

IFRS 9 and Earnings Management: The Case of European Commercial Banks

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Abstract

Using data from 2011-2019 of 100 commercial banks in Europe, we conduct several empirical investigations to test the mediating role of IFRS 9 on earnings manipulation through loan loss provision by banks. The result shows that the new accounting standards (IFRS 9) significantly affects the way banks report loan loss provision. Our paper provides evidence that non-listed banks in the EU engage in earnings management through loan loss provision following IFRS 9 but experience less volatility of net income following the adoption. Furthermore, our findings indicate that such behaviour by banks cannot be suppressed by level of audit quality; suggesting that an improvement in accounting standards might not always guarantee accounting quality. This finding has some policy implications; and regulators will need to identify additional tools to regulate or supervise earnings management behaviour.

Key words: IFRS 9; IAS 39; Earnings management; Commercial banks; Loan loss; and Provision, Accrual.

1. Introduction

Firms publish their financial reports by following either domestic or international standards. By following domestic standards, firms are able to publish financial statements, that are more suitable, flexible and appropriate to their economic condition, legislation, and culture (Ahmed, et al. 2013; Barth et al. 2008). However, the excessiveness of flexibility could lead to lower accounting quality since it leaves room for managerial discretion. Several research studies show that earnings management (EM) has decreased significantly after the adoption of International Accounting Standards (IAS). Nevertheless, there is an argument that it also reduces audit quality since it limits the ability to signal private information anticipation to the public especially in the financial sector (Gebhardt and Novotny-Farkas, 2011). By adopting IAS 39, banks can only report loan loss provision (LLP) when it occurs before the end of the financial period. This implies that it could be too late to recognise losses. Thus, the reason for the change from an impairment model that uses IAS 39 to IFRS 9 that forecasts losses.

IFRS 9 was first developed in 2009 but became effective in 2018 to replace IAS 39 which has a significant difference in the treatment of impairment of credit loan loss (Deloitte IASPlus, 2020). While IAS 39 reports losses that had already occurred, IFRS 9 forecasts such losses. Lopez-Espinosa, et al (2020) provide evidence that the banks applying the expected credit losses (ECL) of loan loss provision have better predictive capacity of future bank risk than those applying the incurred credit loss (ICL) approach of LLP. Thus, more information of bank risks is accessible in the ECL regime.

The International Accounting Standards Board (2014) believes that the IAS 39 impairment reporting model shows weakness during a period of financial crisis (see Camfferman, 2015). In theory, this should reduce risk in the banking system. However, in practice, various evidence from prior literature (Anandarajan, et al. 2007; Barth, et al. 2008) show that banks could manipulate their earnings through loan loss provision. In addition, some recent studies also show that implementing IFRS 9 will provide flexibility and opportunity for managerial discretion (see; Bischof and Daske, 2016; Gebhardt, 2016; Novotny-Farkas, 2016). Although it is not always detrimental to use discretion on loan loss provision (Bushman and Williams, 2012), however Cohen et al (2014) show that the impact of earnings management would be much more significant

during a financial crisis if such discretions are applied. Thus, this study explores whether the adoption of IFRS 9 improves accounting quality. The paper also re-examines the role of auditors in reducing earnings management (EM) under the new IFRS 9.

Our study focuses on European banks because of the peculiarities of banks in Europe. First, the major banks crises in Europe have never given rise to creditors' direct losses unlike in other regions, but have been solved either through government bailout policies or through bank mergers led by government supervisors, and many European banks are either government- owned or benefit from explicit government guarantees (Sironi, 2003). This resilient characteristic makes European banks unique as the risk of default is reduced. Our paper tests the applicability of the IFRS 9 under such circumstance. Second, European banks are highly dependent on net interest income which implies that any fluctuation in interest income will significantly affect their lending margins (Present et al, 2023). The introduction of IFRS 9 is by extension designed to gauge the way banks manage such fluctuation through management of their earnings. Therefore, focusing on European banks to test the effectiveness of IFRS 9 provides a robust understanding of the applicability of the standard in the banking industry.

Our paper is unique in contributing to the merging issue of IFRS 9 and the earnings management literature. First, apart from the extended size of our sample, our paper also investigates the intermediating role of audit quality on earnings management in combination with IFRS 9. Previous studies (Pandey, et al 2021; López-Espinosa et, 2020), have not considered the intermediating role of audit quality on the management of earnings especially in the IFRS 9 regime. Second, our paper contributes to the earnings management debate by further providing evidence that the mere introduction of IFRS 9 on its own is not sufficient to reduce EM in banks. To a large extent, the effectiveness of the standard is influenced by economic factors as well as enforcement level. Third, our study uses the volatility in net income to gauge EM following IFRS 9. The approach is unique to our study as it provides additional measure of insight to the level of managerial discretion in the treatment of loan loss provisions in EU countries versus non-EU countries. Fourth, our paper contributes to the EM literature in banks by comparing EU versus non-EU banks which operate in different regulatory and economic environments, as well as comparing the EM behaviour of listed versus non-listed banks following IFRS 9.

Our result indicates that volatility of net income reduced significantly following IFRS 9 in EU banks than in non-EU banks, and that the relationship between loan loss provision and earnings before taxes and provision has become significantly more positive after the adoption. This may be influenced by the economic disparity in both regions. Hence, our study provides evidence of increase in income smoothing by managers in non-EU banks. This is consistent with the prediction of Novotny-Farkas (2016), who cautions that the adoption will provide more flexibility in managerial discretion. As a result, we argue that the adoption of IFRS 9 might not effectively improve accounting quality across geographic zones. Furthermore, the result also indicates that audit quality cannot reduce such behaviour in banks. In fact, the paper also pioneers the development of the argument on the mitigating roles of audit quality and accounting standards on earnings management in European banks. Our samples are considerably broader and larger than previous research. For example, prior samples consist of 91 listed commercial banks from 1999 to 2008 (Leventis, et al. (2010), and 90 commercial banks from 2000 to 2007 (Gebhardt and Novotny-Farkas, 2011). The current study is based on a sample of 100 commercial banks across 37 countries in Europe from 2011 to 2019.

The remainder of the paper is as follows: section two is the literature review; section three is the development of hypotheses; section four describes the data and methodology; section five is the presentation of results; and section six is the conclusion.

2. Literature Review

Development of IFRS 9

Before the introduction of IFRS 9, IAS 39 was enacted by the International Accounting Standards Board (IASB) to replace local accounting standards because of the criticism that the local accounting standards provided opportunity for excessive managerial discretion. For example, the anticipation of loan default by banks was mostly left to the judgement of managers (Gebhardt and Novotny-Farkas, 2011). On the one hand, some studies have observed that accounting quality improved significantly following the adoption of IAS 39 largely due to a decrease in earnings

management (Barth et al. 2008; Gebhardt and Novotny-Farkas, 2011; Leventis et al. 2010), and an improvement in accounting comparability (Brochet et al. 2013). However, there is the argument that using a more restrictive approach could reduce management ability to reveal internal information to the public, such as the expectation of loan loss of customers in their portfolio. Therefore, this could result in the delayed recognition of loan loss by banks, something that inevitably has a more detrimental effect during period of economic downturns or crises. Hence, the reason the International Accounting Standards Board (IASB) proposed IFRS 9 in 2009, after the financial crisis of 2008. After several modifications, the last modification version was adopted and published in 2014 (Deloitte IASPlus, 2020), with implementation taking effect from 1st January 2018. The impairment of credit loan loss is the key difference between these two standards (Gebhardt, 2016).

