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# Impact of IAS 39 reclassification on Income Smoothing by European Banks

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## Abstract

We examine the impact of the reclassification of IAS 39 on income smoothing using loan loss provisions among European banks. We predict that the strict recognition and reclassification requirements of IAS 139 reduced banks' ability to smooth income using bank securities and derivatives, motivating them to rely more on loan loss provisions to smooth income. Our findings do not support the prediction for income smoothing through loan loss provisions. Also, there is no evidence for income smoothing in the pre- and post-IAS 39 reclassification period. The implication of the findings is that: (i) European banks did not use loan loss provisions to smooth income during the period examined, and rather rely on other accounting numbers to smooth income; (ii) the IASB's strict disclosure regulation improved the reliability and informativeness of loan loss provision estimates among European banks during the period of analysis.

JEL codes: C23, G14, M41.

Keywords: Earnings Management; Income Smoothing; Loan loss provisions, IFRS, IAS 39; Financial Crises

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## 1 Introduction

We examine the impact of IAS 39 reclassification on banks' ability to use loan loss provisions to smooth income. We investigate whether the IAS 39 disclosure regulation that discourage the use of securities gains and loss to manage earnings motivated bank managers to switch to, or rely on, loan loss provisions to smooth income, as an alternative strategy to manage banks' reported earnings.

Income smoothing is the process to reporting stable profit over time (Ozili and Thankom, 2018; Ozili and Outa, 2017). Loan loss provisions is considered to be a major income smoothing tool because loan loss provisions are estimates generated at managers' discretion, thereby making loan loss provisions a useful tool in the hands of managers to alter accounting numbers to achieve some desired profit outcomes (Ozili and Outa, 2017). Some studies argue that bank managers, for various reasons, rely on the manipulation of loan loss provisions estimates to smooth income by overstating loan loss provisions estimates if reported earnings are expected to be too high and understating loan loss provisions estimates if reported earnings are expected to be too low so that reported earnings are never too high or too low (Kanagaretnam et al., 2003, 2004; Liu and Ryan, 2006; Ozili and Outa, 2017). However, managerial discretion in provisioning for income smoothing purpose can be limited by strict accounting standards. To date, the literature is silent on the question of whether European banks shift to the use of loan loss provisions when new disclosure regulation such as IAS 39 discourage the use of bank securities to manage or smooth earnings.

IAS 39 had undergone several revisions to date.<sup>1</sup> IAS 39 issued in 2004 require a financial institution to measure financial assets or liabilities at fair value through the profit or loss statement. After the 2008 financial crisis, the 2008-2009 amendment to IAS 39 changed the accounting for financial instruments substantially by (i) permitting the re-classification of securities out of the trading category only in rare circumstances; (ii) permitting the re-classification to loan category (cost basis) if the firm has an intention and ability to hold the securities for the foreseeable future (loans) or until maturity (debt securities); and (iii) not permitting the re-classification of securities if fair value is the option previously elected.

For the purpose of measurement, IAS 39 paragraph 50 states that an entity "(i) shall not re-classify a derivative financial instrument into or out of the fair value through profit or loss category while it is held or issued; (ii) shall not re-classify any financial instrument out of the fair value through profit or loss category if upon initial recognition it was designated by the entity as at fair value through profit or loss; and may do so if (iii) a financial asset is no longer held for the purpose of selling or repurchasing it in the near term (notwithstanding that the financial asset may have been acquired or incurred principally for the purpose of selling

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<sup>1</sup> IAS 39 Accounting for Financial Instruments: Recognition and Measurement was issued in 2004 and became effective from 1st January, 2005. In March 2004, IAS 39 was revised to reflect macro hedging. In 2006, IAS 39 was amended to include fair value option for measuring securities. In response to the 2008 financial crisis, the IASB amended IAS 39 because of its impact on bank balance sheet during the crisis. Subsequent amendments to IAS 39 for embedded derivatives on reclassifications of financial assets was made in March 2009 effective from July 2009, and further improvement to IAS 39 annual reporting was made in April 2009. The aim of IAS 39 was to improve disclosure and transparency of transactions involving securities. Although our earliest sample period for this study is 2005 (the time when IAS 39 became effective), this starting period of our analysis allows us to focus on the changes occurring around the re-classification of IAS 39 before and after 2009.

or repurchasing it in the near term), reclassify that financial asset out of the fair value through profit or loss category.” (IASB, 2008: p.3-4).

The intent of the International Accounting Standards Board (IASB) in issuing IAS 39 was to increase the transparency of transactions involving securities and derivatives and to ensure the timely recognition/reporting of the associated gains and losses on these instruments. Subsequent revisions to re-classified IAS 39 was intended to further improve the recognition of financial instruments and to limit managers’ ability to manipulate or smooth income using securities and derivatives.

In this paper, we argue that European banks that were affected by IAS 39 will rely more on loan loss provisions to smooth income rather than rely on realised/unrealised securities gains to smooth income, because the stricter recognition and re-classification requirements of IAS 39 reduced banks' ability to smooth income using bank securities and derivatives. We find that listed European banks do not use loan loss provisions to smooth reported earnings during the period examined. Also, we did not find any significant difference in the income smoothing behaviour of banks and non-bank financial institutions in Europe.

