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Mandatory IFRS Adoption and Accounting Quality of European Banks

GÜNTHER GEBHARDT AND ZOLTAN NOVOTNY-FARKAS*

Abstract: This paper examines the implications of mandatory IFRS adoption on the accounting quality of banks in twelve EU countries. Specifically, we analyse how the change in the recognition and measurement of banks' main operating accrual item, the loan loss provision, affects income smoothing behaviour and timely loss recognition. We find that the restriction to recognise only incurred losses under IAS 39 significantly reduces income smoothing. This effect is less pronounced in countries with stricter bank supervision, widely dispersed bank ownership and for EU banks cross-listed in the US. This provides additional evidence that institutions matter in shaping financial reporting outcomes. Further, the application of the incurred loss approach results in less timely loan loss recognition implying delayed recognition of future expected losses. In the light of the ongoing financial crisis it is questionable whether this is a desirable financial reporting outcome of mandatory IFRS adoption.

Keywords: IFRS, bank accounting, loan loss provisions, income smoothing, timeliness of loss recognition, bank regulation, ownership structure

1. INTRODUCTION

The global financial crisis has raised the importance of financial reporting in the banking industry once again. The recent public debate has primarily focused on one particular feature of bank accounting, namely fair value accounting.[1] Fair value accounting is accused of having contributed to the crisis and of exacerbating the

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Address for correspondence: Zoltan Novotny-Farkas, Goethe-Universität Frankfurt am Main, Grüneburgplatz 1, 60323 Frankfurt am Main, Germany.
e-mail: novotny-farkas@wiwi.uni-frankfurt.de.

1 See, for a summary of the debate and for further references, Laux and Leuz (2009).

effects of the financial meltdown.[2] However, the current controversy around fair value accounting neglects the fact that the largest part of most banks' assets consists of loans[3] which, both under local GAAP and under IFRS, are measured on a cost basis. Deterioration of the credit quality of loans is recognised through loan loss provisions, by applying the impairment rules of the respective accounting regimes.

Loan loss provisioning is a key accounting choice that significantly influences the reported earnings of banks. The mandatory adoption of IFRS by listed banks in the European Union (EU) represents a significant change in the recognition and measurement of the loan loss provision. Specifically, IFRS stipulate an incurred loss model, which is in stark contrast to the more forward looking loan loss provisioning regimes that existed in Europe before IFRS adoption. We expect this fundamental change in the loan loss provisioning regime to have a significant influence on the reported earnings characteristics of banks. Therefore, the main objective of this paper is to investigate how the mandatory adoption of IFRS in twelve EU countries, in particular the switch to the incurred loss approach, impacts the accounting quality of banks.

Before the introduction of IFRS, local GAAP regulations allowed banks, at least in part, to anticipate the losses expected to occur due to future events. However, the largely principles-based rules left considerable leeway for managers to use discretion, i.e., to smooth income. In contrast, the incurred loss approach of IAS 39 requires banks to provide only for losses incurred as of the balance sheet date. Thus, losses 'expected as a result of future events' (IAS 39.59) may not be recognised. The strict limitation by the standard setters to incurred losses has to be understood in the light of anecdotal and empirical evidence that finds loan loss accounting to be a favoured tool for earnings management.

The introduction of the restrictive IFRS rules for impairment was pre-empted by a highly controversial debate about adequate loan loss accounting in the US in 1998, when the Securities and Exchange Commission (SEC) questioned the loan loss accounting practices of SunTrust Banks. In order to obtain approval for the registration statement, SunTrust Banks had to restate prior years' financial statements and reduce loan loss allowances significantly (Wall and Koch, 2000). Subsequently, the SEC and bank regulators issued joint interagency letters to provide banks with guidance about appropriate loan loss accounting. These letters stressed that banks should have prudent but not excessive loan loss allowances.[4] Also, on the international level, loan loss accounting moved to the centre of interest, as evidenced by the large number of recent policy proposals and changes in accounting standards. These include the proposals of the Joint Working Group of Standard Setters to introduce fair value accounting for all financial instruments (JWG, 2000), the introduction of statistical provisioning in Spain (Fernandez de Lis et al., 2001) and the guidance issued by the Basel Committee on Banking Supervision on 'Sound credit risk assessment and valuation for loans' (BCBS, 2006). The most important event was the issuance of IAS 39 in 1998, which has since been revised several times. The development of

2 Several recent empirical studies have analysed the value relevance of fair value level disclosures as mandated by FAS 159 (e.g., Song et al., 2010; Goh et al., 2009; and Kolev, 2008), volatility effects of the fair value option according to IAS 39 (Fiechter, 2011) and systemic risk effects of fair value accounting (Khan, 2009).

3 In our sample, loans represent on average about 60% of European banks' total assets.

4 See Wall and Koch (2000, p. 2).

IAS 39, and specifically of its subsequent amendments, had the goal of eliminating or mitigating the differences between IFRS and the equivalent US GAAP requirements (i.e., FAS 5 *Accounting for Contingencies* (ASC 450-20) and FAS 114 *Accounting by Creditors for Impairment of a Loan* (ASC 310-10-35)).[5]

A key aspect of the incurred loss approach is to reduce the scope of judgement and discretion in determining the loan loss provision relative to the more forward-looking regimes that were in place before IFRS adoption. However, critics of the incurred loss approach argue that it does not reflect all expected credit losses inherent in loan portfolios. Critics also maintain that the restriction to incurred losses prevents banks from reporting 'known losses' that are inherent in loan portfolios. Further, they argue that while the risk premia incorporated in the interest rates are immediately recognised in net income, the recognition of loan losses is postponed until the borrower defaults.[6] This leads to higher earnings in early years (particularly during booms) and lower earnings in later years (particularly during busts) and thus exacerbates the procyclicality in banks' earnings. Recently, loan loss accounting has once again captured significant attention, due to the global financial crisis, particularly from the bank regulators and standard setters. The Financial Accounting Standards Board's (FASB) Proposed Accounting Standard Update from May 2010 requires fair value measurement for all financial assets.[7] In November 2009 the International Accounting Standards Board (IASB) issued the Exposure Draft ED/2009/12 *Financial Instruments: Amortized Cost and Impairment* which proposed a switch from the incurred loss approach to an expected loss approach.[8]

In this paper we investigate the impact of the introduction of the incurred loss approach – as currently implemented in IAS 39 – on two empirically testable measures of the accounting quality of European banks. First, we analyse whether the application of tighter impairment rules results in less income smoothing. Second, we test whether the restriction to incurred losses leads to less timely loss recognition in banks' earnings. Using largely hand-collected data on 90 EU banks in the period from 2000 to 2007, our study provides evidence of how tightening accounting standards affects accounting quality.

However, recent academic research suggests that accounting quality is not necessarily or even primarily determined by accounting standards (e.g., Ball et al., 2000; Leuz et al., 2003; Ball and Shivakumar, 2005; and Burgstahler et al., 2006). These studies find that the quality of financial reporting is shaped by firms' reporting incentives resulting from market forces and institutional factors. One important institutional factor is bank supervision and regulation. Bank regulators and supervisors use financial statements as a basis for determining the equity ratios required by capital adequacy regulations. Their main concern is financial stability, and thus they prefer forward-looking loan loss provisioning, which is at odds with the incurred loss approach of IAS 39. If reported loan loss provisions do not meet regulatory requirements, this might trigger regulatory actions. Thus, banks from stricter supervisory regimes may have incentives to recognise higher loan loss provisions, i.e., to smooth income to a larger extent, even after IFRS adoption.

5 See IAS 39.BC14.
6 See Gebhardt and Strampelli (2005), Gebhardt (2008) and IASB (2009a).
7 See FASB (2010), par. 36–74 for specific guidance on the credit impairments of financial assets.
8 See IASB (2009a), IASB (2009b), IASB (2009c), IASB (2009e) and also the IASB's website (www.ifrs.org) for the status of the project 'Amortized Cost and Impairment of Financial Assets'.

Another institutional feature likely to affect banks' accounting quality is ownership structure (e.g., Leuz, 2006). While results of empirical studies analysing the non-financial industry find less earnings management for firms with less concentrated ownership (e.g., Leuz et al. 2003), results for the financial industry suggest that banks with widely dispersed ownership have higher incentives to engage in earnings management (Beatty et al., 2002; and Fonseca and Gonzalez, 2008). Transferred to our setting, these findings suggest that the reduction in income smoothing in banks with widely dispersed ownership is likely to be less pronounced, because of countervailing incentives.

We find that the introduction of the more restrictive IAS 39 impairment rules has significantly reduced the income smoothing behaviour of European banks. This is consistent with the theoretical study by Ewert and Wagenhofer (2005), who argue that tighter accounting rules will reduce accounting earnings management. However, the IFRS adoption effect varies considerably across supervisory/regulatory regimes and across ownership structures. Banks provide more for expected losses during good times, i.e., exhibit a higher level of income smoothing, in supervisory regimes that prefer forward-looking provisioning. Further, we document that banks with widely dispersed ownership keep higher levels of loan loss provisions and/or smooth income, even after the change in the accounting regime.

In additional analyses, we benchmark our findings against a comprehensive sample of US banks that were not affected by the introduction of IFRS. Using a difference-in-differences research design, we do not find a similar change in income smoothing for US banks, which increases our confidence in our primary finding that the general reduction in income smoothing is due to the adoption of IFRS in the EU. In a further analysis, we partition our sample into cross-listed and non-cross-listed banks. We do not find a similar IFRS adoption effect for the subsample of cross-listed EU banks, which appear to have already engaged less in income smoothing before IFRS adoption. This result is consistent with cross-listed banks aligning their local GAAP loan loss accounting practices to the incurred loss approach that has been applied in the US for decades. In addition, the stricter oversight of the SEC of cross-listed firms is also likely to influence this finding.

In terms of timely loss recognition, when analysing the differential persistence of earnings components we find that banks recognise loan losses in a less timely manner after adopting IFRS. However, this result should be interpreted cautiously because it might be influenced by one-time effects in the relatively short period of our analysis.

Taken together, the results for our EU bank sample suggest that the application of the incurred loss approach has differential effects on the accounting quality metrics examined. On the one hand, the restrictive impairment rules limit management's opportunistic discretion, suggesting an improvement in accounting quality. However, in the light of the global financial market crisis, it is questionable whether this is a desirable financial reporting outcome. By reducing discretionary behaviour, the IAS 39 impairment rules also limit management's ability to signal private information, particularly about future credit losses. On the other hand, banks recognise the losses inherent in their loan portfolios on a less timely basis. This implies that markets are informed about deteriorations in asset quality triggered by future events, only with a delay.