Banks are only allowed to account for loan loss provision when there is objective evidence of impairment before the end date in the balance sheet (Novotny-Farkas, 2016). Even if future loan default is expected, they cannot report it. The advantage of this approach is that it restricts a manager's ability to manage earnings through loan loss provision; hence, it could increase accounting quality. In contrast, it could also decrease a manager's ability to signal or report internal expectation of loan loss. Fortunately, the expected loss model of IFRS 9 has been developed to solve this problem. IFRS 9 provides three stages relative to expected credit loss. If there is no significant evidence of an increase in credit risk, the financial instrument will be allocated in stage 1. Therefore, loan loss provision will be calculated using only cash flow and probability of default in the next 12 months of that financial instrument. For instance, if a customer borrows from a bank with a ten-year contract and annual repayments, that bank only has to forecast the likely amount that they might not receive the repayment in the first year, not the whole ten years. However, the financial instrument will then be moved to stage two and loan loss provision will be calculated using all discounted cash flows of the contract if there is a significant increase in credit risk. Stage three of IFRS 9 is very similar to the incurred loss approach of IAS 39. By adopting IFRS 9, expected credit loss will be recognised in a timely fashion (Gebhardt, 2016), hence, it could decrease the detrimental effects arising from a downturn in the economy. Nevertheless, this could provide more flexibility for managers to manage earnings through expected credit loss since it depends more upon managerial discretion than the incurred model approach (Gebhardt, 2016).

One of the distinctive features of the new IFRS 9 is that the hedge accounting requirements in IFRS 9 are optional. For a fair value hedge of interest rate risk of a portfolio of financial assets or liabilities, an entity can apply the hedge accounting requirements in IAS 39 instead of those in IFRS 9. However, the basic accounting model for financial liabilities which are applicable under IAS 39 does not change but are divided into two classes: assets measured at amortised cost and those measured at fair value. (Deloitte, 2019).

Accounting Standards and Audit Quality

Prior studies show that there is a strong relationship between accounting standards and accounting quality (Ball et al. 2003; Leuz et al. 2003). These studies compare the impact of accounting standards and other incentives to accounting quality. They use companies operating in high accounting standard environments. The results show that accounting standards are not the main contributory measure of accounting quality, but incentives of preparers, which are influenced by political factors and economic conditions. Leuz et al. (2003) indicate that investor protection also have significant impact on accounting standards.

In the same vein, Barth et al. (2008) examine the impact of the implementation of International Accounting Standards (IAS) on the quality of accounting reports during the adoption period of between 1994 and 2003 by comparing firms that use IAS with those that do not. Their results show that the variability increased significantly for the firms applying IAS after the adoption period, indicating improvement in accounting quality with the implementation of IAS. Taylor and Aubert (2022) find evidence that the implementation effect of IFRS 9 varies across regions. For example, in Europe, their result indicates a lower income smoothing of bank but higher income smoothing in Sub-Saharan Africa. This variation appears to be influenced by the level of effective corporate governance mechanism and economic development. Thus, the effect of the IFRS 9 adoption vary across jurisdictions.

Similarly, Leventis et al. (2010) focused on Australian commercial banks and modified the model of Barth et al. (2008) by including IFRS as a dummy variable. They find an indication that earnings were manipulated by Australian banks through loan loss provision. However, earnings management in banks was reduced significantly after the implementation of IFRS. Thus, Leventis

et al. (2010) support the hypothesis that banks using loan loss provision to manipulate earnings and accounting quality can be improved by the accounting standards.

Gebhardt and Novotny-Farkas (2011) examine the impact of IAS 39 adoption on the account quality of banks in Europe. Their result shows that there is a significant reduction in income smoothing. This finding supports the hypothesis that the incurred loss model will restrict and limit managers' ability to manipulate earnings through loan loss provision. In addition, they also find that firms cross listed in the US engage in less earnings management activities than non-US cross listed firms. The introduction of IFRS 9 has also helped to limit the ability of firms to use their financial assets to manage earnings by restricting the classification and measurement of financial assets. This differentiates the IFRS from the US-GAAP where results of firms operating under both regimes have continued to be incomparable largely due to treatment of revaluation of tangible assets in the US-GAAP as against the approach under IFRS (Liu, 2011). In addition, the timely reporting of financial risks as required by IFRS 9 has been instrumental in the perceived improvement in the quality of financial reporting by banks (Guo, et al, 2019).

Brochet et al. (2013) define accounting quality as a symmetry of information between insider and outsider. To investigate the effect of IAS 39 adoption on accounting quality, they compared abnormal returns from buying company's shares via insider trading before and after the adoption of new accounting standards. The results show that there was a noticeable fall in abnormal returns, hence, better comparability and accounting quality.

Becker et al. (1999) examine the effect of auditor quality on earnings management, using discretionary accrual as a proxy of earnings management, the results suggest that firms that are audited by a higher quality auditor have significantly less discretionary accrual than firms that are audited by a non-Big-6 auditor. Consistent with prior research (Francis and Krishnan, 1999, and Tendeloo and Vanstraelen, 2008) indicate that firms that are audited by high quality auditors, Big-6 in the past and Big-4 later, have noticeably less engagement in earnings management. Using accrual based, and avoidance of loss and target oriented, as proxies of earnings management, Kanagaretnam et al. (2010) also show that there is a constraint on earnings management when banks are audited by highly reputable auditors. Using restatement of financial reports as a proxy for accounting quality (since it reveals the level of earnings management than discretionary

accrual), Eshleman and Guo (2014) examine whether Big-4 auditors provide higher accounting quality or not. Their result indicates that Big-4 auditors provide higher quality to their client than non-Big-4 auditors since it is less likely that Big-4 auditors' clients would have to restate their financial reports. Hence auditors have a duty to protect stakeholders by validating the financial statements of their clients.

Lawrence et al. (2011) argue that there is no difference in audit quality between Big-4 auditors and non-Big 4 auditors. They used discretionary accrual, cost of equity and capital, and forecasting accuracy as proxies for audit quality. The results suggest that the differences are not significant among those proxies. However, these proxies were questioned by Eshleman and Guo (2014), who argued that cost of equity and capital, and forecasting accuracy were not appropriate to verify audit quality. Overall, it is consistent that auditor quality is one of the factors attributed to audit quality and it could reduce earnings management in banks adopting IFRS 9. Recent study by Nurunnabi, et al (2020) find that the firms that are closely attached with established audit firms are unlikely to consider adoption IFRS standards due partly to the associated high cost of switching.

Loan loss provisions and earnings management

Using loan loss provision to manipulate earnings by banks has been covered in several prior literatures. For instance, 106 bank holding companies in the U.S. were used by Greenawalt and Sinkey (1988) as a sample from 1976 to 1984. Their results show that there is evidence supporting the existence of manipulation of earnings by large banks and holding companies. Some studies have shown that banks tend to manage earnings using loan loss provision particularly when their profitability is high. Kanagaretnam et al. (2004) find evidence that loan loss provision is used to smooth earnings during periods of high earnings. In the same vein, Liu and Ryan (2006) establish that during the 1990s boom, banks managed their earnings by increasing their provisions for losses on homogeneous and accelerating charge-offs on the loans. Such earning management technique smoothed their income downward by overstating provisions for loan losses. Beatty et al. (2002) find that public banks are more likely to use discretion in loan loss provisions to avoid reporting declines in their earnings but less so with private banks in the US.