We make several contributions to the literature in the following ways. First, we extend the frontiers of earnings management research to banks. We provide insights on whether banks revert to accrual earnings management when strict regulation discourage real-earnings management behaviour. Prior literature has focus extensively on non-financial institutions (Roychowdhury, 2006; Cohen et al, 2008; Cohen and Zarowin, 2010). We focus on banks, thereby, contributing to the bank earnings management literature (e.g. Barth et al, 2017; Ozili and Outa, 2018a; Ozili, 2017, etc.). The insight from our findings suggest that banks do not necessarily revert to accrual earnings management when disclosure regulation discourages real-earnings management behaviour. Second, this study contributes to the financial reporting quality literature. Prior studies in this literature assess the effectiveness of IFRS in improving the transparency and accounting quality of financial reporting (Penman, 2007; Garrett et al, 2014). We focus on bank financial reporting, and provide insights for the impact of IAS 39 re-classification on banks’ propensity to use loan loss provisions to smooth reported earnings, a context that remain unexplored by prior literature. And finally, we respond to calls for more contextually-embedded examinations of the impact of disclosure regulation on bank financial reporting (DeFond, 2010; Outa et al, 2017). Focusing on European banks, we provide insights on the strength of disclosure regulation, whether strict or weak, depending on its ability to constrain managers from engaging in earnings management behaviour.

The remainder of the paper proceeds as follows. We discuss institutional background, literature review and hypothesis development in Section 2. Section 3 presents the research design. Section 4 presents the data and sample selection. Section 5 discusses the findings and Section 6 concludes.

## 2. Conceptual Framework and Related Literature

### 2.1 Bank Securities

The accounting for financial assets and derivatives in Europe is specified in IASB's International accounting standard (IAS) 39. IAS 39 paragraph 9 require all entities, including banks, to categorise securities into one of four categories: financial assets at fair value through profit or loss; held-to-maturity investments; loans and receivables; and available-for-sale financial assets.<sup>2</sup> Changes in the fair value of bank securities, i.e. trading and AFS securities, yield realised/unrealized gains and losses that are recognized in earnings and bank capital. Managerial discretion in the timing of the recognition of realized/unrealized gains or losses on bank securities provide incentives for bank managers to manage reported earnings and to manage regulatory capital. Also, because the sale of securities involves transaction costs and such sales are not subject to ex-post scrutiny by external auditors, banks consider sale of securities to be a less costly technique to manage earnings to avoid the cost associated with accrual-based earnings management techniques (Barth et al, 2017).

Securitization by banks constitute a large component of total securitization in the financial system (Niu and Richardson 2005). The use of gains and losses on bank securities to manage earnings is a real earnings management technique among banks. Real earnings management (REM) is any practice that is a "departure from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations" (Roychowdhury, 2006: 337). Some studies that investigated industrial firms show that in periods of strict regulation, firms revert to real earnings management techniques to manage earnings rather than accrual-based earnings management techniques (see. Roychowdhury, 2006; Cohen et al, 2008; Cohen and Zarowin, 2010), but this technique reversal has not been tested for banks.<sup>3</sup> Kotari et al (2012) suggest that the motivation to switch from accrual to real earnings management is because it is difficult for stakeholders to see through real earnings management compared to accrual earnings management because real earnings management camouflage as normal operating activities.

Notwithstanding, this argument has not been empirically tested for banks, extensively.<sup>4</sup> In fact, DeFond (2010) and Barth et al (2017) confirms that real earnings management research in banks is scant in the literature. Dechow et al. (2010) investigate the use of securitization gains to influence earnings. They find that securitization gains are used to manage earnings, but firms with independent boards have less income smoothing practices. Beatty et al. (2002) find that public banks use their discretion in the recognition of securities gain and loss to achieve earnings targets relative to private banks. Barth et al (2017) investigate the use of available-for-sale securities (AFS) to manage earnings and regulatory capital, and they find

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<sup>2</sup> Financial assets or trading securities are securities that the bank will sell or dispose in the near term. Trading securities are measured at their fair values while held-to-maturity (HTM) securities are debt securities that banks intend to hold to maturity. HTM securities are measured at amortised cost. Loans and receivables are measured at amortised cost. Available-for-sale financial assets are securities that are not categorised as trading securities or held-to maturity securities. AFS securities are measured at fair values.

<sup>3</sup> Specifically, Cohen et al (2008) find that firms shifted from accrual to real earnings management in the post-Sarbanes-Oxley Act period to avoid detection and regulatory scrutiny from regulators or external auditors.

<sup>4</sup> This is because most studies exclude banks and financial institutions in their analysis because banks are considered to be heavily regulated and such regulations will limit managerial discretion in managing earnings (Burgstahler and Dichev, 1997)

that both listed and non-listed banks use AFS securities gains and losses to smooth earnings and regulatory capital, and the extent of income smoothing and capital management is greater for banks with accumulated realized gains and losses.