We contribute to the literature in several ways. To the best of our knowledge we are the first to provide empirical evidence on the accounting quality implications of

the mandatory application of IFRS within the banking industry. Previous empirical studies analysing the IFRS adoption effects on accounting quality investigate other sectors and specifically exclude the financial industry (e.g., Hung and Subramanyam, 2007; Barth et al., 2008; and Christensen et al., 2008). Second, we extend prior banking literature that has analysed the impact of a change in bank regulations (Kim and Kross, 1998; and Ahmed at al., 1999), in internal control regulations (Altamuro and Beatty, 2010) and in accounting rules (Perez et al., 2008) on the accounting behaviour of banks. While these studies investigate a single country setting, our multi-country setting allows us to explore the accounting quality effect of a change in accounting regime interacted with institutional factors. Specifically, we investigate how IFRS adoption interacts with the stringency of bank regulation and how ownership structure affects income smoothing behaviour. Our study also relates to studies such as Lang et al. (2003) and Lang et al. (2006), who analyse the effect of US cross listings on the accounting quality of non-financial firms. Consistent with their findings for non-financial firms, we provide evidence that EU banks cross-listed in the US were already engaging less in income smoothing than non-cross-listed banks, before IFRS adoption. However, the level of income smoothing of cross-listed EU banks is still higher than for US banks, which might be attributable to different incentives provided by their home country institutions (Leuz, 2006). Finally, we provide evidence for potentially unintended consequences of IFRS adoption (in an economic sense), finding a decrease in timely loss recognition by banks. Our findings are relevant to bank regulators, standard setters, financial analysts, and to the current debate about adequate loan loss accounting.

The remainder of our paper is structured as follows. In Section 2 we describe local GAAP and IFRS accounting rules for loan loss provisioning and differences in accounting practices across countries prior to IFRS, which are crucial to understanding the potential effects on banks' financial reporting quality. Section 3 relates loan loss accounting to a broader economic context. In Section 4, we develop our hypotheses, while Section 5 presents our sample selection and descriptive statistics. Section 6 describes the research design and summarises our empirical results. Finally, Section 7 concludes.

2. ACCOUNTING RULES FOR LOAN LOSS PROVISIONING

(i) The Mechanics of Loan Loss Provisioning

At each balance sheet date, bank managers have to estimate the losses they expect due to defaults. Accounting rules specify to what extent expected loan losses are recognised for the valuation of individual loans or loan portfolios. The recognition of expected loan losses occurs through the loan loss provision, classified as an expense account. Loan loss provisions are recognised for the specifically identified credit risk of individual loans (specific loan loss provisions). For large numbers of individually small loans (e.g., consumer loans, mortgages on private homes) banks set up portfolio loan loss provisions based on average historical and expected loan losses. In addition, general loan loss provisions are set up for the latent credit risk inherent in a portfolio of loans that are not individually impaired. The loan loss provision (LLP) increases the loan loss allowance (LLA), which is presented in financial statements either as a contra-asset, or as a deduction from the value of the loan. Thus, the loan loss allowance

is a stock variable which comprises all previous and current loan loss provisions. When loans are assumed to be uncollectible, they are charged off against the loan loss allowance account, which does not affect income. This gives the following accounting identity:

$$LLA_t = LLA_{t-1} + LLP_t - NCO_t + Other_t$$

where LLA_t is the ending balance of the loan loss allowance, LLA_{t-1} is the beginning level of the loan loss allowance, LLP_t is the current loan loss provision which affects net income, NCO_t is current net charge-off (gross charge-offs net of recoveries) and $Other_t$ represents adjustments due to changes in the scope of consolidation and/or adjustments because of changes in foreign exchange rates.

All three components provide distinct information about loan losses. The stock variable loan loss allowance reflects management's estimate of loan losses conditional on the application of the respective accounting rules. The loan loss provision and the net charge-offs are both flow variables and measure changes in recognised credit losses during the period, but of distinct natures. The loan loss provision reflects management's estimate of the expected loan losses that are to be recognised at the balance sheet date, while charge-offs represent losses on loans that are deemed uncollectible.[9] According to the accounting identity above, the loan loss allowance is affected by eventually large actual charge-offs and by past loan loss provisioning. Therefore, in our empirical analyses, we focus on the flow account loan loss provision, in order to identify the effect of IFRS adoption on current loan loss provisioning decisions.

(ii) Loan Loss Provisioning and Regulatory Capital

Loan loss provisioning is further relevant for the determination of regulatory capital. In EU countries the national bank regulators have to follow the rules of the EU Capital Adequacy Directives, which are based on the recommendations of the Basel Committee of Banking Supervision (BCBS). Since the implementation of the Basel capital adequacy framework (Basel I), regulatory capital has been divided into two tiers, which comprise regulatory capital components of different quality. Tier 1 core capital, with higher loss absorption ability, includes common equity, perpetual preferred stock and minority interests. Tier 2 (supplementary) capital includes subordinated debt, hybrid capital instruments, revaluation reserves, undisclosed 'hidden' reserves[10] and general loan loss allowances, up to a maximum of 1.25% of risk-weighted assets. In our sample EU countries, banks are required by their national bank regulators to maintain a minimum ratio of regulatory capital to risk-weighted assets of eight percent.

Additions to loan loss provisions reduce net income, and thus, regulatory capital. Because of the regulatory capital requirements, an additional loan loss provision of 1,000 EUR will require a marginal bank to reduce its lending volume by 12,500 EUR (=1,000/0.08).[11] Therefore, weakly capitalised banks, in particular, have strong incentives to reduce loan loss provisions. However, these incentives are likely to differ

9 See Ryan (2002, p. 88–90) for a more detailed analysis.
10 Under some local GAAP regimes banks are allowed to set up 'hidden' reserves. See e.g., §57 Bankwesengesetz (Austrian Banking Act) or §340f Handelsgesetzbuch (German Commercial Code).
11 See Gebhardt (2008, p. 36).

depending on the regulatory treatment of loan loss provisions. As mentioned above, under Basel I general loan loss allowances were accepted as part of Tier 2 regulatory capital, because in the pre-IFRS period these provisions were supposed to anticipate expected future losses. The implementation of this option differed across European countries. For example, France and the UK allowed general provisions as part of regulatory capital while Spain, Italy and the Netherlands did not.[12] Thus, banks' incentives to manage regulatory capital through loan loss provisions in these countries are likely to be different from those of banks in countries that cannot include general loan loss provisions in their regulatory capital. We account for these differences in our research design.

Basel II, the new capital adequacy framework, differs from Basel I in that it clarifies that the purpose of regulatory capital is to cover unexpected losses only. Expected losses should be covered by individual and general loan loss provisions. According to Basel II, expected losses are calculated for a time horizon of one year, as the product of the probability of default (PD) and the loss given default (LGD). Under the internal ratings-based (IRB) approach, banks are required to fully cover expected losses (EL) with loan loss provisions (LLP). Fifty percent of any shortfall (EL > LLP) is deducted from Tier 1 and fifty percent from Tier 2 capital. However, banks using the standardised approach still have the opportunity to include general loan loss provisions as part of their Tier 2 capital. Thus, for those banks that apply the standardised approach, the new capital regulation does not change the regulatory treatment of loan loss provisions. Basel II was implemented in the EU in 2007 for banks applying the standardised approach and 2008 for those using the IRB approach.[13] Because our sample period ends in 2007 we do not expect Basel II to affect our results.[14]

Given their focus on financial stability, bank regulators prefer forward-looking provisioning that covers all expected loan losses. Thus, the incurred loss approach is in conflict with regulatory objectives because, generally, it understates expected losses. Bank supervisors are aware of this issue and are likely to interfere in the loan loss accounting practice. We will analyse this later in our cross-sectional analyses.

(iii) Expected versus Incurred Losses

In order to understand the differences between the approaches to loan loss accounting, one needs a benchmark to which accounting regimes can be compared. A natural benchmark is the economic value of the loan, which is defined as the present value of the expected cash flows from the borrower. In the case where there is no credit risk for a loan issued at the prevailing market (risk free) rate, the economic value is equal to the nominal value of the loan. However, in practice, every loan has an inherent risk of future default. From an economic perspective, loan loss allowances should adjust the book value of the loan for changes in the expectation of a borrower's default and changes in interest rates. This can be written formally as:

12 See Beattie et al. (1995) and World Bank (2002) for a more detailed discussion of the tax and regulatory treatment of loan loss provisions around the world.
13 Implemented into EU law by the Directives 2006/48/EC and 2006/49/EC.
14 Even if the rules had been implemented earlier, the incentives would go against our main hypothesis of less income smoothing after IFRS adoption.

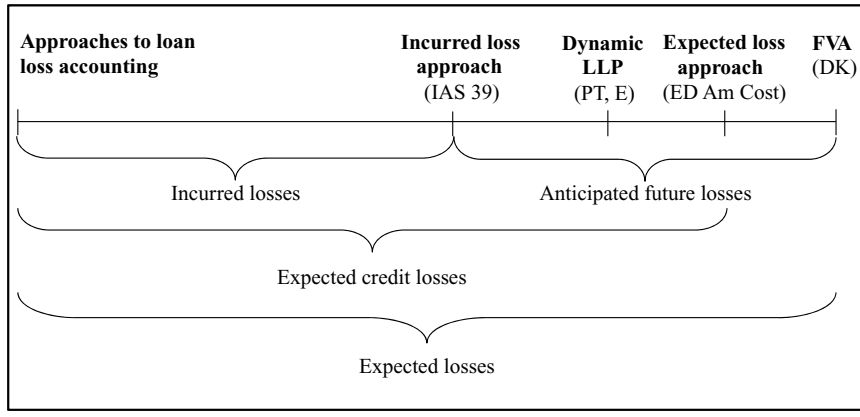
$$\mathrm{LLA}_0 = \sum_{t=1}^{N} \left(p\, d_t(I_0) * \frac{\mathrm{LGD}_t(I_0)}{(1+dr)^t} \right)$$

where LLA_0 is the loan loss allowance at time 0; $pd_t(I_0)$ is the (cumulative) probability of default, based on the information available at time 0; $\mathrm{LGD}(I_0)$ is the loss given default based on the information I_0; and dr is the discount rate that is used to discount expected cash flows.[15] With the passage of time, new information I_t may arrive that changes the expectations about the probability of default in future periods (pd_{t+n}). The new information and the corresponding change in the probability of default is immediately reflected in the economic value of the loan. In accounting terms, the change in value should be recognised through additional loan loss provisions (LLP_t). However, under most loan loss accounting approaches, as characterised in Figure 1, this is not the case.

Under *fair value accounting* every change in pd_t and LGD_t is recognised in income. Further, fair values incorporate not only gains and losses due to changes in expected default rates but also gains and losses due to changes in the market interest rate (dr). Therefore, fair value accounting corresponds to the economic valuation of the loan and incorporates all economic losses.

Figure 1

Alternative Loan Loss Accounting Approaches and Regimes



Notes:
Incurred losses are expected losses from events as of the balance sheet date. Thus, incurred losses represent a subset of expected losses. Expected losses are incurred losses and expected losses from events expected to occur after the balance sheet date.