Contrary to prior studies, Ahmed et al. (1999) find no significant relationship between bank loan loss provision and earnings management but established relationship between loan loss provision and capital management. They argued that the increasingly positive correlation between loan loss provision and earnings management could be because of the new regulations. This is because increasing provision does not affect Tier 1 Capital, which banks are required to maintain at a certain ratio in the new regime. Exploring further the argument, Anandarajan et al. (2007) measured the relationship between loan loss provision and earnings before taxes as a metric for earnings management of Australian banks, and find that banks used loan loss provision to manipulate their earnings. In addition, the intensity of earning manipulation increased notably when the firms are listed. Furthermore, Bouvatier et al. (2014) studied how concentration of ownership and regulation affect income smoothing in EU commercial banks, and established evidence that banks manage earnings through loan loss provision. As noted in several IFRS studies, the enforcement of the accounting standards remains a recurring issue in the literature. Therefore, the impact of the standards is influenced by the level of jurisdictional enforcement (Houge, 2018), industry practices (Jermakowicz, et al, 2018), economic and institutional environment (Liu et al, , 2011), regulatory guidance (Pandey, 2021), and level of state involvement (Isaboke and Chen, 2019).

3. Development of the hypotheses

There are several reasons why managers might choose to manipulate earnings (Greenawalt and Sinkey, 1988). First, a fluctuation of earnings could signal risk. Therefore, perceived risk from the market could be reduced by smoothing earnings, increasing loan loss provision when income is high to decrease earnings and vice versa. Second, the reasoning might originate from the agency theory. Since a manager is not a shareholder, if there is a benefit scheme offering to a manager that is related to the stock price, the manager might be motivated to manipulate earnings to achieve the scheme. Lastly, compensation theory could be the cause of it. Prior studies (Healy, 1985 cited in Greenawalt and Sinkey,1988), indicate that if there is an incentive or bonus for financial performance, the possibility exists that managers will smooth earnings, even when they have already achieved a target. Similarly, Albian (2020) finds a decrease in the sensitivity of leverage

to changes in risk in the post IFRS 9 period, and that LLP are based on less objectivity determinants following IFRS 9 adoption.

Some studies (Bouvatier et al. 2014; Gebhardt and Novotny-Farkas, 2011; and Leventis et al. 2010) have examined the role of loan loss provision by banks in managing earnings. However, these studies concentrated on the era of IAS 39. The IAS 39 model calculates loan loss for banks from historical data whilst the IFRS 9 is based on estimates and its forward looking. Therefore, to understand the effect of IFRS 9 on loan loss provision, we constructed our hypothesis to test the primary evidence that the adoption of IFRS 9 affects earnings management. Implementing IFRS9 will provide an earlier recognition of loss (Novotny-Farkas, 2016; Bischof and Daske, 2016; and Gebhardt, 2016). However, it could provide a greater opportunity for managers to manipulate earnings since an impairment of financial instrument stems from manager discretion and anticipation. We therefore argue that the adoption of IFRS 9, will increase earnings management among banks in Europe. The hypothesis is stated as:

H1: European banks manage earnings through loan loss provision.

Banks in the Europe face some unique challenges than others outside the jurisdiction. For example, banks operating in the European union countries such as Greece, Italy, Ireland Portugal, and Spain faced greater sovereign debt crisis during the financial crisis in Europe in 2009, and their carry trade behaviour is more pervasive among compared to some non-EU banks. Most European banks invest in long-term government debt which are financed by low-yielding and short-term wholesale funds. European banks entered the sovereign debt crisis with a substantial exposure to peripheral sovereign debt. (Acharya and Steffen, 2015). EU banks rulebooks on prudential regulation are mainly derived from Basel guidelines and concern the amount and quality of liquidity and capital adequacy (Gržeta et al., 2023). In fact, Bouheni et al. (2014) observe that the effective regulation of EU banks helps to improve their profitability. In addition, capital restriction and supervision in the EU banks have been associated with increased bank efficiency (Chortareas et al., 2012). On the other hand, the drivers for bank profitability in non-EU banks has been identified as mainly driven by higher capital adequacy results (Căpraru and Ihnatov, 2014), and some of the non-EU countries such as Turkey, relies mostly on foreign investment and therefore good effective board mechanism to drive the economy (Basar et al, 2021). Given the characteristics of the EU and non-

EU banks in Europe, we test if IFRS adoption has significantly affected EM in both jurisdictions. Our hypotheses state:

H2 (a): The adoption of IFRS 9 increased earnings management in European banks

H2 (b) There is a significant difference in the effect of IFRS 9 on earnings management between EU banks and non-EU banks.

Our paper also examines whether the behaviour of banks towards EM may also be influenced by the listing status of the bank. We explore whether any significant difference exist between listed and non-listed banks in the level of risk and EM practices since these banks have different characteristics. For example, Dai and Zhang (2023) recently find that listed banks bear higher level of passive risks than unlisted banks, and Fiordelisia et al (2021) find that there are differences in the equity to loan ratio for both listed and non-listed banks during the period of financial crisis. Therefore, these imply that the prediction of risks, which is at the crust of IFRS 9 varies based on the listing status of the bank. Thus, our sub-hypothesis states:

H2 (c) There is a significant difference in the effect of IFRS 9 on earnings management between listed EU banks and non-listed banks.

There is evidence that constraints on earnings management increases significantly when a firm is audited by a higher quality auditor or Big 4 auditors (Tendeloo and Vanstraelen, 2005). Therefore, our paper posits that the increase in earnings management, after the adoption of IFRS 9, could be reduced if the firm is audited by Big 4-audit firms, and our hypothesis states:

H3: The increase in earnings management in European banks could be significantly reduced when the bank is audited by a Big 4-audit firm.

4. Data and Methodology

This research focuses on commercial banks in Europe. The financial data of European commercial banks are obtained from Capital IQ database (2020). By selecting criteria of SIC Codes, we generated 6020 Commercial banks, including listed and non-listed, which have operated for at least 10 years. Our initial selection was 245 banks, but 145 banks were dropped from the sample because of missing data. Our final sample consists of 100 banks in 37 countries from 2011 to 2019 See Appendix for the list and composition of the sample. We apply income-smoothing assumption

as a proxy for earnings management. Therefore, the relationship between loan loss provision and earnings before tax and provision, and volatility of net income are the main interests in the methodology section.

Following methodology of prior bank studies (Kanagaretnam, et al, 2004; Gržeta, et al., 2023), we split our sample into categories of listed and non-listed, as well as EU and non-EU banks instead of using binary dummies. The dummy variable approach is argued to be less robust than the category-wise approach. Holgersson et al (2014) argue that category-wise models may provide a more logical and comprehensive tool for analysing data with binary categories rather than binary dummy variable approach. In addition, the limited size of our sample makes the categorisation of the variables most appropriate.

