25)	(13.40)	(-2.09)	(-0.27)	(-1.34)	(0.74)		
Botswana	0.038**	-0.001	-0.0001**	0.0008***	-0.0004***	-0.002**	-0.096	-0.00001	81.92	18.47
	(2.26)	(-0.01)	(-2.21)	(2.91)	(-3.65)	(-2.21)	(-0.85)	(-0.15)		
Cameroun	0.091***	0.463***	-0.00001	0.001***		-0.009***	-0.138	0.004***	80.2	18.54
	(3.62)	(3.31)	(-0.06)	(4.03)		(-6.06)	(-1.41)	(4.32)		
Egypt	-0.014	0.047	0.0001***	0.0002**	-0.0001	0.0006	-0.266	0.002***	25.8	2.34
	(-0.91)	(0.50)	(3.48)	(2.13)	(-1.14)	(0.75)	(-0.96)	(3.39)		
Ethiopia	0.011	0.295**	0.00008**	0.0005***	-	-0.002***	0.116	-0.0002	49.1	5.66
	(1.18)	(2.61)	(2.14)	(2.92)		(-4.29)	(0.98)	(-0.35)		
Ghana	0.023	0.015	0.000004	-0.00006**	-0.00005	-0.002	-0.048	0.00001	-0.2	0.38
	(1.66)	(0.37)	(0.02)	(-1.94)	(-1.15)	(-1.59)	(-0.53)	(0.07)		
Kenya	-0.005	0.006	0.00001	0.00001	0.00004	0.0003	-0.005	0.00004	3.7	1.78
	(-1.04)	(1.06)	(1.15)	(0.59)	(1.24)	(1.01)	(-0.33)	(0.41)		
Mauritius	0.001	0.012	0.00002	0.0002*	-0.00005	-0.0001	-0.152	0.0003	9.2	1.76
	(0.29)	(0.66)	(1.23)	(1.79)	(-0.10)	(-0.31)	(-0.84)	(0.98)		
Morocco	0.031	-0.236**	-0.00009	0.0009	0.00007	-0.002*	0.612**	-0.0008***	65.1	8.20
	(1.42)	(-1.96)	(-1.58)	(1.44)	(0.14)	(-1.62)	(2.35)	(-3.24)		
Namibia	0.004	0.146*	-0.00001	-0.00006	0.00006	-0.0005	-0.093	0.0002*	25.7	3.37
	(1.00)	(1.78)	(-0.21)	(-0.67)	(0.69)	(-1.57)	(-1.15)	(1.79)		
Nigeria	-0.001	-0.001	-0.00003	0.002	0.00005	-0.004	-0.039	-0.001	0.1	1.03
	(-0.37)	(-0.38)	(-0.38)	(0.87)	(0.11)	(-1.06)	(-0.29)	(-0.38)		
Senegal	-0.018	0.288*	-0.000004	-0.0002	-	0.001	0.057	0.0007	13.5	2.12
	(-0.69)	(1.77)	(-0.09)	(-0.66)		(0.50)	(0.84)	(1.61)		
South Africa	0.016	0.077	0.00001***	-0.00003	-0.0007	-0.0006	0.049	-0.0005	18.3	5.49
	(1.15)	(1.26)	(2.93)	(-0.26)	(-1.46)	(-1.03)	(1.03)	(-0.89)		
Tanzania	0.023	0.103	-0.0001**	0.0009***	0.00005	-0.002*	0.093	0.0002	35.2	8.54
	(1.44)	(1.33)	(-2.45)	(5.99)	(0.21)	(-1.79)	(1.35)	(0.25)		
Togo[a]	-0.180*	-2.019	0.0005	0.003*	-0.003	0.007	4.429	0.003	41.6	1.92
	(1.98)	(-0.62)	(0.86)	(1.73)	(-1.43)	(1.41)	(0.89)	(0.88)		
Tunisia	0.021	-0.004	-0.00001	0.0002	0.0004	-0.002	-0.102	0.0005*	19.7	2.44
	(0.59)	(-0.02)	(-0.17)	(0.58)	(1.51)	(-0.77)	(-0.26)	(1.69)		
Uganda	0.008	0.038***	0.00003	0.0002**	-0.00002	-0.0009*	0.049	0.0002	1.1	1.14
	(1.35)	(2.93)	(1.34)	(2.52)	(-0.25)	(-1.86)	(1.07)	(0.93)		
Zambia	0.006	0.035	-0.00001	-0.0002	0.0002	-0.002	0.089	0.002***	28.7	2.55
	(0.26)	(0.47)	(-0.05)	(-1.13)	(1.05)	(-0.89)	(1.02)	(2.67)		

[a]Note: the regression estimation for Togo do not include fixed effect due to the small bank sample. Pooled regression is used instead.