Under the *expected loss approach*, as currently proposed by the IASB (IASB, 2009e), increases in pd_t and LGD_t, and thus, only expected future *credit* losses are recognised in income. Changes in loan value due to changes in market interest rate risk are not recognised. Thus, under an expected loss approach, loan values do not reflect fair or economic value.

An *incurred loss approach* only requires the recognition of the subset of expected credit losses for which a credit event has already occurred as of the balance sheet date.

15 See Benston and Wall (2005).

In effect, this means that the probability of default has to be close to or even equal to 100% before a loan loss is recognised. As a result, out of the range of possible estimates of expected loan losses, incurred losses represent the lowest boundary.

Before IFRS adoption, most European countries applied a mixture of the incurred loss and expected loss approaches. In the following section we compare loan loss accounting practices in Europe relative to these benchmarks.

(iv) Loan Loss Accounting in Europe before IFRS Adoption

Although the accounting rules of banks prior to IFRS adoption were based on the EC Bank Accounting Directive, loan loss provisioning practices differed across EU countries. This diversity was caused by the choice permitted by the Directive, differences in the accounting and tax treatment of loan loss provisions, and differences in capital adequacy regulations. The national rules provided banks with considerable flexibility in their application. Basically, the approaches to loan loss accounting differed in terms of *when* deterioration in credit quality had to be recognised and *how* loan losses should be measured for accounting purposes.[16] Table 1 provides a summary of the existing approaches and highlights the differences across key dimensions.

Under local GAAP, in most EU countries loans are initially recognised at the amount repayable at maturity or at their nominal value. After initial recognition, loans are measured at the lower of cost or market value, so that deteriorations in the creditworthiness of the debtors are recognised through loan loss provisions. Typically, loan loss provisions include specific impairments that cover the losses expected from individually impaired loans and general loan loss provisions for latent credit risk. Most commonly, *specific loan loss provisions* are based on 'objective factors' that trigger impairment. Impairment occurs either as depreciation to an observable market value or by discounting estimated future cash flows by the current market interest rate to arrive at a lower (fair) value to be attributed at the balance sheet date. Given that market values and market interest rates include all available future information, individual impairments according to local GAAPs may already include expected losses for events to occur after the balance sheet date. However, even though arriving at the lower value to be attributed at the balance sheet date requires discounting, accounting practice in several countries was to use the sum of the undiscounted future cash flows to determine the loan loss provisions (Gebhardt, 2008).

General loan loss provisions in addition refer to losses from events expected to occur in future periods. However, there are several country-specific tax and regulatory disincentives that have prevented banks from providing the maximum general loan loss provision.[17]

Some countries have specific local GAAP rules for loan loss provisioning, which are discussed below.

(a) Denmark – Mark-to-Market Accounting

The former Danish rules required banks to make provisions for losses deemed to be unavoidable (so-called B provisions) but also for foreseeable losses (A provisions). This rule was interpreted in such a way that the loan balance, net of provisions, should be

16 See also Borio and Lowe (2001, p. 36).
17 For Germany, see Gebhardt (2008).

Table 1
Approaches to Loan Loss Accounting

		Local GAAPs in Europe	*Dynamic Provisioning*	*Fair Value Accounting*	*IAS 39 – Incurred Loss Approach*	*ED Amortized Cost & Impairment – Expected Loss Approach*	*Basel II*
Specific impairments of individually impaired loans	Trigger	Objective evidence	No	No	Objective evidence; non-exclusive list of trigger events	No	No
	Horizon	Residual maturity	Residual maturity	Residual maturity	Residual maturity	Residual maturity	One year
	Write-down to	Market value or present value of expected future cash flows using the current *market interest rate* as discount factor[1]	No discounting	Market value or present value of expected future cash flows using the current *market interest rate* as discount factor	Present value of expected future cash flows using the *original effective interest rate* as discount factor	Present value of expected future cash flows using the effective interest rate *determined on the basis of initially expected cash flows* as discount factor	EL = PD ∗ LGD
Latent risk in the loan portfolio	General provisions	Allowed[3]	Required	Not necessary	Not allowed[2]	Not allowed	Recommended
Expected loan losses beyond incurred considered		Yes, partially[3,4]	Yes, partially	Yes, fully[4]	No	Yes	Over a one year horizon

Notes:
[1]However, accounting practice in some European countries indicates that banks use the sum of undiscounted cash flows in order to determine the measurement base for loan loss provisions.
[2]IAS 39 requires provisions on a portfolio basis for loans that are not individually impaired (IAS 39.64). Further, a bank might provide an impairment loss for a group of loans for which historical experience indicates that default rates do not fluctuate from year to year ('incurred but not reported' losses).
[3]General loans loss provisions should cover latent credit risk. In practice, banks abstained from providing full coverage of all credit risks because of tax and regulatory capital disincentives.
[4]Discounting at current market interest rates or fair value accounting recognise also losses arising from changes in market risk, i.e., changes that are not due to changes in default risk.

approximately equal to the current market value (Bernard et al., 1995). From this, it follows that loan loss provisions according to Danish GAAP included not only incurred losses, but also losses expected from anticipated events over the whole maturity of the loan portfolio. The former Danish model is the one closest to the fair value model as proposed by JWG (2000). However, concurrent with the adoption of IFRS, local Danish impairment rules were modified such that they now basically resemble the incurred loss approach of IAS 39.[18]

(b) Spain and Portugal – Dynamic Provisioning

Spain, and similarly Portugal, introduced the dynamic loan loss provisioning approach, which requires banks to set aside reserves for every loan, even when there is no evidence of impairment. In addition to specific and general loan loss provisions, Spanish banks had to set up so-called 'statistical provisions'. The underlying rationale is that credit risk is inherent in every loan from the moment of its origination. This approach means that loan loss reserves are built up during periods of high economic growth, which can then be depleted during economic down-swings. However, dynamic loan loss provisions are determined on the basis of historical loss experience. Thus, dynamic loan loss provisioning is not an expected loss model (IASB, 2009d). By definition, statistical provisions are relatively stable over time and economic cycles, which leads to smoother earnings as compared to other provisioning regimes.[19]

The local GAAP loan loss provisioning rules continue to apply for non-listed banks. However, local GAAP rules have been revised recently in several EU countries (e.g., Denmark) in order to apply the same rules for listed and unlisted banks.

(v) Accounting for Credit Risks under IAS/IFRS

IAS/IFRS accounting for credit risk has undergone several changes during past decades. The former International Accounting Standards Committee (IASC) issued IAS 30 'Disclosures in financial statements of banks and similar financial institutions' in 1991 which introduced the requirement to disclose movements in the loan loss allowance. In the absence of measurement rules for financial instruments before the issuance of IAS 39, banks continued to use their domestic GAAP loan loss provisioning practices in their IAS financial statements. However, IAS 30 removed the option to set up hidden reserves, as allowed by Article 37 of the EC Bank Accounting Directive. Furthermore, recognition of a special item for general banking risks affecting income (Art. 38 EC Bank Accounting Directive) was not allowed according to IAS 30.44. Until its deletion, effective as of 2005, in the course of the IASB Improvement Project, IAS 30.45 was interpreted as allowing banks to provide for potential (i.e., expected) losses in the form of general loan loss provisions. However, it required that general loan loss allowances had to be netted against loans, whereas it was common in some countries (e.g., Portugal, Spain, Italy and France) to present the general loan loss allowance on the right hand side of the balance sheet. IFRS 7 replaced IAS 30 as of January 1, 2007. To sum up, the previously described changes in IAS were the first steps by the former IASC to remove accounting options permitted by the EC Bank Accounting Directive

18 See Danmarks Nationalbank (2007, p. 72).
19 For a detailed discussion of the provisioning regime in Spain and the consequences for earnings and capital management, see Fernandez de Lis et al. (2001) and Perez et al. (2008).

that provided significant discretion for bank managers. The subsequent changes in IAS, which are described below, further reduced the room for discretion, by strictly regulating the recognition and measurement of the loan loss provision itself.

The original IAS 39 was issued in December 1998 and became mandatory from January 2001. Since then, IAS 39 has been revised several times. IAS 39.58-70 introduced that banks may only provide for credit risk when there is 'objective evidence' that impairment has occurred, as of the balance sheet date. Expected losses as a result of events expected to occur after the balance sheet date may not be recognised. IAS 39.59 provides a non-exclusive list of 'trigger events' that are indicators of impairment. Further, general loan loss provisioning for unspecified credit risks is not accepted under the IAS 39 rules. Specifically, the Implementation Guidance in IAS 39.IG.E.4.6 clarifies:

> Amounts that an entity might want to set aside for additional possible impairment in financial assets, such as reserves that cannot be supported by objective evidence about impairment, are not recognised as impairment or bad debt losses under IAS 39.

The amendments of IAS 39 during the IASB's improvement project had the purpose of eliminating or mitigating differences relative to the requirements in US GAAP (IAS 39.BC14). SFAS 5 (ASC 450-20) stipulates that a loss should be recognised only when, based on the information available prior to the issuance of the financial statements, it is probable that an asset has been impaired as of the date of the financial statement, and only if the loss can reasonably be estimated. SFAS 5.59 (ASC 450-20-25-2) further clarifies that loan loss provisions should not anticipate future events. In the SEC's view, banks should not even account for known events that will affect loan losses if these events occur after the balance sheet date (Wall and Koch, 2000).

When there is evidence of impairment, IAS 39.63 requires that:

> the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate (i.e., the effective interest rate computed at initial recognition).

A bank has to assess whether impairment exists for loans that are individually significant. Loans that are not individually impaired have to be included in a group of loans with similar credit risk characteristics and collectively assessed for impairment (IAS 39.64). The impairment of such groups of loans is estimated on the basis of historical loss experience, which is adjusted for changes in the current conditions (IAS 39.AG89). However, banks may not recognise impairment losses that are expected to occur in future periods (IAS 39.AG90).

Figure 1 positions the regulations of loan loss accounting in relation to incurred versus expected losses. Within the range of different loan loss recognition approaches, the incurred loss approach of IAS 39 represents the lowest boundary. Dynamic loan loss provisioning, as it is applied in Spain and Portugal, extends beyond incurred losses. However, given that historical data are used, dynamic provisioning does not cover all expected credit losses. The expected loss model, as it is outlined in the Exposure Draft ED/2009/12 'Amortized Cost and Impairment' (IASB, 2009e), does not require trigger events and uses an effective interest rate that is determined on the basis of expected cash flows reflecting credit losses initially expected. Any subsequent changes in the expected cash flows are recognised immediately. The former Danish

loan loss accounting model is close to the fair value model, which recognises not only expected losses resulting from changes in default risk, but also from changes in market risk.