To investigate whether banks manage earnings through loan loss provision, we then adapt the model used by Ahmed et al. (1999); Anandarajan et al. (2007) and Leventis et al. (2010), and apply loan loss provision as a dependent variable. Our model is expressed as:

$$\begin{aligned}
 LLPA_i = & \beta_{0i} + \beta_1 \times EBTPA_i + \beta_2 \times NIIA_i + \beta_3 \times \Delta NPLA_i + \beta_4 \times NPLTL_i \\
 & + \beta_5 \times \ln TA_i + \beta_6 \times \Delta GDP_i + \beta_7 \times IFRS9_i \\
 & + \beta_8 \times IFRS9_i \times EBTPA_i + (YEAR CONTROL) + \varepsilon_i
 \end{aligned}
 \tag{1}$$

Where: LLPA = Ratio of loan loss provision to total assets

EBTPA = Earnings before tax and provision weighted by total assets

NIIA = Non-interest income weighted by total assets

Δ NPLA = Change in NPL weighted by total assets

NPLTL = Ratio of NPL to total loans

LnTA = Natural logarithm of total assets

Δ GDP = Change in gross domestic product

IFRS9 = Dummy variable (1 if bank adopted IFRS9 (generally 2018 and after), 0 if not)

IFRS9*EBTPA = Interaction variables between IFRS and EBTPA

Year Controls = Dummy variables, which are used to capture the year of the data

ε = Error terms

EBTPA, NIIA, Δ NPLA, and NPLTL represent the internal information of banks, which captures individual specific characteristics and risk of banks, while Δ GDP and IFRS 9 represent the external control variable of the samples. They all are weighted by total assets and total loans to mitigate the difference of the sample sizes. Coefficient of EBTPA will be significantly positive if banks use

LLP to smooth income. This is because prior research suggest that firms prefer to make their earnings less volatile. When earnings before tax and provision are much higher than the previous year, it is more likely that a firm will increase provision; therefore, earnings will not fluctuate much compared to last year.

The same logic could be applied when earnings decrease noticeably from last year, as a firm might decrease provision to maintain earnings. NIIA is expected to be negatively correlated as income from the non-interest part has no risk on default. Δ NPLA and NPLTL reflect banks' risk. A positive outcome is expected for its coefficient since it is possible that firms will increase their anticipation of provision if non-performing loans increase noticeably from last year. Total assets as natural logarithm form, LnTA as a control variable to reduce the potential effect of skewness of data. Δ GDP is a controlled variable, which represents the economic condition of each sample. Lastly, year controls dummy variables is used to capture any potential effects that have not yet been observed in the model. (see also Kanagaretnam et al. 2010 and Lassoued et al. 2018).

Examining the Effect of IFRS 9 on Earning Management

Some studies suggest discretionary part of loan loss provision instead of loan loss provision for earnings management (see also: Cohen et al. 2014; Hamadi et al. 2016; Kanagaretnam et al. 2010; Lassoued et al. 2018). However, loan loss provision is used in this paper as IFRS 9 affects loan loss provision of banks. Jackson (2017) provides evidence that discretionary accrual might not be the appropriate tool to examine earnings management which further justifies loan loss provision as the most appropriate metric. We apply two metrics to measure the impact of IFRS 9 on earnings management. First, we measure the regression model of loan loss provision and second, we use the volatility of net income as a measurement of earnings management. Both metrics are used to analyse the differences between prior adoption and after the adoption of IFRS 9.

We use the loan loss provision as the first metric, and applied, the coefficient of IFRS9*EBTPA from Equation (1) to examine the effect of IFRS 9 on earnings management. Consistent with our hypothesis, we expect that the coefficient will be significantly positive indicating that earnings management increases after the adoption of new financial accounting standards. Our regression model is express as:

$$LLPA_i = \beta_{0i} + \beta_1 \times EBTPA_i + \beta_2 \times NIIA_i + \beta_3 \times \Delta NPLA_i + \beta_4 \times NPLTL_i + \beta_5 \times LnTA_i + \beta_6 \times \Delta GDP_i + (YEAR CONTROL) + \varepsilon_i \quad \dots\dots 2$$

To capture the effect of IFRS 9 adoption, we rerun the regression for pre and post adoption of the standard. The β_1 is expected to be positive if there is a significant increase in earnings management after the adoption of IFRS9.

Furthermore, there is a logical methodology used by both Lang et al. (2006) and Barth et al. (2008). They suggest the use of volatility of net income as a proxy for earnings management. It is expected that managers have an incentive to smooth income. If after the adoption, banks are more flexible in earnings management, it is anticipated that the volatility of net income will be less than in the prior period. Our model is further express as:

$$\Delta NI_i = \beta_{0i} + \beta_1 \times Size_i + \beta_2 \times Growth_i + \beta_3 \times Eissue_i + \beta_4 \times Leverage_i + \beta_5 \times Dissue_i + \beta_6 \times Turn_i + \beta_7 \times CF_i + \beta_8 \times B4A_i + \beta_9 \times Listed_i + (YEAR CONTROL) + \varepsilon_i \quad \dots\dots 3$$

- Where: ΔNI = Change of net income weighted by total assets
 Size = Natural logarithm of total equities
 Growth = Percentage change in sales
 Eissue = Percentage change in common stock
 Leverage = Total liabilities divided by total equities
 Dissue = Percentage change in liabilities
 Turn = Sales divided by total assets
 CF = Net cash flow divided by total assets
 Listed = Dummy variable (1 if bank is listed, 0 if bank is unlisted)

We use the variance of residual from Equation (3) to investigate the volatility of net income, or the so called ΔNI (Lang et al. 2006). If banks are more freely able to manipulate loan loss provision after the adoption, there will be the anticipation that volatility of net income, ΔNI , will be lower compared to the period prior to the adoption.

Examining the Effect of Auditor Quality on Earnings Management

Following Kanagaretnam et al (2010), we apply a two-step approach to predict the value of loan loss provision, express in Model 4 below as:

$$LLP_i = \beta_{0i} + \beta_1 \times BEGLLA_i + \beta_2 \times CHLOANS_i + \beta_3 \times LOANS_i + \beta_4 \times B4A_i + \beta_5 \times NPLBA_i + \beta_6 \times \Delta GDP_i + (YEAR CONTROL) + \varepsilon_i \quad \dots\dots 4$$

Where: LLP = Ratio of loan loss provision to total assets

BEGLLA = Ratio of beginning allowance for loan loss to total assets

CHLOANS = Change in total loans deflated by total assets

LOANS = Total loans deflated by total assets

NPLBA = Nonperforming loans deflated by total assets

B4A = Dummy variable (1 if firm audited by big 4 auditors, 0 if others)

To estimate the discretionary part of the LLP we use the absolute value of the residuals which is the difference between the actual LLP and predicted LLP. Since Equation (4) is an acceptable predictor of loan loss provision, hence the residuals reflect the discretionary part of it.

$$|DLLP|_i = \beta_{0i} + \beta_1 \times EBTPA_i + \beta_2 \times L1.LLPA_i + \beta_3 \times TTLTA_i + \beta_4 \times LnTA_i + \beta_5 \times GDP_i + (YEAR CONTROL) + \varepsilon_i \quad \dots\dots 5$$

Where: |DLLP| = Absolute value of discretionary loan loss provision

TTLTA = Total loan weight by total assets

L1.LLPA = Lagged value of LLPA

5. Presentation of Results and Discussion of Findings

Descriptive Results

Table 1 represents the descriptive statistics of the relevant variables that are used in the analysis. All related values of loan loss provision after adoption of IFRS 9 decreased from the prior period. Mean of loan loss provision to total assets plunged from 0.007 to 0.003. This could be explained by a fall in earnings before taxes and provision. If banks manage earnings through loan loss provision, it is expected that loan loss provision will be lower after the adoption since banks' earnings before tax and provision fell from 0.0139 to 0.0137 after the adoption. Banks might have an incentive to decrease loan loss provision to maintain the stability of net income.