## 2.2. Literature Review

### 2.2.1. Earnings Management

Bank earnings Management literature has two dimensions. Firstly, one can examine real earnings management which often disguise as normal operations; secondly, one can examine accrual earning management which exploits the timing and/or size of expected revenue/income or estimated costs/expenses to manipulate reported profit. Using accrual earnings management, for instance, banks can use accruals to generate smoother earnings in order to reduce information asymmetry between managers and outside investors and to avoid regulatory scrutiny from regulators (Beatty et al. 2002; Liu and Ryan 2006). Banks can underestimate loan loss provisions estimates to boost earnings; they can accelerate future fee income to the present period to boost earnings, they can dispose fixed assets to boost earnings, etc (e.g., Schrand and Wong 2003; Kanagaretnam et al. 2004; Liu and Ryan 2006). Also, banks with low capital ratios can increase their capital ratios through accruals (e.g., loan loss provisions, fee income, defer loss write-offs, interest income, etc.) or through real activities (e.g., security gains or losses, sale of fixed assets, etc.) in order to avoid regulatory scrutiny intervention (Moyer 1990; Beatty et al. 1995; Ahmed et al. 1999).

Furthermore, in periods of strict regulation, banks can revert to real earnings management techniques to manage earnings using securitisation rather than accrual-based earnings management techniques. Kothari et al (2012) explained that the motivation to switch from accrual to real earnings management is because it is difficult for stakeholders to see through real earnings management compared to accrual earnings management because real earnings management disguise as normal. Banks can use securitization gains or losses for income smoothing or earnings management purposes, depending on their opportunity. For instance, Beatty et al. (2002) find that public banks use their discretion in the recognition of securities gain and loss to achieve earnings targets relative to private banks. while Barth et al (2017) find that both listed and non-listed banks realize gains and losses on AFS securities to smooth earnings and to manage regulatory capital, and the extent of income smoothing and capital management is greater for banks with accumulated realized gains and losses. Fair value accounting can also create opportunities for earnings management. Fair-value accounting involves reporting assets and liabilities on the balance sheet at fair value and recognizing changes in fair value as on the balance sheet as gains and losses in the income statement (Laux and Leuz, 2010). Managers can manipulate the disclosure of fair value measurements (Song et al. 2010). By adopting the fair value option, firms with weak corporate governance can disclose more fair-valued liabilities and recognize unrealized gains into reported earnings to meet or beat analyst forecast target. (Hsu and Lin, 2016). Generally, the literature shows strong evidence for bank income smoothing using loan loss provisions rather than securities.

### 2.2.2. Loan Loss Provisions

Empirical evidence for bank income smoothing using loan loss provision is extensive in the literature (Ahmed et al., 1999; Lobo and Yang, 2001; Kanagaretnam et al., 2004; El Sood, 2012; Leventis et al, 2011; Ozili and Outa, 2017; Ozili and Thankom, 2018; Balbao et al, 2013).

For instance, Leventis et al (2011) investigate the impact of accounting disclosure (IFRS) on managerial incentives to smooth income and to manage capital using loan loss provisions. In their study, they note that some banks adopted IFRS earlier than other banks and argue that early-adopter banks may have different incentives for adopting IFRS compared to late-adopter banks. They examine 91 EU listed commercial banks for the 1999 to 2008 period, and find evidence for income smoothing among early and late adopter. They further divide the sample into risky and non-risky banks and find that risky banks engage in aggressive income smoothing compared to less risky banks. Overall, they observe that income smoothing is reduced after mandatory implementation of IFRS, and conclude that IFRS improves the earnings quality of European banks.

Ashraf et al (2013) investigate whether changes in accounting standards and prudential regulatory regime affects the use of loan loss provisions to manage earnings. They examine 7343 banks from 118 countries from 1999 to 2010. They find that bank managers use loan loss provisions as a tool to smooth reported earnings. However, they find weak evidence supporting a differential impact on earnings management via loan loss provisions following a change in accounting regime. Moreover, they observe that banks under a principles-based accounting regime are more likely to exhibit lower level of earnings management via loan loss provisions when compared to banks under a rule-based accounting regime. Also, Ozili and Outa (2018b) examine bank earnings smoothing during mandatory IFRS adoption in Nigeria, and observe that IFRS reduced income smoothing using loan loss provisions both for listed and unlisted banks, implying that disclosure regulation improves the informativeness and reliability of loan loss provisions estimate.

Kilic et al (2012) examine the impact of SFAS 133 on the reporting behaviour of commercial banks. SFAS 133 is the FASB's accounting for derivative instruments and hedging activities. They argue that, because the strict recognition and classification requirements of SFAS 133 reduced banks' ability to smooth income through securities/derivatives, banks that were affected by SFAS 133 would rely more on loan loss provisions to smooth income. They examine 119 US banks and divided their sample into pre-SFAS 133 period (1999-2000) and post-SFAS 133 period (2001-2002). Their explanation for the choice of the narrow sample period was to capture the changes occurring around the enactment of SFAS 133 and to avoid possible contamination from other events. They find evidence that US banks use loan loss provisions to smooth income when disclosure regulation made it difficult to smooth income using securities/derivatives. Although their result supports their argument, they also note that the implication of income smoothing via loan loss provisions imply declining informativeness of loan loss provisions estimates.