To sum up, the introduction of IAS 39 represents a switch from partial expected loss approaches under local GAAP to an incurred loss approach. The restriction to incurred losses triggers reversals of previous accruals for expected losses as a one-time effect of the transition to IFRS. In this study, we analyse how the exclusion of expected losses from loan impairments affects overall bank accounting quality, as measured by the level of income smoothing and timely loss recognition. It is important to note that '[a]s financial reporting criteria, quality and usefulness differ from economic efficiency because they do not address optimality'.[20] In particular, finding less income smoothing and/or less timely loss recognition (i.e., less conservatism) in the banking industry might be desirable from a standard-setting perspective. However, this result may not be efficient from a financial-stability perspective, because reducing discretion in loan loss provisioning prevents banks from building up 'reserves' for expected credit risk during good times, which they can draw upon during bad times. In order to make this point clear, we put loan loss accounting into an economic perspective in the next section.

3. BUSINESS CYCLES, LOAN GROWTH AND LOAN LOSS ACCOUNTING

Loan loss accounting should be considered in the general context of business cycles and bank management's behaviour through the cycle. Specifically, accounting for loans and loan losses is closely linked to the cyclical lending behaviour of banks. Several theories in the economic literature attempt to explain why bank managers repeatedly take loose credit decisions during expansionary economic conditions. Most prominent are the theories of herding behaviour and disaster myopia.[21] The Rajan (1994) herding model assumes that bank management is rational, but has short-term concerns. In addition to maximising bank earnings, bank managers seek to improve stock prices or the labour market's perceptions of their abilities, i.e., their reputations. Further, managements' reputations are sensitive to the current state of the economy. Specifically, market pressures to report similar profits as competitors during expansionary times, and short-term concerns, force bank managers to loosen credit policy, which results in an increase in problem loans (Rajan, 1994; and Fernandez de Lis et al., 2001). Banks which underperform their industry benchmark during periods of large profits are penalised by market participants, while they forgive poor performance when all players in the sector have been hit by a systemic shock (Rajan, 1994). This informational externality yields interdependent bank credit policies.

Market disciplining forces are hampered by the fact that the composition and quality of the loan portfolio are not easily observable by market participants. Instead, the market relies on reported bank earnings. Therefore, a bank's management might be inclined to shape the market's perceptions by manipulating current earnings. It can do so by relaxing credit standards, e.g., by extending lines of credit or lending money so that distressed (e.g., subprime) borrowers can repay their current interest

20 Ball and Shivakumar (2005, p. 85).

21 In the following we focus on herding behaviour, as the theory of disaster myopia predicts the same pattern of bank lending, but provides a different rationale. For a detailed description of the theory of disaster myopia, see Guttentag and Herring (1986).

and repayment obligations. Thus, a liberal credit policy helps short-sighted managers to boost current earnings. However, this behaviour leads to substantial costs when the boom turns into a bust and latent risks built up during the expansionary phase turn into actual losses. Due to the fact that the whole sector is hit by the downturn and low profits are not unusual, banks tighten their credit policies (Rajan, 1994). This managerial behaviour involves a change in the operating decisions that influence cash flows and has real economic costs.

The potential economic costs of this discretionary behaviour are exacerbated by current accounting rules. During the global financial crisis, fair value accounting has been accused of making bank earnings more procyclical; this is particularly true for the impairment rules for loans. During an upswing, banks have rising profits, recognising fees and risk premia but not the matching expenses for higher expected credit risk. As explained in Section 2(*v*) above, expected loan losses are recognised only in part and with a delay. Under benign economic conditions (e.g., rising house prices), there is a low probability of trigger events which are a precondition for recognising an impairment under the current accounting rules. Thus, the current rules actually support management in delaying the recognition of losses due to expected credit risk. This enables banks to present higher earnings and (regulatory) equity capital, which allow the bank to extend more credit. In a downturn, there is a culmination of trigger events with higher default rates, leading to increased loan loss provisions and lower (regulatory) equity capital. The contraction of capital and the increased riskiness of loans force banks either to raise new equity capital or to cut lending, in order to meet the risk-based minimum capital requirements for banks, as set out in the Basel framework.[22] As the issuance of new capital is deemed too costly during periods of distress, banks may prefer to cut back their lending (Mishkin, 1999).

4. HYPOTHESIS DEVELOPMENT

(i) The Effect of IFRS Adoption on Income Smoothing

Accounting standard setters develop rules with the aim of providing decision-useful information for general purpose users of financial statements, in particular investors. They recognise that managers may have incentives to use loan loss provisioning to manipulate the reported numbers. In some periods, they may have an incentive to understate expected losses to boost net income or capital; in other periods, they may have incentives to overstate current loan loss provisions when earnings are high, which will allow them to understate losses in future periods when they have lower earnings (Benston and Wall, 2005). The subjective nature and broad empirical evidence on the discretionary use of loan loss provisions have been the primary reasons why the setters of accounting standards have restricted loan loss provisioning to incurred losses.

The empirical research analysing the accounting choices of banks provides several explanations for the discretionary use of loan loss provisions, in particular for earnings and capital management. While incentives to manage earnings are similar to those in the non-financial industries (e.g., to meet the psychological thresholds of investors

22 There is a theoretical discussion and empirical evidence that the more risk-sensitive requirements of the Basel II framework tend to have a procyclical effect. Specifically, during economic downturns, the higher riskiness of borrowers raises capital requirements at the same time as capital becomes more expensive, particularly for weaker banks (e.g., see Laeven and Majnoni, 2003, p. 180f.).

by avoiding negative earnings, exceeding the previous year's earnings per share, and beating analysts' earnings expectations), incentives to manage regulatory capital are bank-specific. In our sample countries, the regulatory capital of banks (Tier 1 plus Tier 2) should not be less than 8% of the risk-weighted assets. In particular, financially distressed banks that have problems meeting this capital requirement have incentives to reduce their loan loss provision.

The empirical results on earnings and capital management are not conclusive across studies, which might be attributable to differences in the time periods analysed and the research designs. Beatty et al. (1995) find evidence that banks manage their regulatory capital through the loan loss provision, but do not engage in earnings management. In contrast, Collins et al. (1995) find no evidence for capital management, but report a positive correlation between earnings and loan loss provisions, which is consistent with the income smoothing hypothesis. These papers analyse a period before the implementation of the Basel I framework. Prior to this regulatory change in 1990, the loan loss allowance formed part of the regulatory capital, which meant that additional loan loss provisions decreased earnings, but increased the loan loss allowance and thus, if tax deductible, increased regulatory capital by the loan loss provision multiplied by the tax rate. Thus, before the introduction of the Basel I regime, banks could easily manage earnings downwards to decrease tax payments and simultaneously increase primary regulatory capital. Basel I changed banks' incentives by removing loan loss allowances from Tier 1 capital and only allowing the inclusion of general loan loss allowances in Tier 2 capital. Kim and Kross (1998) compare the pre-Basel I period with the Basel I period and find that, due to changes in incentives, banks with low capital ratios reduced their loan loss provisions after the implementation of Basel I. Similarly, Ahmed et al. (1999) revisit both earnings and capital management motivations for a more recent time period. They find evidence of capital management, but not of income smoothing. Altamuro and Beatty (2010) analyse the financial reporting effects of the Federal Depository Insurance Corporation Improvement Act's internal control provisions. They find that the change in internal control improves loan loss provision validity and reduces earnings management.

Recent empirical studies analysing countries outside the US find that the extent of the discretionary behaviour depends on the accounting regime (Perez et al., 2008), the economic cycle (Laeven and Majnoni, 2003), investor protection, regulatory regimes, financial structure and financial development (Shen and Chih, 2005; and Fonseca and Gonzalez, 2008). Motivations for discretion in financial reporting are diverse and can be explained partly by the fact that many implicit and explicit contracts of the bank refer to accounting numbers. Violation of these contracts (e.g., non-compliance with regulatory capital requirements) can affect the economic value of the bank (Beaver and Engel, 1996).

However, we should note here that reporting discretion, generally, and income smoothing, in particular, are not necessarily a result of opportunistic behaviour. For example, management may use its reporting discretion for communicating private information. Similarly, income smoothing may simply result from incorporating future expected losses into banks' earnings. Accordingly, HSBC explains the Basel II expected loss concept in its Annual Report 2008, p. 276, as follows:

> As expected losses are estimated on long-term estimates and incorporate through-the-cycle considerations, they are expected to be less volatile than actual loss experience.

Building on prior literature, we examine whether the adoption of IFRS, and particularly the implementation of the incurred loss approach, results in less income smoothing through the use of loan loss provisions. We expect that the stricter IAS 39 impairment rules, relative to the local GAAP requirements, lead to less income smoothing. This is consistent with the theoretical findings of Ewert and Wagenhofer (2005), who argue that tighter accounting rules increase the disutility of managers engaging in earnings management, due to higher individual regulatory and litigation risks. Thus, tighter accounting rules can limit opportunistic managerial discretion, resulting in less accounting earnings management.

However, the stricter IAS 39 impairment rules still leave some scope for discretion in setting up the loan loss provision. Several recent studies attribute a limited role to accounting standards in determining observed accounting quality, and in contrast, highlight the importance of firms' reporting incentives (e.g., Ball et al., 2000; Leuz et al., 2003; Ball and Shivakumar, 2005; and Burgstahler et al., 2006). These papers argue that the use of the discretion provided by accounting standards is likely to depend on firms' underlying reporting incentives. Thus, even if the loan loss provisioning rules are much tighter under IFRS than they were under the previous local GAAP, it is not clear whether banks apply these rules in the way intended by the standard setter.

Further, compliance with accounting standards depends on the effectiveness of enforcement. The EC Regulation No. 1606/02, which mandates the introduction of IFRS for all publicly listed EU firms since 2005 (with a few exceptions), also stipulates that member states should 'take appropriate measures to ensure compliance with international accounting standards'. According to paragraph 16 of the regulation, the Committee of European Securities Regulators (CESR) should coordinate Member States' efforts to create a common approach to enforcement. To this end, in 2003, the CESR issued its Standard No. 1 (CESR, 2003), which calls for the creation of an independent administrative authority for compliance and enforcement in each member state. While non-binding, most of the EU countries have followed the recommendations of CESR. In its survey, conducted in 2007, CESR found that by 2006, 20 member states had already introduced an enforcement mechanism, at least in part. In our sample, only Ireland and Sweden had no enforcement activities by 2006, however, both countries started implementing enforcement mechanisms in 2007. The importance of proper enforcement receives broad support from recent empirical work (Holthausen, 2009). For example, using a world-wide sample of IFRS-adopting countries, Daske et al. (2008) find that capital market benefits of mandatory IFRS adoption accrue only to firms in countries where firms have incentives to be transparent and legal enforcement is strong. Similarly, Li (2010) examines a longer time series of IFRS years, for 18 EU countries, and finds that the cost of capital decreases in countries with strong enforcement. These results suggest that we are likely to find improved accounting quality only if IFRS are properly enforced in our sample countries.