[INSERT TABLE 1 HERE]

In contrast, a decrease in loan loss provision is not caused by earnings management, but instead by other conditions. First, the decrease could be because of a decrease of risk in the banking industry. The variables that capture the risk of banks are CNPLA NPLTL and NPLBA which are related to non-performing loans, dropped noticeably after the adoption. Furthermore, this could be due to more diversification in the revenue of banks. Since, NIIA, which shows the non-interest income of banks also rose by an average of 0.001, the upward trend of the economy could be the final reason. The average GDP of all samples increased from 1.9% to 2.5% from prior to post adoption. Hence, the possibility of loans going into default could potentially be reduced, even as generalising this may be depends on the industry and location of the firm. Jermakowicz, et al (2018) find that significant effects of adopting IFRS significantly depend on the applicable industry practices. This implies that generalising IFRS impact should be done with caution.

This study is mainly concerned with the discretionary loan loss provision (DLLP), and the value of the absolute discretionary loan loss provision (ADLLP). The median of DLLP in both prior and post periods is negative, -0.002 and -0.001 respectively. This indicates that banks tend to disclose less loan loss provision than actual value to increase earnings. Unlike the expectation that there will be more room for flexibility to manage earnings through loan loss provision, absolute value of discretionary part of loan loss provision fell from 0.005 to 0.003 after the adoption of IFRS. This also indicates that banks reduce their manipulation through loan loss provision after the adoption.

Most banks in our sample are audited by Big-4 audit firms, which accounts for around 93.22% of samples. Table 2 provides the results of the mean comparison tests of absolute value of discretionary loan loss provision between pre and post adoption samples, and Big-4 and non-Big-4 auditors. Compared to the period of adoption, discretionary loan loss provision decreases significantly at 5% level after the adoption. This indicates that the adoption really does improve accounting quality. Although the result shows that banks that are audited by the Big-4 auditors are more likely to have less discretionary loan loss provision, the mean comparison test is not statistically significant at any level.

[INSERT TABLE 2 HERE]

Correlation result is provided in Table 3. Firstly, LLPA being positively correlated with EBTPA (0.1404) indicates that banks manage earnings to smooth income by reducing LLPA when EBTPA is low and increasing LLPA when EBTPA is high. Moreover, the significant negative correlation between LnTA and LLPA (-0.1507), on the one hand, indicates that large banks have a better or less risky portfolio than the small banks, which is consistent with the negative correlation between LnTA and NPLTL. Surprisingly, there is a negative correlation between B4A and IFRS 9 (-0.0800) suggesting that after the adoption; some banks might have decided to change their auditor from Big-4 to Non-Big-4 for unknown reasons. Lastly there is a significantly positive correlation between TTLTA to LLPA. A larger portion of total loans to total assets can increase risk in banks. Hence, an increase in loan loss provision will serve as a tool to capture that risk.

[INSERT TABLE 3 HERE]

Investigating Earnings Management in Banks through Loan Loss Provision

Table 4(a) represents the regression analysis result of loan loss provision and the independent variables. The original model is separated into three; Model 1 shows the regression results of the full sample while Models 2 and 3 provide the results of listed banks and non-listed banks, respectively. The reason for separating the models is to reduce potential biases that could arise from the listing status of the banks. Differences in regulation and investor protection are examples of such potential biases. Models 2 and 3 of Table 4(a) use different approach compared to model 1. Since the problem of heteroscedasticity exists in separated samples, normal pooled regression may not produce a reliable result. Therefore, we apply a regression with robust errors to models 2 and 3, this mitigates the potential effect of the significance level being higher than it should be.

Listed versus non-listed banks

The results of Table 4 (a) indicate that both listed, and non-listed banks manage earnings through LLP. This is evidenced by the EBTPA and NPLTL results which are significantly positive for both categories with values of 0.33813 and 0.21116 for listed banks, and 0.04649 and 0.07098 for non-listed banks respectively. This suggests that bank managers will increase LLP when EBTPA is high to reduce earning variability. However, the NIIA result of the listed banks is negatively significant with a value of -0.54581. This indicates that the net interest income of listed banks

decreases with any manipulation of earnings by bank managers. The result of IFRS 9 is significantly negative (-0.00944) for non-listed banks indicating that the accounting standards reduce earnings management of non-listed banks through loan loss provision. However, the IFRS 9 interaction with EBTPA (IFRS9*EBTPA) has a positive effect on LLP (0.33658) for non-listed banks, indicating that earnings management through LLP is mostly driven by managers of non-listed rather than listed banks. This is consistent with Taylor and Aubert (2022); Pandey, (2021) that earnings management is reduced following IFRS 9. However, our result indicates that such reduction is applicable to listed rather than non-listed banks. As observed by Ozili (2017), non-listed banks are less regulated, and profitability is not influenced by their regulatory capital.

EBTPA is significantly positive across all models at 1% and 5% level respectively, suggesting that our first hypothesis that banks in Europe manage earnings through loan loss provision to smooth income is correct. This is consistent with Anandarajan et al (2007) and Leventis et al, (2010). In Models 2 and 3, the EBTPA is significant with coefficients of 0.33813 and 0.21116 respectively for listed and non-listed banks, indicating that both categories of banks engage in EM though it appears that listed banks engage in EM. This could be because of managers wanting to reduce the volatility of stock price since the stock price of listed banks changes almost daily, while there is not much frequency in the movement of private banks' stock price. Thus, suggesting that managers of listed banks have more incentive to smooth income (Anandarajan et al. 2007).

[INSERT TABLES 4 (a and b) HERE]

The coefficient of NIIA is 0.54581 and statistically significant at 1% level in Model 2. This result suggest that an increase in the portion of non-interest income to total assets helps to reduce banks' risk and leads to better diversification and thereby reducing the loan loss provision. The coefficients of CNPLA are positive in both models though not significant suggesting that there might be other factors that are not identified in this model, which could be more important to bank than a change in NPL.

However, this does not mean that listed banks are disinterested in NPL since there is strong evidence that the ratio of NPL to total loans has a significant positive coefficient to loan loss provision in all models. When the risk of a bank increases, banks reflect or signal it by increasing

loan loss provision, which could explain the positive coefficient. Although the coefficient of size and LnTA is negative, suggesting that a larger bank is more likely to have a less risky portfolio when compared to smaller banks. The coefficient of IFRS 9 is negative in unlisted banks suggesting that the treated of LLP by unlisted banks is not influenced by IFRS 9. In any case, unlisted banks are not mandated to adopt the Standard. The coefficient of GDP is consistent with the expectation, being significantly negative in all models. This could be because of a decrease in solvency risk when the economy is in an upturn.

Overall, we can conclude that there is strong evidence that banks in Europe manage earnings to smooth income through loan loss provision. There is no difference between listed and non-listed banks in that respect. The results of the regression from Table 4(a) provide evidence that earnings management increased after the adoption for non-listed banks. This is because non-listed banks are not influenced by IFRS 9. The coefficient of IFRS9*EBTPA is positive in Model 3 (non-listed banks). The result suggest that non-listed banks continue to engage in earnings management after the adoption.

EU versus non-EU banks

Table 4 (b) further expands on the results to check if the management of earnings is more common with banks within the EU or those outside the European Union jurisdiction. The EBTPA variable for EU banks has a significant and positive coefficient of 0.17615 which indicates that the management of earnings through loan loss provision exists among EU banks than in non-EU banks before IFRS 9 adoption. However, the NIIA for EU banks before the IFRS 9 adoption is negative (-0.20215) and significant indicating that EU banks manage their LLP by reducing their non-interest income. This helps to reduce risks, leading to effective diversification.