Overall, the effect of disclosure regulation on bank income smoothing via loan loss provisions depends on the extent of enforcement and supervision, and whether disclosure regulation directly limits the use of certain accounting numbers to smooth income such as derivatives or loan loss provisions. Our focus in this study is on loan loss provisions. To date,

the literature is silent on the question of whether European banks shift to the use of loan loss provisions when disclosure regulation disallows the use of bank securities to manage reported earnings. therefore, we build our hypothesis from Kilic et al (2012) and propose that:

H1: European banks will rely on the use of loan loss provisions to smooth income in the post-IAS 39 reclassification period.

The prediction is that the disclosure regulation that discourage banks from using securities to manage earnings will motivate banks to use loan loss provisions more aggressively to smooth income. Therefore, we expect a positive relationship between loan loss provisions and earnings in the post-IAS 39 reclassification period – the period where strict restrictions were place on bank securitization activities. In H1, we propose that banks will revert from real activity-based to accrual-based earnings management (i.e., loan loss provisions) to smooth earnings if bank managers believe that external auditors cannot see through provisions-based earnings management.

### 3. Research Design

The model employed to test the income smoothing hypothesis is a modified form of the models used in prior studies (such as El Sood, 2012; Leventis et al, 2011; Balbao et al, 2013, Ashraf et al, 2013; Kilic et al, 2012; Ozili and Thankom, 2018, etc).

To test the income smoothing hypothesis, we estimate the equation below:

$$LLP_{it} = \alpha_0 + \alpha_1 NPL_{it} + \alpha_2 LOAN_{it} + \alpha_3 EBTP_{it} + \alpha_4 IAS_{it} + \alpha_5 IAS * EBTP_{it} + \alpha_7 CAR_{it} + \alpha_8 \Delta GDP_t + \alpha_9 SIZE_{it} + bCountry\ dummies + cYear\ dummies + eit. (1)$$

Where,

i = bank

t = year

LLP = ratio of loan loss provisions to total assets

NPL= ratio of impaired loans to outstanding gross loans

LOAN = change in outstanding gross loan.

CAR = ratio of actual Tier 1 regulatory capital to risk-weighted assets

EBTP = ratio of earnings before taxes and loan loss provisions to total assets

IAS = dummy variable that takes the value 1 for the post-IAS 39 reclassification period and zero otherwise.

IAS\*EBTP = the interaction of IAS with EBTP reflects whether income smoothing is more pronounced in the post-IAS 39 reclassification period.

SIZE = natural logarithm of total assets

$\Delta$ GDP = change in real gross domestic product

$e$  = error term

The variable of interest is  $IAS*EBTP$ , which reflects whether income smoothing is more pronounced during the post-IAS 39 reclassification period. A positive sign is expected for the  $\alpha_5$  coefficient if banks use loan loss provisions to smooth income when re-classified IAS 39 rules discourage the use of bank securities/derivatives to smooth income.

At bank level, the non-performing loan (NPL) variable control for non-discretionary factors affecting the provisioning decisions of banks. Beaver and Engel (1996) and Ahmed et al (1999) also use NPL as a non-discretionary determinant of bank provisions. NPL is an ex-post measure of loan portfolio quality, and contains information on bank risk that is not captured by traditional measures of bank risk (Ozili, 2019). We predict a positive sign for NPL coefficient because banks will increase loan loss provisions when they expect higher problem loans. Loan growth (LOAN) is a measure of credit risk and also influence bank provisioning decisions (Lobo and Yang, 2001; Laeven and Majnoni, 2003; Kanagaretnam et al, 2003; Bushman and Williams, 2012). We do not have a definite prediction for the sign of LOAN coefficient because a positive sign may imply that banks that increase lending would increase provisions when there is substantial credit risk in the lending environment while a negative sign may imply that banks that increase lending would report fewer provisions when there is little or no credit risk in the lending environment. The CAR variable controls for capital management. Banks can increase provisions when they have low regulatory capital ratios in order to compensate for their lower regulatory capital levels, and vice versa (Anandarajan et al, 2007; Beatty et al, 1995; Ozili and Outa, 2017), thus, we expect a negative sign for CAR coefficient. Next, we introduce the 'IAS' dummy variable to capture IASB's change in disclosure regulation following IAS 39 reclassification of bank securities into available for sale securities, held-to-maturity securities, and trading securities in 2009. The IAS variable takes the value 1 for the post-reclassified IAS 39 period and zero otherwise. At country level, we use  $\Delta GDP$  variable to control for economic fluctuations for each country because banks would generally increase provisions during bad economic times to mitigate loan defaults during such periods, and will keep fewer provisions during good economic times because loan defaults are generally lower during good times, therefore, we predict a negative sign for  $\Delta GDP$  coefficient indicating procyclical provisioning behaviour.