Given their highly subjective nature and their importance for net income, loan loss provisions come under close scrutiny from bank auditors. Relative to the previous local GAAP, IAS 39 contains more specific guidance on how to estimate the impairment of financial assets, which helps auditors to assess the adequacy of loan loss provisions. Further, given that under IAS 39 only incurred losses have to be estimated, the resulting loan loss provisions may be easier to verify. If the verifiability of loan loss

provisions increases after IFRS adoption, we would expect the discretionary use of loan loss provisions to decrease.

Taken together, we formulate the following hypothesis:

H_1: After IFRS adoption, banks exhibit, on average, less income smoothing behaviour.

However, it is important to note that, even if accounting standards are properly enforced, observed reporting behaviour is likely to differ across countries and firms, as the underlying institutional factors and reporting incentives vary (Leuz, 2006). Thus, it is highly likely that, even after the adoption of a common set of accounting standards and the implementation of additional enforcement mechanisms, institutional differences will result in different IFRS accounting. Transferred to our bank-specific setting, this implies that differences in bank supervision and regulation, or in banks' corporate governance mechanisms, will yield different IFRS adoption effects on banks' accounting quality. Therefore, in our cross-sectional tests, we examine whether accounting quality effects vary with respect to these institutional features.

(ii) The Implications of Bank Regulation for Income Smoothing

Higher earnings quality, in terms of less income smoothing, bears potential costs if the recognition of loan losses is delayed. As outlined in Section 3 above, unrecognised credit risks accumulate during economic booms and turn into larger recognised losses in economic downturns, which then decrease financial stability. Thus, the incurred loss approach might exacerbate the effects of procyclicality in a downturn.

Bank regulators are aware of the cyclical pattern of bank lending and provisioning. They advocate a forward-looking provisioning regime, under which loan loss allowances are built up during good times and depleted during bad times, in order to reduce the procyclicality of banks' regulatory capital. Therefore, we predict that the effect of IFRS adoption on the provisioning behaviour of banks varies with the stringency and attitudes of regulatory or supervisory regimes.

Specifically, as loan loss provisions based on the incurred loss approach do not suffice to cover expected losses, the shortfall reduces banks' ability to withstand unexpected losses. Therefore, bank supervisors might induce bank managers to increase their loan loss provisions. Alternatively, the shortfall is deducted from the bank's regulatory capital, as is mandated by Basel II for banks that want to use the Internal Ratings Based approach. A similar approach has already been applied by the Bank of Portugal under the Basel I regime, as described in the annual report of Banco Portugues de Investimento (2006 Annual Report, p. 135):

> For purposes of calculating own funds, the level of provisions (specific and general) that would result from the application of the provisioning regime prescribed by the Bank of Portugal is taken into consideration when these are more than the impairment charges recorded in the consolidated accounts. In this situation, basis own funds are reduced by the positive difference between the amount of provisions (specific and general), calculated according to the Bank of Portugal's rules, and the loan impairment charges recorded in the consolidated accounts in conformity with IAS/IFRS.

Such regulatory treatment might provide incentives for banks to keep loan loss provisions higher and closer to the provisioning rules of bank regulators compared to

a restrictive application of the IAS 39 incurred loss approach. Therefore, we formulate the following hypothesis:

H_2: Banks in stricter regulatory regimes exhibit more income smoothing through the use of loan loss provisions even after IFRS adoption.

(iii) The Implications of Ownership Structure on Income Smoothing

Leuz (2006) argues that ownership structure affects managers' incentives to manage earnings. However, the results of the effects of the dispersion of ownership on earnings management behaviour are mixed. For example, Leuz et al. (2003) find that non-financial firms in countries with developed equity markets, dispersed ownership structures and strong investor protection rights, engage less in earnings management. They argue that managers and controlling owners of closely held companies have incentives to protect their private control benefits from outsiders, and thus, to conceal firm performance by managing earnings. Similarly, Leuz (2006) provides evidence that firms with higher levels of ownership concentration exhibit more evidence of earnings management.

In contrast, for an international sample of banks, Fonseca and Gonzalez (2008) find that there is more income smoothing in market-based (as opposed to bank-based) financial systems and in financially developed countries. They argue that banks in those countries generally have more dispersed ownership, which results in a greater number of financial statement users, and consequently, in a greater importance being placed on accounting figures. However, they do not test this conjecture directly.

US-based literature analysing the effect of ownership structure on earnings management behaviour in the context of banks generally focuses on the distinction between private and public ownership. Beatty and Harris (1999) examine the differences in realisations of securities gains and losses between private and public banks. They find that earnings management is more prevalent in public banks and attribute this to a higher demand for reducing information asymmetry. Consistent with this argument, they find that managed current reported earnings are more reflective of future performance. Similarly, Beatty et al. (2002) find that publicly-held banks engage more extensively in earnings management. The authors argue that investors in dispersed ownership structures rely more on simple earnings heuristics. Specifically, small shareholders do not have the power to monitor firms' activities, and thus, do not process all the information available to assess financial performance. This may provide managers with incentives to engage in earnings management.

Taken together, the mixed results in the literature suggest a non-linear relationship between ownership structure and reporting behaviour. In order to gain additional insight into this matter, we analyse whether the argument brought forward by Beatty et al. (2002) holds for our European bank sample. Specifically, we analyse how dispersed ownership affects banks' income smoothing behaviour. In line with the reasoning of Beatty et al. (2002) and Fonseca and Gonzalez (2008), we expect that managers of banks with widely dispersed ownership have more incentives to smooth income through loan loss provisions. Thus, we formulate the following hypothesis:

H_3: Banks with widely dispersed ownership exhibit more income smoothing even after IFRS adoption.

However, a higher correlation between loan loss provisions and earnings (i.e., income smoothing) might reflect income-decreasing, i.e., conservative, accounting. In widely held banks there is a high degree of separation of ownership and control, and thus, high information asymmetry between managers and shareholders. The higher dispersion in ownership creates a higher demand for conditional conservatism. Therefore, finding more extensive provisioning by widely held banks might also reflect managers' responses to this higher demand for conservatism (Nichols et al., 2009).

(iv) Timely Recognition of Loan Losses

In our final set of analyses we test how the exclusion of expected losses from the recognition of loan loss provisions affects the conditional conservatism of banks' earnings. Specifically, we examine timely loss recognition by analysing the effect of IFRS adoption on the differential persistence of earnings components. The early recognition of loan losses is particularly important for banks' financial statements, due to their key role in financial intermediation and their exposure to significant risks pertaining to their business (e.g., credit risk, interest rate risk, liquidity risk).

Our analysis extends Barth et al. (2008) and Christensen et al. (2008), who examine the accounting quality implications of IFRS adoption by non-financial firms. Barth et al. (2008) predict and find that firms exhibit more conditionally conservative earnings after IFRS. Christensen et al. (2008) find more conditional conservatism only for voluntary adopters, but not for mandatory adopters. However, these authors are vague in their hypotheses about why IFRS should lead to more timely loss recognition. Our specific banking setting allows us to be more specific about how IFRS adoption should affect banks' conditional conservatism, by analysing the changes in the rules that mostly affect banks' accounts.

Given that the balance sheets of banks primarily consist of financial instruments, banks face two major accounting changes due to IFRS adoption – first, the change in loan loss provisioning and, second, a wider application of fair value accounting. Fair value accounting requires symmetric gain and loss recognition. Therefore, a wider use of fair value accounting would lead banks to recognise both gains and losses in a timely fashion. However, the empirical findings of recent surveys for European and also US banks show that the portion of assets and liabilities measured at fair value is very limited for most commercial banks (KPMG, 2008; and SEC, 2008). Therefore, we expect the potentially wider use of fair value accounting to have a rather small impact on earnings quality. In contrast, loan loss provisions are the largest accrual in banks' accounts. Given that 'conservatism operates through accruals'[23] , any change in the discretionary nature of this accrual, imposed by the restrictive IAS 39 impairment rules, will also have an impact on the conservatism of banks' earnings. In fact, accounting for loans under IFRS is asymmetric, in the sense that gains are recognised earlier than losses. This is because, while the fees and risk premia included in the interest rates on loans are recognised in net income, from the inception of the loan, the impairment rules of IAS 39 prohibit the anticipation and recognition of expected losses. Therefore, to the extent that banks recognised future expected losses under their respective local GAAPs, we hypothesise that IFRS adoption will lead to less timely loan loss recognition and thus to relatively less conservative earnings:

23 Nichols et al. (2009, p. 111).

H_4: Banks recognise loan losses in a less timely manner after IFRS adoption.

5. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

Our sample selection starts out with all listed banks in the 15 'old' EU member states. We choose these because local accounting rules within the EU area are based on the Fourth, Seventh and the Bank Accounting Directive, which has resulted in some harmonisation of bank accounting across these states. We exclude German and Austrian banks for the following reasons. First, almost all Austrian and German banks are voluntary adopters, mainly adopting IAS/IFRS in or after 1998.[24] As outlined in Section 2(*iv*), the relevant IAS/IFRS provisions for loan impairment have changed several times since 1998. The incurred loss approach, as it is implemented currently in IAS 39, has only existed since 2005. In fact, a typical German/Austrian bank adopting IAS/IFRS in 1998 has had to adopt different IAS 39 loan loss accounting rules in each of the periods 1998–2000, 2001–2004 and since 2005. Second, based on observable accounting practice and discussions with bank accountants and auditors, it appears that Austrian and German banks applied a step-by-step transition to IFRS, which makes it difficult to measure a one-time effect of IFRS adoption. Finally, financial statements under German/Austrian GAAP do not disclose relevant data on credit risk, particularly data for non-performing loans.

Luxembourg was dropped from our analyses because its banks are all subsidiaries of bank holding companies already included elsewhere in our sample. For the remaining twelve EU countries, we searched for listed banks on the respective stock exchanges, which yielded a starting population of 118 banks. We lost 15 banks whose financial statements are not available from the website, or not available in English. Further, we excluded seven subsidiaries that operate in the same sector as their parent and six banks for which lending is not their main business. Our final sample consists of 90 mandatory IFRS adopters.

We downloaded the financial statements from the banks' websites for the period from 2000 to 2007. All data were hand-collected from the financial statements. Hand-collection is necessary as data on most of the key variables used in prior US literature are incomplete or not available for European banks in commercial databases like Bankscope. This relates especially to non-performing loans and loan loss allowances.

Table 2 presents descriptive statistics for the variables used in our multivariate analyses. We display statistics for the pre- and post-IFRS-adoption periods. The comparison of the two periods reveals that the entire time period is characterised by a boom phase. Specifically, banks experienced a significant growth in their loan portfolios ($\Delta Loans_{it}$) of, on average, 16.65% (median 14.77%) under IFRS, as compared to 10.12% (8.79%) before IFRS adoption. Non-performing loans (NPL_{it-1}) remain relatively stable over the whole time period, and represent, on average, 3.44% (median 2.21%) of loans before and 3.19% (median 1.99%) after IFRS adoption. Regulatory capital ratios ($RegCap_{it}$) remain basically similar in both time periods. Earnings before taxes and loan loss provisions ($EBTLLP_{it}$) increase slightly; however, this increase is not statistically significant. Except for loan growth, the most significant change between the two time periods relates to the level of loan loss provisions (LLP_{it}). LLP_{it} decreases

24 From 1998 till 2004, Austrian and German listed firms had the option to prepare their consolidated financial statements in accordance with internationally recognised accounting principles (i.e., IAS/IFRS or US GAAP).