However, the result of the interaction of EBTPA with IFRS 9 (EBTPA*IFRS9) , which is the post IFRS 9, shows that non-EU banks have significant result of 0.21880 while the EU banks are not significant. This suggests that for non-EU banks, higher profit leads to higher LLP but only in the post IFRS 9 period. For EU banks, the LLP are similar in the pre and post IFRS 9. However, higher earnings lead to higher LLP, and the relationship is the same before and after IFRS 9 implementation. Our result indicates that IFRS 9 exposes EM practices in banks especially those

outside EU regulatory environment. The regulatory environment in which a bank operates can influence the level of LLP and its compliance to accounting standards.

Examining the Effect of IFRS 9 on Earnings Management

We use loan loss provision to examine the impact of IFRS 9 on European banks. The result in Table 5 shows that EBTPA is significantly positive (0.27099) prior to IFRS 9, indicating that European banks engage in earnings smoothing prior to IFRS 9 through increase in their loan loss provisions. This is further confirmed by the NPLTL result which is significantly positive (0.04154). The NIIA is significantly negative (-0.44804) prior to the adoption of IFRS 9 suggesting that European banks reduce loan loss provision following IFRS 9 adoption. Both EBTPA and NIIA are not significant after the adoption This indicates that there is strong evidence that our second hypothesis should be rejected. However, following IFRS 9, the EBTPA and NIIA become non-significant, indicating that the introduction of the standard reduced EM in banks. In summary, these results [Tables 4(a), (b) and (c)] indicate that non-listed banks in the EU engage in earnings management through loan loss provision following IFRS 9. This may be because of the large number of non-listed EU banks compared with EU banks in our sample.

[INSERT TABLES 5 & 6 HERE]

Table 6 provides the comparison of volatility of net income before and after the adoption. The result indicates a reduction in the level of volatility of banks net income following the adoption of IFRS 9. This is shown by the drop in the volatility of net income from the previous period. Prior to the adoption, the variability of ΔNI was 0.00015, nonetheless, after the adoption; it fell to 0.00007 or a half that of the prior period. We performed a variance comparison test of ΔNI between the prior and after the adoption to test whether the difference is significant or not. The result shows that it is significantly different at a 1% level. Therefore, it can be concluded that the volatility of net income of banks decreased significantly after the adoption.

In conclusion, the regression results provide evidence that the flexibility to manage earnings increased after the adoption of IFRS 9 for EU banks since the coefficient IFRS9*EBPTA is

positive and statistically significant. Thus, there is strong evidence that the second hypothesis can be rejected for EU banks as the volatility of net income reduced significantly following IFRS 9 adoption but less so for non-EU banks.

Examining the Effect of Auditor Quality on Earnings Management

Table 7 presents the result of our regression on audit quality on earnings management. The absolute value of discretionary loan loss provision, which is obtained from the residual of Equation (3), is used in the regression representing our dependent variable. The first model provides the regression result of the total sample, including prior and post adoption periods. Model 7 pools all the samples from prior adoption, and Model 8 pools all the samples after the adoption. We use the lag of loan loss provision and separate the models to clarify whether high quality auditors provide higher accounting standards and whether this could reduce the impact of adoption.

[INSERT TABLE 7 HERE]

Consistent with prior research, coefficients of B4A are negative in all the models, however, the results are not statistically significant at any level. As a result, the third hypothesis, that an increase in earnings management in European banks reduces when a bank is audited by a Big-4 audit firm is rejected. Hence, being audited by a Big 4 audit firm does not guarantee higher quality accounting reports. This unexpected result could be explained by several reasons. First, whether a firm is audited by Big 4 or Non-big 4 auditors, the regulatory and professional standards that they must follow are the same. Therefore, the quality of accounting reports might have already been acceptable regardless of the quality of auditors (Lawrence et al. 2011). In addition, Non-big 4 auditors might have the advantage of a better understanding of domestic markets and closer relationships with their clients compared to Big-4 audit firms (Louis, 2005). As noted in several IFRS studies, the enforcement of the accounting standards remains a recurring issue in the literature. Therefore, the impact of the standards is influenced by the level of jurisdictional enforcement (Houge, 2018), industry practices (Jermakowicz, et al, 2018), economic and institutional environment (Liu et al, , 2011), regulatory guidance (Pandey, 2021), and level of state involvement (Isaboke and Chen, 2019).

Although B4A is the main interest in this subsection, there are various coefficients that are interesting for interpretation and analysis from models 6 to 8. There is a significantly negative coefficient of EBTPA (-0.25926) after the adoption in model 8 indicating that a decrease in bank earnings leads to higher LLP. This could suggest that when banks are audited by the Big4, the tendency is to manage earnings downwards instead of upwards. This is consistent with Fan et al. (2020) that by their nature, banks are under more and stricter monitoring by the government and could be under compensation restrictions, thus discouraging banks from upwards manipulation of earnings. Consequently, there is evidence that European banks smooth income by downward manipulating loan loss provision when audited by the Big4 auditors. Moreover, the coefficient of TTLTA is insignificant after the adoption which could indicate that banks become more flexible in disclosing loan loss provision after the adoption. This suggests that even if the banks manipulate earnings through discretionary loan loss provision prior to the adoption, they do so with a limitation on the number of loans.

Robustness test

Our robustness check involves extending the LLP model in Equation (4) to test whether the result is consistent. We applied two-way interaction variables to capture the extent of the impact of the adoption on NIIA, Δ NPLA, and NPLTL which capture individual specific characteristics and risk of banks by running the model with the same method used in Model 1 and interacting with the IFRS 9. The result in Table 8 shows that the results are statistically the same. The main coefficients of EBTPA and IFRS9*EBPTA are still positive (0.12456 and 0.11322) and statistically significant at the same confidence level.

[INSERT TABLE 8 HERE]

6. Conclusion

Accounting standards have been consistently updated and improved to serve as tools to protect stakeholders and potentially reduce agency costs. One of the recent standards, IFRS 9, has been developed to increase the stability of the financial system by changing the method of how the impairment of financial assets is reported. This is believed to reduce the potential risk of banks failing during financial crises. Banks in Europe manage earnings through loan loss provision to

smooth income and earnings management is more aggressive in listed banks than unlisted banks. This suggests that managers of listed banks have more incentive to smooth income. An increase in the portion of non-interest income to total assets helps to reduce banks' risk and leads to better diversification and thereby reducing the loan loss provision. When the risk of a bank increases, banks signal it by increasing loan loss provision. This indicates that the adoption of IFRS 9 by European banks does not significantly improve the earnings smoothing since there is evidence that banks in Europe, particularly EU banks engaged more in the management of earnings post adoption but have less volatility in the reporting of income. This is supported by the strong significant positive relationship between loan loss provision and earnings before tax and provision, and a decrease of volatility of net income.

Additionally, we find that being audited by a Big 4 audit firm does not guarantee higher quality accounting reports. When banks are audited by the Big 4, the tendency is to manage earnings downwards instead of upwards as banks are under more and stricter monitoring. Therefore, this study contributes to practice by providing some indications to regulators to help them identify additional tools to regulate or supervise earnings management behaviour.