#### 4. Data

We base our sample on European banking institutions in the Bankscope database.<sup>5</sup> We restrict our sample period to annual bank data and all sample banks have December 31 fiscal year ends. The sample period covers the 2005 to 2013 period. The restriction to our sample period is to allow us to better focus on the changes occurring around the implementation of IAS 39 reclassification during the 2008 and 2009 period and to avoid possible contamination from other events. We then divide the sample period into the pre-IAS 39 reclassification period (2005-2007) and post- IAS 39 reclassification period (2009-2013). We included and later excluded year-2008 bank-year observation from the model during our robustness checks

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<sup>5</sup> Bankscope database has the widest coverage of data for banking and banking-related financial institutions in the world. Bank holding companies directly or indirectly control one or more commercial banks. The bank holding company can be a single commercial bank which in turn controls one or more commercial banks

to observe whether the financial crisis had any impact on our inferences. We obtain data for 200 banking institutions from 16 European countries<sup>6</sup>. Some banks in the database did not report data for some years, and we exclude banking institutions that did not report data on loan loss provisions for a sufficiently long period of time. However, because we did not want to lose any further observations which could deteriorate the validity of our inferences, we included banking institutions with incomplete data for up to two consecutive years only. Our final sample yields 114 sample banks that provide usable data for loan loss provisions and other crucial variables for a 9-year period.

## 5. Results

### 5.1 Descriptive Statistics

Descriptive statistics for the full sample, pre- and post-reclassified IAS 39 reclassification are presented in Table 1. The mean (median) value of LLPs in the pre-reclassified IAS 39 period is 0.18 (0.14) while the mean (median) value of LLPs in the post-reclassified IAS 39 period increases to 0.45 (0.29) indicating increased provisioning in the post-reclassified IAS 39 period. The mean (median) value of Tier 1 capital over the minimum required capital (CAR) report a significant increase from 8.54 (8.09) in the pre-IAS period to 12.04 (11.18) in the post-reclassified IAS 39 period. The mean value of EBTP decreased from 1.05 in the pre-reclassified IAS 39 period to 0.73 in the post-reclassified IAS39 period, implying lower profitability among European banking institutions.

(Table 1)

Table 2 reports the Pearson correlation coefficients of the sample variables and their associated p-values. LLPs are negative but not significantly correlated to EBTP (-0.042) and bank size (-0.029). This correlation result is insignificant to make any inference. On the other hand, LLPs are significant and negatively correlated CAR (-0.223) and  $\Delta$ GDP (-0.387) implying that European bank appear to use provisions to manage regulatory capital and, also, provisioning is procyclical with fluctuations in the business cycle, respectively. LLPs are negatively correlated with LOAN (-0.106) indicating improved quality of incremental loans. LLPs are positively and significantly correlated with NPL (0.576), implying that as banks expect higher loan defaults, they will increase provisions. These results are consistent with prior studies.

(Table 2)

### 5.2. Regression Results

Table 3 report our regression results. The variable of interest is the interaction term 'IAS\*EBTP'. The coefficient of the interaction term 'IAS\*EBTP' (t=-4.93) is negative and statistically significant, implying that European banks did not use loan loss provisions to smooth reported earnings in the post-reclassified IAS 39 period. This result is not consistent with our hypothesis (H1), and suggest that European banks did not switch to the use of loan loss provisions to smooth income when disclosure regulation discouraged the use of

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<sup>6</sup> United Kingdom, Denmark, Finland, Ireland, Greece, Portugal, Belgium, Austria, Italy, France, Luxemburg, Spain, Netherland, Germany, Sweden and Norway.

securities gains and losses to smooth income. One possible explanation for this result could be that European banks are aware that external auditors and investor analysts can see through provisions-based income smoothing, therefore they refrained from using provisions to smooth income during the post-IAS 39 period.

EBTP coefficient ( $t = -1.91$ ) is negative and significant, implying that loan loss provisions are not used to smooth income over the period of analysis. One explanation for this result is that the stringent regulation and supervision of European banks, immediately after the global financial crisis, placed intense scrutiny on the financial reporting of European banks. Banks had very little opportunity to manipulate profit for income smoothing purposes due to intense scrutiny. The absence of income smoothing in our result is consistent with Ahmed et al (1999) who also did not find evidence for income smoothing during the adoption of Basel capital rules, in their study. Our finding is also consistent with Ozili and Outa (2018b) who find no evidence for income smoothing during mandatory IFRS adoption among listed and non-listed banks. Leventis et al (2011) examine income smoothing using early European bank data from 1996-2008 and find no evidence for income smoothing, in contrast to Leventis et al (2011), our sample cover a more recent period from 2005 to 2013 and we find no evidence for income smoothing in the post-reclassified IAS 39 era.