Table 2

Descriptive Statistics of Bank-Specific Variables (Period 2000–2007)

Local GAAP	*Loans*	*LLP*	*NPL*	*ΔNPL*	*ΔLoans*	*RegCap*	*EBTLLP*
mean	80,401	0.007160	0.034366	0.001981	0.101210	0.1116	0.014495
min	8	−0.000447	0.000645	−0.173077	−0.590645	0.0550	−2.895530
*p*25	6,608	0.002883	0.009634	−0.001230	0.035828	0.1006	0.015706
*p*50	25,182	0.005375	0.022096	0.000676	0.087919	0.1100	0.020631
*p*75	127,789	0.008361	0.043352	0.003849	0.149332	0.1190	0.027369
max	475,452	0.132050	0.450894	0.166190	1.090760	0.2140	0.558419
sd	110,719	0.009993	0.043699	0.017942	0.144067	0.0180	0.175436
N	297	297	277	277	297	362	297
IFRS							
mean	**116,948*****	**0.004868*****	0.031896	0.004026	**0.166497*****	0.1125	0.025722
min	39	−0.007980	0.000005	−0.189171	−0.371004	0.0756	−0.021853
*p*25	8,099	0.001023	0.008088	−0.000618	0.092740	0.0990	0.015666
*p*50	**36,929****	**0.003177*****	0.019864	0.001067	**0.147746*****	0.1100	0.021078
*p*75	139,776	0.005023	0.043027	0.004725	0.223948	0.1230	0.027132
max	927,674	0.094135	0.307079	0.290787	1.914568	0.1956	0.580462
sd	170,776	0.010198	0.039134	0.027622	0.179130	0.0190	0.038141
N	260	260	254	254	260	254	260

Notes:

This table presents descriptive statistics for our bank-specific variables of 90 EU banks. All variables except *Loans* and *RegCap* are scaled by average loans. The statistical significance of the difference of means (medians) is based on the parametric *t*-test (the non-parametric Wilcoxon/Mann-Whitney test). ***, **, * significant at the 1%, 5% and 10% levels.

Variable definitions:

Loans, average loans ($[Loans_{it} - Loans_{it-1}]/2$) in mio. EUR; LLP, current year's loan loss provision; NPL, non-performing loans; ΔNPL, change in non-performing loans; Δ*Loans*, change in loans; EBTLLP, earnings before taxes and loan loss provisions; *RegCap*, ratio of banks' eligible regulatory capital over risk-weighted assets.

significantly from a mean of 0.72% (median 0.54%) to 0.49% (median 0.32%) after IFRS adoption. Taken together, the descriptive analysis suggests that, although the expected credit risk in European banks' balance sheets increased after IFRS adoption, as indicated by the significantly higher growth in loans, banks decreased their loan loss provisions.

Table 3 presents the medians of the dependent and explanatory variables for each country included in our sample. Most European countries exhibit a significant decrease in the ratio of loan loss provisions to average loans, while the level of non-performing loans (NPL_{it-1}) relative to average loans and other economic determinants of LLP_{it} remain generally unchanged. Interestingly, the level of loan loss provisions in Denmark turns negative during the IFRS adoption period, indicating that Danish banks reversed large portions of previous years' loan loss provisions, which they had built up during local GAAP times. Accordingly, the Danish National Bank states in its Financial Stability Report 2007 (p. 76):

> The new accounting rules have thus increased equity capital, and thereby the excess capital adequacy, by elements of the amounts that were previously reserved for provisions, without affecting the risk and risk profile.

This statement and several other quotes from the financial statements of our sample banks suggest that banks recognised significantly lower loan loss provisions for the same level of credit risk after IFRS adoption.

Table 3 also includes the country-median *Transeff* variable, which is the bank-specific transition effect of IFRS adoption on the loan loss allowance. Upon transition to IFRS, banks were required to restate their loan loss allowance according to IFRS, for the preceding reporting period during which they applied local GAAP. Thus, we can compare loan loss allowance figures prepared under IFRS and local GAAP for the same year and same economic conditions. We compute *Transeff* as the difference between the loan loss allowance according to local GAAP and the loan loss allowance according to IFRS, at the same point in time, and divide this difference by the ending balance of loans in the last local GAAP year. Table 3 shows substantial variation in the direction and magnitude of transition effects across countries. Positive values indicate an increase in the loan loss allowance amounts after the adoption of IFRS. An increase in the loan loss allowance upon transition might be due to two factors. First, as mentioned earlier, it was common accounting practice in Europe to use the sum of undiscounted cash flows to determine the recoverable amount to which banks wrote down impaired loans. According to IFRS, the impairment amount has to be determined using the sum of expected future cash flows *discounted* by the original effective interest rate. Therefore, banks that used undiscounted cash flows should experience a discounting effect which will increase the loan loss allowance upon transition.[25] Second, an increase could also be due to under-reserving by banks during local GAAP times. The largest increases in median banks' loan loss allowances at transition occurred in Belgium, France and Greece, namely by +0.30%, +0.19% and +0.60%, relative to the ending balance of loans in the last local GAAP financial reporting year.

Strikingly, Portugal and Spain have relatively small, but also positive, median transition effects (+0.12% and +0.003%, respectively). Because these countries previously applied a dynamic loan loss provisioning approach, we would have expected to see

25 This discounting effect unwinds up to the maturity of the loans.

Table 3

Descriptive Statistics of Bank-Specific Variables by Country (Period 2000–2007)

Country		*Median Loans*	*Median LLP*	*Median NPL*	*Median ΔNPL*	*Median ΔLoans*	*Median RegCap*	*Median EBTLLP*	*Median Transeff*
Belgium	Loc GAAP	147,797	0.0021171	0.0202977	0.0002095	0.0688326	0.1290	0.0152029	
(3 banks)	IFRS	223,038	0.0005997	0.0116639	0.0003460	0.0922387	0.1050	0.0140935	0.003024
	Difference	+*	−***	−	+	+	−***	−	
Denmark	Loc GAAP	2,379	0.0072578	0.0091251	−0.0001768	0.0602141	0.1110	0.0287715	
(7 banks)	IFRS	4,199	−0.0003238	0.0081352	0.0001874	0.2169120	0.1140	0.0262643	−0.004181
	Difference	+*	−***	−	+	+***	+	−	
Finland	Loc GAAP	4,267	0.0002865	0.0017436	0.0006251	0.2641712	0.1120	0.0148921	
(2 banks)	IFRS	4,669	0.0001543	0.0017467	−0.0002667	0.0956184	0.1250	0.0175573	−0.000360
	Difference	+	−	+/−	−	−	+*	+	
France	Loc GAAP	160,077	0.0039821	0.0469953	0.0012809	0.0674796	0.1145	0.0214189	
(9 banks)	IFRS	207,137	0.0021919	0.0321830	0.0008235	0.1521442	0.1040	0.0233919	0.001926
	Difference	+*	−***	−***	−	+***	−**	+	
Greece	Loc GAAP	11,418	0.0090472	0.0379417	0.0041938	0.1587788	0.1140	0.0236445	
(7 banks)	IFRS	16,340	0.0071509	0.0482731	0.0012939	0.1743414	0.1112	0.0241326	0.005965
	Difference	+**	−	+*	−	+	−	+	
Ireland	Loc GAAP	29,211	0.0017476	0.0063783	0.0005771	0.1976397	0.1105	0.0244637	
(4 banks)	IFRS	75,700	0.0011329	0.0052328	0.0014399	0.2272670	0.1110	0.0182708	−0.000702
	Difference	+***	−*	−	+**	+	+	−*	
Italy	Loc GAAP	8,385	0.0072686	0.0501442	0.0051076	0.0914844	0.0996	0.0200595	
(25 banks)	IFRS	12,431	0.0040553	0.0492402	0.0031135	0.1157514	0.0993	0.0219354	−0.004421
	Difference	+	−***	−	−	+**	−	+	

Table 3 (Continued)

Country		*Median Loans*	*Median LLP*	*Median NPL*	*Median ΔNPL*	*Median ΔLoans*	*Median RegCap*	*Median EBTLLP*	*Median Transeff*
Netherlands	Loc GAAP	36,903	0.0029101	0.0163843	0.0007812	0.0792038	0.1160	0.0149684	
(6 banks)	IFRS	176,289	0.0013172	0.0133252	0.0010648	0.0909852	0.1185	0.0158182	−0.000105
	Difference	+*	−***	−	+	+	+	+	
Portugal	Loc GAAP	16,621	0.0087708	0.0184710	0.0009018	0.0706007	0.0985	0.0210299	
(5 banks)	IFRS	23,105	0.0048531	0.0125455	0.0006395	0.1361993	0.1018	0.0203029	0.001166
	Difference	+	−**	−	−	+**	+	−	
Spain	Loc GAAP	27,827	0.0064387	0.0080130	0.0002023	0.1347299	0.1137	0.0236089	
(8 banks)	IFRS	59,495	0.0039015	0.0053488	0.0011898	0.1935963	0.1135	0.0191550	0.000028
	Difference	+*	−***	−**	+**	+*	−*	−	
Sweden	Loc GAAP	83,183	0.0009902	0.0078442	−0.0011474	0.0511731	0.1023	0.0141552	
(4 banks)	IFRS	111,202	−0.0000158	0.0063636	−0.0005384	0.1206978	0.0980	0.0165730	0.000000
	Difference	+***	−***	−**	+	+***	−	+***	
UK	Loc GAAP	204,483	0.0047190	0.0221296	−0.0002447	0.0891483	0.1190	0.0267478	
(10 banks)	IFRS	187,593	0.0048281	0.0173814	0.0024935	0.1168198	0.1200	0.0249480	−0.000126
	Difference	−*	+	−**	+***	+*	+	−	

Notes:
This table presents descriptive statistics for our bank-specific variables of 90 EU banks by country. All variables except *Loans*, *RegCap* and *Transeff* are scaled by average loans. The statistical significance of the difference in means (medians) is based on the parametric *t*-test (non-parametric Wilcoxon/Mann-Whitney test). ***, **, * significant at the 1%, 5% and 10% levels.