Our paper finds that earnings management increases in non-EU banks after IFRS 9 adoption, but we find no difference in the earnings management behaviour of EU banks following the adoption of IFRS 9. In furtherance to earlier studies, our study contributes not only to EM and LLP literature but also on the role of IFRS 9 on different income streams of banks such as net interest income, earnings before tax and provisions; as well as the interaction of IFRS 9 on such earnings. Bank net interest income represents the largest fraction of banks' earnings compared with non-interest fee (Entrop, et al 2015). The nature of their interest incomes is different due to timing of the maturities of loans and deposits. Thus, the interest payments from the underlying bonds do not usually offset each other but contribute to the net income margin of banks. Therefore, the forecast of potential risks arising from such income should be weighed proportionally by the bank and is a significant purpose of IFRS 9.

There are several limitations in this study. First, the financial data, after the adoption, might not be adequate. This is because the implementation has an effective date on 1 January 2018. Therefore, only 2 fiscal years of financial data are available. Secondly, the discretionary loan loss provision

might not be completely defined even if this method has been used in several prior studies. This is because this financial data is not disclosed in financial statements and should therefore be interpreted with discretion.

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Table 1: Descriptive Statistics between Prior Adoption and Post Adoption

	PRE-ADOPTION			POST ADOPTION		
	Mean	Median	S.D.	Mean	Median	S.D.
DEPENDENT VARIABLES						
LLPA	0.007	0.003	0.011	0.003	0.001	0.007
DLLP	0.005	0.003	0.006	0.003	0.002	0.005
DLLP	2.01E-12	-0.002	0.008	1.04E-11	-0.001	0.006
BANK SPECIFIC						
EBTPA	0.0139	0.012	0.013	0.0137	0.012	0.011
NIIA	0.012	0.011	0.012	0.013	0.010	0.010
CNPLA	-0.001	0.000	0.034	-0.007	-0.001	0.032
NPLTL	0.095	0.060	0.106	0.081	0.040	0.119
BEGLLA	-0.032	-0.020	0.036	-0.031	-0.016	0.046
CHLOANS	0.587	0.640	0.196	0.601	0.638	0.195
LOANS	0.624	0.628	0.537	0.614	0.653	0.214
NPLBA	0.057	0.032	0.073	0.046	0.023	0.069
LNTA	9.719	9.403	2.184	9.813	9.531	2.104
TTLTA	0.588	0.640	0.195	0.601	0.634	0.197
SIZE	7.306	7.153	2.065	7.463	7.386	2.020
GROWTH	0.196	0.023	6.05	0.136	0.010	2.909
EISSUE	0.060	0.012	0.572	0.004	-0.020	0.196
LEV	10.816	10.617	18.702	11.826	9.027	16.328
DISSUE	0.033	0.012	0.169	0.018	0.019	0.120
TURN	0.027	0.025	0.022	0.030	0.027	0.014
CF	0.007	0.005	0.065	0.006	0.001	0.080
COUNTRY SPECIFIC						
GDP	0.019	0.019	0.024	0.025	0.022	0.013
DUMMY VARIABLES						
IFRS9	22.22%					
BIG 4	93.22%					

SOURCE: Authors' own work.

This table presents the descriptive statistics of the variables used in the study. The first panel contains the dependent variables while the second panel contains the bank related variables. GDP is the country specific variable and there are two dummies: IFRS9 and Big4 auditors. The descriptive table shows both the pre and post IFRS9 results.

Table 2: Mean Comparison Tests between Pre-Adoption and Post Adoption, and Banks that Are Audited by Big 4 Auditors and Banks that Are Not Audited by Big 4 Auditors

Variables	Pre-Adoption DLLP 	Post-Adoption DLLP 	Differences	t-value
B4A	0.005	0.003	-0.002	(-3.71)**
Non-B4A	0.005	0.004	-0.001	(1.24)

SOURCE: Authors' own work.

Significance level at 5% is denoted by**. Table 2 presents the mean comparison between discretionary loan provisions (DLLP) of pre and post IFRS9 adoption, as well as banks that are audited by Big-4 and non-Big-4 audited banks. The table indicates a decrease in DLLP of banks following the adoption of IFRS9. Although the result shows that banks that are audited by the Big-4 auditors are more likely to have less discretionary loan loss provision, the mean comparison test is not statistically significant at any level.

Table 3: Correlation matrix

	LLPA	EBTPA	NIIA	CNPLA	NPLTL	LnTA	GDP	IFRS9	B4A	IFRS9*EBTPA	TTLTA
LLPA	1										
EBTPA	0.1404*	1									
NIIA	-0.0943*	0.5119*	1								
CNPLA	0.1836*	0.0411	-0.0284	1							
NPLTL	0.5247*	-0.0101	-0.0211	0.0627	1						
LnTA	-0.1507*	-0.2547*	-0.1529*	0.0078	-0.2076*	1					
GDP	-0.3035*	0.1310*	0.1801*	-0.2382*	-0.057	-0.1886*	1				
IFRS9	-0.1525*	-0.0053	0.0198	-0.0775*	-0.0499	0.0146	0.1205*	1			
B4A	0.0804*	0.01	-0.0329	-0.0064	0.0088	0.0075	0.0327	-0.0800*	1		
IFRS9*EBTPA	-0.0291	0.2561*	0.0376	-0.0323	-0.0421	-0.0539	0.1232*	0.7486*	-0.0251	1	
TTLTA	0.2173*	0.2055*	-0.2953*	0.0033	0.0008	-0.1690*	-0.0725*	0.0281	0.1316*	0.1248*	1

SOURCE: Authors' own work.

Significance level at 10% is denoted by *. Table 3 is the correlation matrix of the variables used in the study. It indicates a positive relationship between LLPA and EBTPA, CNPLA, NPLTL, B4A and TTLTA and a negative relationship LLPA and NIIA, LnTA, GDP, IFRS9 and the interaction variable IFRS9*EBTPA.

Table 4 (a): Regression Results of Earnings Management through Loan Loss Provision

Variables	Coefficient	Full sample Model (1)	Listed Model (2)	Non-listed Model (3)
Intercept	β_0	0.0134 0.0153	0.01602 0.02807	-0.00328 0.01963
EBTPA	β_1	0.170*** 0.0642	0.33813*** 0.10198	0.21116** 0.09183
NIIA	β_2	-0.108 0.0721	-0.54581*** 0.1241	0.06812 0.09423
CNPLA	β_3	0.0152** 0.00772	0.00522 0.01079	0.01434 0.01145
NPLTL	β_4	0.0580*** 0.00702	0.04649*** 0.00914	0.07098*** 0.01102
LnTA	β_5	-0.00034 0.00156	-0.0003 0.00275	0.00107 0.00206
IFRS9	β_6	0.00048 0.0126	0.00041 0.01185	-0.00944*** 0.00293
IFRS9*EBTPA	β_7	0.201** 0.0933	0.08623 0.13004	0.33658** 0.14834
GDP	β_8	-0.174*** 0.0216	-0.08783*** 0.03097	-0.23446*** 0.03148
Obs.		100	409	560
Year control		Yes	Yes	Yes
Fixed Effect		Yes	Yes	Yes
R-Squared		0.629	0.5659	0.5774

SOURCE: Authors' own work.

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Table 4 presents the result of the earnings management through loan loss provision of both listed and unlisted banks in the sample. The EBTPA is significant in both listed and unlisted banks indicating that banks manage their earnings through loan loss provision. The interaction variable IFRS9*EBTPA and IFRS9 are significant for non-listed banks.