Although we find no evidence for income smoothing, this does not imply that European banks do not smooth income. Rather, an explanation for this could be that European banks switch to use alternative accounting numbers, not captured in this study, to smooth or manage earnings during the period.

In Table 3, most of the control variables report the predicted signs. As expected,  $\Delta$ GDP coefficient ( $t = -8.13$ ) is negative and statistically significant, indicating that provisioning in Europe is procyclical. CAR coefficient is negative and significant indicating that banks use provisions to capital management purpose. IAS coefficient is positive and significant, implying that reclassified IAS 39 had a positive impact on the level of loan loss provisions. LOAN and SIZE coefficients are not significant.

(Table 3)

### 5.2.1. Listed versus non-listed banks

Next, we test whether listed banks smooth income for capital market reasons compared to non-listed banks during in the post-reclassified IAS 39 period. Anandarajan et al (2007) argue that the manager of a listed bank has incentives to smooth earnings if he believes that smoothed earnings will translate to reduced fluctuation in stock prices. We divide the sample into two subsamples: listed and non-listed banks<sup>7</sup>. The result is reported in column A&B of Table 4. The IAS\*EBTP coefficient is negative and insignificant for listed banks, and positive but insignificant for non-listed banks. The insignificant results suggest that European listed and non-listed banks did not use provisions to smooth income during the period.

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<sup>7</sup> We distinguish between listed and non-listed banks based on the list of companies provided available at the London Stock Exchange (LSE) updated as at 30th April, 2015. We use the LSE as a proxy for the capital market because it is the most diverse capital market with regional company listing in Europe. Our classification yields 12 listed banks and 92 non-listed banks. We note that the small number of listed bank may affect our Inferences.

### 5.2.2. Bank versus non-bank financial institutions

Further, we check whether the propensity to smooth income in the pre- and post-IAS 39 reclassification period depends on the type of financial institutions – commercial and non-commercial banks. The result is reported in column C&D of Table 4. The t-statistics for EBTP and IAS\*EBTP coefficients are both negative and significant for non-banks and banks except for IAS\*EBTP which is positive but insignificant for our bank sample. This finding imply that banks do not use loan loss provisions to smooth income.

(Table 4)

### 5.3 Sensitivity Analysis

In order to verify the robustness of our results, we performed some sensitivity tests with respect to our sample period. Also, to avoid overstating the t-statistics commonly associated with time-series cross section data, we include bank fixed effects. First, we rerun our main regression model after excluding 2008 bank-year observation to eliminate the effect of the 2008 financial crisis. The result is reported in Column A of Table 5. The EBTP coefficient remain negative but insignificant. Similarly, the IAS\*EBTP coefficient remain negative and significant at one percent level. Additionally, we divided the entire sample into two sub-samples: pre-reclassified IAS 39 (2005-2007) and pre-reclassified IAS 39 (2009-2013). This led us to re-specify the model to eliminate the IAS\*EBTP interaction term and the IAS dummy variable. The resulting model specification is then given as:

$$LLP = NPL + LOAN + EBTP + CAR + SIZE + \Delta GDP + \varepsilon. \quad (2)$$

In equation 2, EBTP, the income smoothing variable, is our variable of interest. Table 5 Column (b) reports the subsample result for the pre-reclassified IAS 39 period, and EBTP coefficient is positive but not significant. Table 5 Column (c) reports the subsample result, EBTP coefficient is negative and strongly significant. This result is robust to our earlier conclusion that there is no evidence income smoothing via loan loss provision, indicated by the negative sign for EBTP coefficient.

Further, because of concerns that the impact of the financial crisis may extend into year 2009 bank reporting, we rerun Column (c) after excluding 2008 and 2009 bank-year observations. The results are reported in Column (d) and EBTP coefficient remains negatively significant. Overall, these results are robust to our earlier conclusion based on the estimation window of this study. Therefore, we conclude that our findings are robust with respect to the estimation window.

(Table 5)

## 6. Conclusion

This study examined whether European banks use loan loss provisions to smooth income in the period when reclassified IAS 39 disclosure regulation discouraged banks from using securities/derivatives for income smoothing. We focused on loan loss provisions – a crucial accounting number that has gained the attention of both accounting standard setters and bank supervisors.

We observe that European banks do not use loan loss provisions to smooth income in the post-IAS 39 reclassification period due to strict regulation and to avoid scrutiny from external auditors. Also, we did not find evidence for income smoothing among European listed banks and unlisted banks which suggests that there were no capital market incentives to use loan loss provisions to smooth income during the period of analyses. Similarly, we did not find evidence for income smoothing between banks and non-bank financial institutions in Europe. Overall, the results imply that European banks used other accounting numbers to smooth income rather than using loan loss provisions during the period. The findings are useful to accounting standard setters in their evaluation of the role of disclosure regulation in improving accounting quality in bank financial reporting, given the strict regulatory environment in Europe for banks.

The implication for banking supervision is that European banks possibly use other accounting numbers to smooth income, not loan loss provisions. Depending on the desirability of income smoothing by bank regulators, regulators should monitor and understand the techniques used by banks to smooth income, and should understand the incentives for smoothing income among European banks. European bank regulators should ensure that the income smoothing incentives and techniques used by banks improves the stability of financial system.