Variable definitions:
Loans, average loans ($[Loans_{it} - Loans_{it-1}]/2$) in mio. EUR; LLP, current year's loan loss provision; NPL, non-performing loans; ΔNPL, change in non-performing loans; Δ*Loans*, change in loans; EBTLLP, earnings before taxes and loan loss provisions; *RegCap*, ratio of banks' eligible regulatory capital over risk-weighted assets. *Transeff* measures the firm-specific transition effect of IFRS on the loan loss allowance upon adoption. *Transeff* is computed as the bank-specific difference between LLA_{IFRS} and $LLA_{LocalGAAP}$, where LLA_{IFRS} is the beginning balance of the loan loss allowance in the first financial statement prepared under IFRS and $LLA_{LocalGAAP}$ is the ending balance of the loan loss allowance for the last financial statement prepared according to local GAAP. *Transeff* is scaled by the ending balance of loans in the last financial statement prepared under local GAAP.

significant reversals of their statistical loan loss allowances that were not based on incurred losses. This implies that banks from Spain and Portugal refrained from reversing their reserves in the transition to IFRS, possibly due to regulatory pressures. This descriptive evidence is in line with our second hypothesis that banks from strict supervisory environments might be induced to keep higher levels of loan loss provisions and allowances than are allowed under IFRS.

The median bank in Sweden did not change its loan loss allowance figure upon transition. This might be due to the fact that Swedish GAAP had been revised gradually in the pre-IFRS period, in order to reduce the differences to IFRS. The rest of the countries (i.e., Denmark, Ireland, Italy, the UK, Finland and the Netherlands) experienced decreases in loan loss allowances, indicated by negative values of *Transeff*. These countries had to reverse the portion of loan loss provisions that they had built up in the pre-IFRS period in excess of incurred losses.

The transition effects demonstrate that banks had to make substantial changes in their loan loss accounting. This observation lends support to the argument that mandatory IFRS adoption has an effect on the accounting (quality) of European banks. However, as becomes evident from the cases of Portugal and Spain, accounting effects vary with differences in regulatory environments. This warrants our cross-sectional analysis of the IFRS adoption effect.

Table 4 presents institutional characteristics of our sample countries. We take the institutional variables from Caprio et al. (2007). We include a variable OFFICIAL, which is an indicator variable (ranging from 0 to 14) that captures the power of supervisors to demand information and/or take legal action against auditors, to restructure or reorganise troubled banks and, particularly interesting for our study, to require banks to provision for potential losses. CAPITAL is an index of the stringency of regulatory capital requirements (ranging from 0 to 6). It captures information

Table 4
Institutional Characteristics of Sample Countries

	OFFICIAL	*CAPITAL*	*WIDELY*
Belgium	-	-	-
Denmark	8	2	0.22
Finland	8	4	0.00
France	7	2	0.50
Greece	10	3	0.13
Ireland	9	1	1.00
Italy	6	4	0.33
Netherlands	8	3	0.00
Portugal	13	3	0.17
Spain	9	4	0.20
Sweden	6	3	0.00
UK	11	3	0.83
Country median	8	3	0.20

Notes:
OFFICIAL is an index ranging from 0 to 14 with higher values indicating more supervisory power. CAPITAL is an index of stringency of regulatory capital requirements (ranging from 0 to 6). OFFICIAL and CAPITAL are calculated by Caprio et al. (2007) using the databases from Barth et al. (2001, 2004, 2006). WIDELY is created by Caprio et al. (2007) and measures what fraction of a country's ten largest banks is widely held, i.e. has no controlling owner. A controlling owner is defined as a shareholder who controls over 10% of the votes.

on what is included in regulatory capital, e.g. whether unrealised losses in the securities portfolio and/or the changes in the market value of loan losses are deducted from reported accounting capital. CAPITAL further captures the minimum capital requirements. We also use the Caprio et al. (2007) measure of dispersed ownership. Under their definition, banks are 'widely held' if no legal entity owns ten percent or more of the voting rights. WIDELY measures what fraction of a country's ten largest banks is widely held.

The power of official supervisory authorities (OFFICIAL) is highest in Portugal and the UK; it is lowest in Italy and Sweden. Regulations for regulatory capital (CAPITAL) are most restrictive in Spain, Italy and Finland and least restrictive in Ireland. Not surprisingly, UK and Irish banks have the most dispersed ownership (WIDELY). Ownership of banks is more concentrated in Finland, the Netherlands and Sweden.

Table 5 presents Spearman rank correlations between the loan loss provisions and the institutional characteristics. Loan loss provisions have a significantly positive correlation with the supervisory oversight variable OFFICIAL. This is in line with the conjecture that banks in more powerful supervisory regimes recognise larger loan loss provisions. The significantly positive coefficient between LLP and WIDELY suggests that banks from countries with more dispersed ownership have higher loan loss provisions. The correlation between LLP and CAPITAL is positive, but insignificant. CAPITAL and OFFICIAL are negatively correlated, indicating that official supervision and restrictive bank capital regulation are substitutes rather than complements. Countries with more dispersed ownership tend to have less restrictive capital regulations, as indicated by the negative and significant relationship between WIDELY and CAPITAL.

Table 5

Spearman Rank Correlation Coefficients between Loan Loss Provisions and Institutional Characteristics

	LLP	*OFFICIAL*	*CAPITAL*	*WIDELY*
LLP	1.000			
OFFICIAL	0.171***	1.000		
CAPITAL	0.023	−0.402***	1.000	
WIDELY	0.212***	0.045	−0.200***	1.000

Notes:
This table presents Spearman rank correlation coefficients and significance levels between the loan loss provisions (LLP), official supervisory power (OFFICIAL), stringency of regulatory capital requirements (CAPITAL) and dispersion of ownership (WIDELY).
***, **, * significant at the 1%, 5% and 10% levels.

6. RESEARCH METHODOLOGY AND EMPIRICAL RESULTS

(i) Income Smoothing

Our focus on a specific industry and the materiality of the loan loss provision in banks' financial statements enables us to use a specific accruals test to measure income smoothing. An important advantage of a specific accruals approach relative to aggregate accruals tests is that we can easily identify the key factors that

influence the behaviour of the accrual in question. In our context, we can use institutional features of the banking environment to develop proxies that capture both the non-discretionary and discretionary portions of the loan loss provision more accurately.

We collect data on the level of and changes in non-performing loans (NPL; ΔNPL) from the notes which serve as the main non-discretionary determinant of loan loss provisions. Because banks also provide, to some extent, for credit risk in the performing loan portfolio, we also include the change in loans ($\Delta Loans$) in our tests. The change in loans should also control for increased riskiness in banks' financial statements. Based on the review of relevant empirical literature, described in Section 4(*i*), we have identified regulatory capital (*RegCap*) and earnings management as the main drivers of banks' discretionary behaviour. Earlier studies find taxes to be another source of banks' discretion. However, tax incentives should not play a major role in our setting, because we use accounting numbers from consolidated financial statements. In most European countries, income taxes are based on individual (statutory) financial statements. Taken together, we arrive at the following basic Model 1, which has been used in several variations in a number of recent studies (e.g., Ahmed et al., 1999; and Liu and Ryan, 2006):

$$\begin{aligned} \mathrm{LLP}_{it} = {} & \alpha_0 + \alpha_1 \mathrm{NPL}_{it-1} + \alpha_2 \Delta \mathrm{NPL}_{it} + \alpha_3 \Delta Loans_{it} + \alpha_4 RegCap_{it-1} \\ & + \alpha_5 \mathrm{REG} * RegCap_{it-1} + \alpha_6 \mathrm{EBTLLP}_{it} + \alpha_7 \mathrm{IFRS} + \alpha_8 \mathrm{IFRS} * \mathrm{EBTLLP}_{it} \\ & + \sum \textit{Firm fixed effects} + \sum \textit{Period fixed effects} + \varepsilon_{it} \end{aligned} \quad (1)$$

where the dependent variable LLP_{it} is the current year's loan loss provision, NPL_{it-1} is the balance of non-performing loans at the beginning of the year, $\Delta\mathrm{NPL}_{it}$ is the current change in non-performing loans ($\mathrm{NPL}_{it} - \mathrm{NPL}_{it-1}$), and $\Delta Loans_{it}$ is the current change in total loans ($Loans_{it}$–$Loans_{it-1}$). These variables capture the level (NPL_{it-1}) and changes in banks' credit risk ($\Delta\mathrm{NPL}_{it}$; $\Delta Loans_{it}$) and are included to control for the non-discretionary portion of the loan loss provision. We include the lagged regulatory capital ratio ($RegCap_{it-1}$) to control for the potential use of loan loss provisions for the purpose of regulatory capital management. Further, we incorporate the interaction term $\mathrm{REG} * RegCap_{it-1}$ in order to account for the different regulatory treatments of general loan loss provisions across countries. Specifically, REG takes the value 1 for countries (i.e., France, Ireland, Portugal and the UK) that treat the general loan loss provision as part of regulatory capital. Hence, we control for cross-country and cross-sectional differences in regulatory capital management incentives. EBTLLP_{it} is earnings before taxes and loan loss provisions and captures the extent to which banks provide for future expected losses and/or smooth their income before IFRS adoption. Given wide empirical evidence that banks smooth earnings through loan loss provisions, we expect to find a positive α_6 coefficient. IFRS is a dummy variable that has the value 1 (0) for IFRS (local GAAP) bank-year observations. The interaction term $\mathrm{IFRS} * \mathrm{EBTLLP}_{it}$ is our main variable of interest – if IFRS adoption is effective in reducing income smoothing behaviour then we should observe a negative α_8 coefficient.

To the best of our knowledge, we are the first to apply this more comprehensive specification in a European setting, for which we created a hand-collected dataset. Most international (non-US) studies have used different specifications. In particular,

they do not include non-performing loans, as this variable is hardly ever available in commercial databases (e.g., Bankscope), particularly for European countries. By not including non-performing loans, other studies fail to control for a key determinant of loan loss provisions, given that the largest part of the loan loss provisions, the specific loan loss provisions,[26] is based on non-performing loans. Laeven and Majnoni (2003) use the change in loans as a proxy for the non-discretionary portion of the loan loss allowance, which is not sufficient to extract the non-discretionary portion of loan loss provisions. Fonseca and Gonzalez (2008) use the beginning level of loan loss allowances as a proxy for the non-discretionary portion. However, as outlined in Section 2(i) above, there is a mechanical accounting relationship between the loan loss provision and the loan loss allowance. Because of this relationship, the loan loss allowance comprises significant discretionary portions, which, arguably, will correlate with other explanatory variables used in the regression, e.g., regulatory capital and earnings before loan loss provisions.