Table 4 (b): Regression Results of Earnings Management through Loan Loss Provision of EU and non-EU Countries

VARIABLES	Coefficients	ALL Model (1)	Non-EU Model (2)	EU Model (3)
Intercept	β_0	0.01764* (0.00928)	0.01471 (0.01709)	0.01639 (0.01013)
EBTPA	β_1	0.15850*** (0.03894)	0.08627 (0.09366)	0.17615*** (0.04423)
NIIA	β_2	-0.16972*** (0.04375)	-0.07494 (0.08427)	-0.20215*** (0.05100)
CNPLA	β_3	0.02487*** (0.00813)	0.02892* (0.01564)	0.02254** (0.00931)
NPLTL	β_4	0.03364*** (0.00425)	0.05088*** (0.00948)	0.03465*** (0.00451)
LnTA	β_5	-0.00109 (0.00095)	-0.00148 (0.00200)	-0.00097 (0.00102)
IFRS9	β_6	0.00082 (0.00763)	-0.00243 (0.00253)	0.00108 (0.00707)
IFRS9*EBTPA	β_7	0.10020* (0.05663)	0.21880** (0.08715)	0.06883 (0.06307)
GDP	β_8	-0.11178*** (0.01324)	-0.09294*** (0.03283)	-0.09384*** (0.01503)
Year Control		YES	YES	YES
Fixed Effect		YES	YES	YES
Observations		1,000	180	760
R-squared		0.6130	0.5650	0.5985

SOURCE: Authors' own work.

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Table 4(b) presents the regression result of the earnings management through loan loss provision of EU and non-EU banks. The EBTPA is significantly positive for EU banks and the interaction variable IFRS9*EBTPA is positive for non-EU banks. The NPLTL and CNPLA are both significantly positive across both samples.

Table 5: Regression Result for Earning Management Before and After the Adoption

Variables		Pre-IFRS9 Model (4)	Post-IFRS9 Model (5)
Intercept	β_0	0.02897 (0.02891)	0.11297 (0.10371)
EBTPA	β_1	0.27099** (0.10960)	0.41567 (0.43160)
NIIA	β_2	-0.44804*** (0.13000)	-0.14652 (0.59521)
CNPLA	β_3	0.01266 (0.01237)	-0.01075 (0.01212)
NPLTL	β_4	0.04154*** (0.01201)	0.10989*** (0.02845)
LnTA	β_5	-0.00154 (0.00285)	-0.01214 (0.01006)
GDP	β_6	-0.07538** (0.03280)	0.16584* (0.09361)
Year Control		YES	YES
Fixed Effect		YES	YES
Observations		700	200
R-squared		0.20043	0.34127

SOURCE: Authors' own work.

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5 presents the impact of IFRS9 adoption on earnings management before and after IFRS9 adoption by banks. EBTPA is significantly positive pre-adoption and NPLTL is both positive before and after IFRS9 adoption. NIIA is significantly negative pre-adoption of IFRS9.

Table 6 Comparison of net income volatility

	Prior Adoption of IFRS9	Post Adoption of IFRS9	Difference-in- Difference
Variability of Δ NI	0.00015	0.00007	0.00008**
N	644	184	

SOURCE: Authors' own work.

**significant at 0.05. Table 6 presents the comparison of volatility of net income before and after IFRS9 adoption. The Difference-in-difference result indicates that the volatility of net income is significant. The volatility of net income is used as a proxy for measuring earnings management.

Table 7: Regression Result of Discretionary Part of Loan loss Provision

VARIABLES	Coefficient	ALL Model (6)	Pre-Adoption Model (7)	Post-Adoption Model (8)
Intercept	β_0	-0.00264 (0.00654)	0.00113 (0.00890)	-0.02291 (0.06209)
EBTPA	β_1	-0.01108 (0.01894)	-0.01807 (0.02106)	-0.25926** (0.11348)
l1_LLPA	β_2	0.06096*** (0.02078)	0.03970 (0.02614)	-0.10785 (0.08394)
TTLTA	β_3	0.00966*** (0.00256)	0.01140*** (0.00343)	0.01117 (0.01451)
LnTA	β_4	0.00021 (0.00063)	-0.00014 (0.00084)	0.00265 (0.00613)
GDP	β_5	-0.01759* (0.00968)	-0.01474 (0.01059)	-0.09695 (0.06760)
B4A	β_6	-0.00100 (0.00120)	-0.00142 (0.00156)	-0.00085 (0.00293)
IFRS9*B4A	β_7	-0.00108 (0.00140)		
Fixed Effect		YES	YES	YES
Year Control		YES	YES	YES
R-squared		0.1797	0.2463	0.1486
Observations		900	700	200

SOURCE: Authors' own work.

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7 presents the discretionary part of loan loss provision on earnings management before and after IFRS9 adoption. EBTPA is significant post IFRS9 adoption but negative while B4A which measures effect of audit quality on management of earnings; the result is however not significant. TTLTA captures banks risk and L1.LLPA is the one-year lag of LLPA .

Table 8: Extended Model for Robustness Test

Variables	Coefficients	Model (9)
Intercept	β_0	0.00706 (0.01321)
EBTPA	β_1	0.12456*** (0.04586)
NIIA	β_2	-0.13018** (0.05144)
CNPLA	β_3	0.02299** (0.00903)
NPLTL	β_4	0.04334*** (0.00518)
LnTA	β_5	-0.00062 (0.00110)
IFRS9	β_6	0.00138 (0.00752)
IFRS9*EBTPA	β_7	0.11322** (0.05703)
GDP	β_8	-0.12395*** (0.01551)
IFRS9*NIIA	β_9	0.06227 (0.05964)
IFRS9*CNPLA	β_{10}	-0.02797 (0.01925)
IFRS9*NPLTL	β_{11}	-0.02850*** (0.00530)
Fixed Effect		YES
Year Control		YES
R-squared		0.6697
Observation		900

SOURCE: Authors' own work.

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 8 presents the robustness test result. EBTPA, NIIA, CNPLA and NPLTL are significant. Some of the variables such as EBTPA, NIIA, CNPLA and NPLTL are interacted with IFRS9 to determine if they play mediating role in the management of earnings through loan loss provision in the adoption of IFRS9.

Appendix

List of countries used in the study. All firms have 10 years of available data

S/N	Country	No of samples	S/N	Country	No of samples
1.	Albania	2	27.	Portugal	1
2.	Andorra	2	28.	Romania	3
3.	Austria	2	29.	Russia	3
4.	Belarus	1	30.	Serbia	1
5.	Belgium	3	31.	Slovakia	2
6.	Bulgaria	4	32.	Slovenia	1
7.	Croatia	3	33.	Spain	1
8.	Cyprus	4	34.	Sweden	2
9.	Czech Republic	2	35.	Switzerland	1
10.	Denmark	2	36.	Ukraine	2
11.	Estonia	1	37.	United Kingdom	11
12.	France	9			
13.	Germany	3			
14.	Greece	3			
15.	Hungary	2			
16.	Ireland	1			
17.	Italy	2			
18.	Latvia	5			
19.	Liechtenstein	1			
20.	Lithuania	1			
21.	Luxembourg	2			
22.	Macedonia	1			
23.	Malta	2			
24.	Netherlands	3			
25.	Norway	8			
26.	Poland	3			

SOURCE: Authors' own work