From an accounting standard setting standpoint, the findings that European banks do not use provisions to smooth income during the IAS 39 reclassification period implies that IAS 39 was successful in achieving the IASB's goal of increasing the reliability and informativeness of financial disclosures in financial reporting, during the period examined. Therefore, our suggestions for regulatory/supervisory reform would be to strengthen the accounting disclosure rules to improve the accounting quality of bank financial reporting in Europe. Finally, future research could examine other earnings management techniques that banks may revert to when stringent disclosure regulation limits the use of bank loan loss provisions to smooth income. Future research can also examine whether the presence of strong institutions in Europe such as strong investor protection, played a significant role in limiting bank's ability to smooth income during the IAS 39 re-classification period.

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## Tables

Table 1: Summary of Descriptive statistics									
Variable	Full Sample (2005-2013)			Pre-IAS 39 (2005-2007)			Post-IAS 39 (2009-2013)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
LLP	0.36	0.23	0.49	0.18	0.14	0.24	0.45	0.29	0.57
EBTP	0.79	0.78	0.76	1.05	1.06	0.59	0.73	0.71	0.79
LOAN	6.36	4.92	16.33	15.01	13.99	14.29	1.38	1.34	14.42
NPL	4.26	3.03	4.29	2.34	1.67	2.06	5.31	4.17	4.81
CAR	10.75	9.9	4.39	8.54	8.09	1.78	12.04	11.18	4.91
SIZE	18.67	18.97	1.76	18.53	18.77	1.80	18.69	18.99	1.74
ΔGDP	0.60	1.10	2.49	2.64	2.60	0.98	-0.15	0.50	2.66

\*SD denotes 'Standard Deviation'. The sample comprises of 912 bank year observations for 114 banks from 2005 to 2013. All values, except SIZE, are taken in percentages for expositional convenience. LLP = ratio of loan loss provisions to total assets. NPL= ratio of impaired loans to outstanding gross loans. LOAN = change in outstanding gross loan. CAR = ratio of actual Tier 1 regulatory capital to risk-weighted assets. EBTP = ratio of earnings before taxes and loan loss provisions to total assets.

Table 2: Correlation Matrix						
Variables	LLP	NPL	LOAN	EBTP	CAR	SIZE
NPL	0.576*** (0.000)					
LOAN	-0.106*** (0.004)	-0.173*** (0.000)				
EBTP	-0.042 (0.255)	0.013 (0.716)	0.246*** (0.000)			
CAR	-0.223*** (0.000)	-0.115*** (0.002)	-0.246*** (0.000)	-0.065* (0.076)		
SIZE	-0.029 (0.426)	-0.008 (0.831)	-0.039 (0.276)	-0.199*** (0.000)	0.033 (0.372)	
ΔGDP	-0.387*** (0.000)	-0.276*** (0.000)	0.143*** (0.000)	0.069* (0.056)	0.085** (0.020)	0.048 (0.193)

Pearson correlation coefficients are reported in the table and the associated p-values are reported in parenthesis. \*, \*\*, \*\*\* denote statistical significance at 10%, 5% and 1%, respectively. LLP = ratio of loan loss provisions to total assets. NPL= ratio of impaired loans to outstanding gross loans. LOAN = change in outstanding gross loan. CAR = ratio of actual Tier 1 regulatory capital to risk-weighted assets. EBTP = ratio of earnings before taxes and loan loss provisions to total assets. ΔGDP = change in real gross domestic product. SIZE = natural logarithm of total asset

Table 3: Main Regression (2005-2013)				
Variable	Expected sign	Coefficient	t-statistics	p-values
C	?	0.541	0.57	0.570
EBTP	+	-0.065*	-1.91	0.056
IAS*EBTP	+	-0.177***	-4.93	0.000
IAS	+/-	0.241***	5.49	0.000
NPL	+	0.044***	8.62	0.000
LOAN	+/-	-0.001	-0.97	0.331
CAR	-	-0.021***	-4.99	0.000
SIZE	+/-	-0.006	-0.12	0.907
$\Delta$ GDP	-	-0.046***	-8.13	0.000
Bank Fixed Effect		Yes		
Adjusted R <sup>2</sup>		60.86		
F-statistic (p-value)		11.74*** (0.000)		
D.W statistic		1.83		
No. of observations		747		
<p>Sample period include 2008-year observation. T-statistics are reported in parentheses. *, **, *** denote significance level (based on two-tailed tests) at 10%, 5% and 1%, respectively. LLP = ratio of loan loss provisions to total assets. NPL= ratio of impaired loans to outstanding gross loans. LOAN = change in outstanding gross loan. CAR = ratio of actual Tier 1 regulatory capital to risk-weighted assets. EBTP = ratio of earnings before taxes and loan loss provisions to total assets. <math>\Delta</math>GDP = change in real gross domestic product. IAS = dummy variable that takes the value 1 for the post-IAS 39 reclassification period and zero otherwise. IAS*EBTP = the interaction of IAS with EBTP reflects whether income smoothing is more pronounced in the post-IAS 39 reclassification period. SIZE = natural logarithm of total assets</p>				

Table 4: Banks vs non-banks (sub-sample regression)					
Variable		(a)	(b)	(c)	(d)
Bank Category		Listed Banks	Non-listed Banks	Banks	Non-Banks
	Expected Sign	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
C	?	0.488 (0.55)	1.179 (0.09)	1.595 (1.29)	-1.262 (-0.48)
EBTP	+	0.087 (0.87)	-0.322*** (-5.23)	-0.297*** (-4.66)	-0.199** (-2.24)
IAS*EBTP	+	-0.065 (-0.58)	0.097 (1.61)	0.037 (0.59)	0.153* (1.74)
IAS	+/-	0.195 (0.71)	-0.072 (-0.93)	-0.059 (-0.76)	0.006 (0.04)
NPL	+	0.075*** (3.97)	0.044*** (7.16)	0.055*** (8.43)	0.019* (1.83)
LOAN	+/-	0.0002 (0.17)	-0.002 (-1.47)	-0.001 (-1.19)	-0.002 (-0.05)
CAR	-	-0.055** (-2.59)	-0.017*** (-2.65)	-0.015*** (-2.98)	-0.019 (-1.56)
SIZE	+/-	0.006 (0.13)	-0.028 (-0.40)	-0.052 (-0.79)	0.098 (0.69)
$\Delta$ GDP	-	-0.028** -2.06	-0.041*** (-5.39)	-0.037*** (-5.44)	-0.034** (-2.57)
Bank Fixed Effect		Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>		62.42	61.22	68.54	53.06
F-statistic (p-value)		8.12*** (0.000)	10.27*** (0.000)	10.87*** (0.000)	6.29*** (0.000)
Durbin-Watson statistic		2.14	2.25	2.09	1.86
No. of observations		86	524	540	118

T-statistics are reported in parentheses. \*, \*\*, \*\*\* denote significance level (based on two-tailed tests) at 10%, 5% and 1%, respectively. LLP = ratio of loan loss provisions to total assets. NPL= ratio of impaired loans to outstanding gross loans. LOAN = change in outstanding gross loan. CAR = ratio of actual Tier 1 regulatory capital to risk-weighted assets. EBTP = ratio of earnings before taxes and loan loss provisions to total assets.  $\Delta$ GDP = change in real gross domestic product. IAS = dummy variable that takes the value 1 for the post-IAS 39 reclassification period and zero otherwise. IAS\*EBTP = the interaction of IAS with EBTP reflects whether income smoothing is more pronounced in the post-IAS 39 reclassification period. SIZE = natural logarithm of total assets.

Variable		(a)	(b)	(c)	(d)
	Expected Sign	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
C	?	0.396 (0.36)	0.395 (0.32)	0.934 (0.90)	2.175 (1.14)
EBTP	+	-0.049 (-1.17)	0.003 (0.04)	-0.263*** (-9.21)	-0.238*** (-8.34)
IAS*EBTP	+				-0.196*** (-4.56)
IAS	+/-				0.256*** (4.74)
NPL	+	0.047*** (8.21)	0.032* (1.73)	0.029*** (3.98)	0.036*** (5.08)
LOAN	+/-	-0.0003 (-0.31)	-0.001 (-0.43)	0.002* (1.74)	0.0003 (0.19)
CAR	-	-0.024*** (-5.03)	-0.004 (-0.23)	-0.018*** (-3.17)	-0.016** (-2.14)
SIZE	+/-	0.002 (0.04)	-0.014 (-0.21)	-0.01 (-0.19)	-0.083 (-0.82)
ΔGDP	-	-0.048*** (-7.75)	0.006 (0.2)	-0.069*** (-5.45)	-0.035*** (-4.92)
Bank Fixed Effect		Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>		62	55.78	70.52	62.71
F-statistic (p-value)		10.74*** (0.000)	3.69*** (0.000)	9.21*** (0.000)	8.36*** (0.000)
Durbin-Watson statistic		2.04	2.35	2.92	2.27
No. of observations		658	193	375	465

T-statistics are reported in parentheses. \*, \*\*, \*\*\* denote significance level (based on two-tailed tests) at 10%, 5% and 1%, respectively. LLP = ratio of loan loss provisions to total assets. NPL = ratio of impaired loans to outstanding gross loans. LOAN = change in outstanding gross loan. CAR = ratio of actual Tier 1 regulatory capital to risk-weighted assets. EBTP = ratio of earnings before taxes and loan loss provisions to total assets. ΔGDP = change in real gross domestic product. IAS = dummy variable that takes the value 1 for the post-IAS 39 reclassification period and zero otherwise. IAS\*EBTP = the interaction of IAS with EBTP reflects whether income smoothing is more pronounced in the post-IAS 39 reclassification period. SIZE = natural logarithm of total assets.