Table 6 presents the results of our income smoothing tests. Model 1 tests the general impact of IFRS on the correlation between earnings and loan loss provisions. Loan loss provisions increase with the beginning level of non-performing loans (NPL_{it-1}) and the current change in non-performing loans, ΔNPL_{it} ($\alpha_1 > 0$ and $\alpha_2 > 0$). The coefficient α_3 on loan growth ($\Delta Loans_{it}$) is negative and significant, contrary to our expectations. This variable should capture the change in risk inherent in the performing loan portfolio (i.e., loan growth implies an increase in risk) and thus we would expect to find a positive coefficient. However, our result is in line with Laeven and Majnoni (2003), who also find a significantly negative coefficient on loan growth. They argue that the negative coefficient results from the procyclical behaviour where banks decrease (increase) their ratio of loan loss provisions in a boom (bust). Based on this rationale, a negative coefficient would be expected, as our sample period is characterised by a boom period. The coefficient on $RegCap_{it}$ is negative but insignificant, suggesting that capital management through the use of loan loss provisions does not play a major role for European banks. The coefficient α_5 of the interaction term REG $*$ $RegCap_{it}$ is positive but, again, insignificant. We observe a positive and significant coefficient α_7 for the IFRS dummy, indicating that, after controlling for both non-discretionary and discretionary factors, banks maintain higher levels of loan loss provisions after IFRS adoption. This might result from the observation that, before IFRS adoption, a large number of banks used undiscounted cash flows when determining loan loss provisions. After IFRS adoption, these banks had to increase their loan loss provisions, due to the IAS 39 requirement to discount future expected cash flows using the original effective interest rate.

In terms of income smoothing, we find a positive and significant coefficient α_6 for EBTLLP_{it}. This is consistent with the interpretation that, under local GAAP, European banks used the loan loss provision extensively to provide for expected losses and/or to smooth earnings. As hypothesised, the coefficient α_8 on our main variable of interest, the interaction term IFRS $*$ EBTLLP_{it}, is negative and significant at the 1% level, suggesting that after IFRS adoption income smoothing behaviour decreased. An additional F-test (not reported in Table 6) confirms that the level of income smoothing after IFRS adoption ($\alpha_6 + \alpha_8$) is not significantly different from zero. This finding is as

26 For our sample, specific impairments, on average, account for more than 60% of total loan loss allowances.

Table 6

The Effects of IFRS Adoption on Income Smoothing through the Use of Loan Loss Provisions

$$\begin{aligned}\text{LLP}_{it} = {} & \alpha_0 + \alpha_1 \text{NPL}_{it-1} + \alpha_2 \Delta\text{NPL}_{it} + \alpha_3 \Delta \textit{Loans}_{it} + \alpha_4 \textit{RegCap}_{it-1} + \alpha_5 \text{REG} * \textit{RegCap}_{it-1} + \alpha_6 \text{EBTLLP}_{it} + \alpha_7 \text{IFRS} \\ & + \alpha_8 \text{IFRS} * \text{EBTLLP}_{it} + \alpha_9 \text{IFRS} * \textit{Institutional variable} + \alpha_{10} \textit{Institutional variable} * \text{EBTLLP}_{it} \\ & + \alpha_{11} \text{IFRS} * \textit{Institutional variable} * \text{EBTLLP}_{it} + \sum \textit{Firm fixed effects} + \sum \textit{Period fixed effects} + \varepsilon_{it}\end{aligned}$$

Variable	*Coefficients*	*Predicted Sign*	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
NPL_{it-1}	α_1	+	0.051*	0.065**	0.051**	0.068***	0.081***
			(1.98)	(2.50)	(2.03)	(2.73)	(3.43)
ΔNPL_{it}	α_2	+	0.170***	0.183***	0.171***	0.183***	0.193***
			(3.09)	(3.26)	(3.10)	(3.36)	(3.55)
$\Delta \textit{Loans}_{it}$	α_3	+	−0.006**	−0.007***	−0.007***	−0.007***	−0.006***
			(−2.51)	(−2.66)	(−2.82)	(−2.75)	(−2.80)
$\textit{RegCap}_{it-1}$	α_4	?	−0.028	−0.035	−0.024	−0.026	−0.024
			(−0.93)	(−1.19)	(−0.77)	(−0.86)	(−0.77)
$\text{REG} * \textit{RegCap}_{it-1}$	α_5	?	0.001	−0.006	−0.001	0.007	0.006
			(0.03)	(−0.15)	(−0.03)	(0.20)	(0.15)
EBTLLP_{it}	α_6	+	0.232***	0.279***	0.173***	0.268***	0.161***
			(5.31)	(4.50)	(3.13)	(4.93)	(2.91)
IFRS	α_7	?	0.004***	0.004**	0.003*	0.003**	0.004***
			(3.11)	(2.57)	(1.93)	(2.44)	(3.03)
$\text{IFRS} * \text{EBTLLP}_{it}$	α_8	−	−0.228***	−0.293***	−0.182**	−0.272***	−0.395***
			(−4.97)	(−4.44)	(−2.55)	(−4.86)	(−7.12)
IFRS * *abOfficial*	α_9	?		−0.004			−0.005*
				(−1.61)			(−1.97)
abOfficial $* \text{EBTLLP}_{it}$	α_{10}	?		−0.112			0.016
				(−1.19)			(0.19)
IFRS * *abOfficial* $* \text{EBTLLP}_{it}$	α_{11}	+		0.273**			0.293***
				(2.58)			(2.86)

Table 6 (Continued)

Variable	*Coefficients*	*Predicted Sign*	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*
IFRS ∗ *abCapital*	α_{12}	?			0.002		0.001
					(1.10)		(0.42)
abCapital ∗ EBTLLP$_{it}$	α_{13}	?			0.128		0.175*
					(1.31)		(1.77)
IFRS ∗ *abCapital* ∗ EBTLLP$_{it}$	α_{14}	+			−0.106		0.078
					(−1.06)		(0.95)
IFRS ∗ *abWidely*	α_{15}	?				−0.003*	−0.001
						(−1.87)	(−0.30)
abWidely ∗ EBTLLP$_{it}$	α_{16}	?				−0.181*	−0.066
						(−1.96)	(−0.75)
IFRS ∗ *abWidely* ∗ EBTLLP$_{it}$	α_{17}	+				0.286***	0.214**
						(3.65)	(2.29)
Firm fixed effects			Included	Included	Included	Included	Included
Period fixed effects			Included	Included	Included	Included	Included
Adjusted R^2			0.351	0.385	0.352	0.394	0.431
Observations			511	493	493	493	493

Notes:
This table reports results for the impact of IFRS adoption on the income smoothing behaviour of banks in twelve countries of the EU. Model 1 presents the results for the average effect of IFRS adoption on income smoothing for our whole EU sample. Model 2 evaluates differences in the IFRS adoption effect across low versus high supervisory power regimes. Model 3 assesses differences in the IFRS adoption effect across low versus high regulatory capital stringency regimes. Model 4 provides the results on the interaction between IFRS adoption and widely held ownership. Model 5 includes all interactions between IFRS and the institutional variables. The dependent variable LLP$_{it}$ and the explanatory variables (except *RegCap*$_{it}$ and dummy variables) are deflated by average loans. *R*-squareds are reported excluding fixed effects. We winsorize observations in the top and bottom percentiles of continuous variables. Standard errors are White corrected. *t* values are in parentheses. ***, **, * significant at the 1%, 5% and 10% levels.

Variable definitions:
LLP$_{it}$, current year's loan loss provision; NPL$_{it-1}$, beginning balance of non-performing loans; ΔNPL$_{it}$, change in non-performing loans; Δ*Loans*$_{it}$, change in loans; *RegCap*$_{it-1}$, ratio of banks' eligible regulatory capital over risk-weighted assets at $t-1$; REG takes on the value of 1 for countries that allow inclusion of general loan loss provisions in regulatory capital (i.e., France, Ireland, Portugal and the UK), and 0 otherwise; EBTLLP$_{it}$, earnings before taxes and loan loss provisions; IFRS, dummy with a value of 1 (0) for IFRS (local GAAP) observations; *abOfficial* takes on the value of 1 (0) for above (below) median values of OFFICIAL, *abCapital* takes on the value of 1 (0) for above (below) median values of CAPITAL and *abWidely* takes on the value of 1 for countries where at least 50% of the banks are widely held (WIDELY > = 0.50), i.e., have no controlling owner (France, Ireland and the UK).

expected and also in line with the theoretical argument of Ewert and Wagenhofer (2005) that tighter rules might lead to a decrease in accounting discretion. It is interesting to see whether the IFRS adoption effect varies across different institutional environments, which we investigate in our cross-sectional analyses below.

(ii) Institutional Determinants of the IFRS Adoption Effect

To analyse how supervisory regimes and ownership structures influence the effect of IFRS on the income smoothing behaviour of banks, we extend Model 1 as follows:

$$\begin{aligned} \mathrm{LLP}_{it} = {} & \alpha_0 + \alpha_1 \mathrm{NPL}_{it-1} + \alpha_2 \Delta \mathrm{NPL}_{it} + \alpha_3 \Delta Loans_{it} + \alpha_4 RegCap_{it-1} + \alpha_5 \mathrm{REG} * RegCap_{it-1} \\ & + \alpha_6 \mathrm{EBTLLP}_{it} + \alpha_7 \mathrm{IFRS} + \alpha_8 \mathrm{IFRS} * \mathrm{EBTLLP}_{it} + \alpha_9 \mathrm{IFRS} * Institutional\ variable \\ & + \alpha_{10} Institutional\ variable * \mathrm{EBTLLP}_{\mathrm{it}} + \alpha_{11} \mathrm{IFRS} * Institutional\ variable \\ & * \mathrm{EBTLLP}_{it} + \sum Firm\ fixed\ effects + \sum Period\ fixed\ effects + \varepsilon_{it} \end{aligned} \quad (2)$$

where *Institutional variable* is either the supervisory power (OFFICIAL), the stringency of capital regulation (CAPITAL) or the dispersion of ownership (WIDELY). In order to facilitate the interpretation of our results, we incorporate the institutional variables as dichotomous variables, i.e., *abOfficial*, *abCapital* and *abWidely*. *abOfficial* (*abCapital*) takes the value of 1 for above median supervisory power (regulatory capital stringency), and zero otherwise. The use of dichotomous variables enables us to compare the loan loss provisioning behaviour of banks from stricter supervisory regimes (more stringent regulatory capital regimes) before and after IFRS adoption, relative to banks from laxer regimes. However, our focus here is on the interaction terms IFRS $*$ *Institutional variable* $*$ EBTLLP_{it} as we are interested in what primarily determines the (discretionary) loan loss provisioning behaviour of banks – the stricter rules of IFRS or the incentives from supervisors and regulators.

We expect that banks in countries with stricter supervisory authorities (*abOfficial* $=$ 1) have to provide more for expected losses even after IFRS adoption. Thus, we predict that the effect of IFRS adoption in these regimes will be mitigated, implying a positive α_{11} coefficient. With respect to higher requirements on regulatory capital (*abCapital* $=$ 1), we expect regulators to worry more about the appropriate level of loan loss allowances. Specifically, expected losses that are not provided for by loan loss provisions reduce regulatory capital and thus banks' ability to absorb unexpected losses. Correspondingly, we expect to observe a positive sign for the coefficient α_{14} when we include *abCapital*. We do not make predictions for the interaction terms *abOfficial* $*$ EBTLLP_{it} and *abCapital* $*$ EBTLLP_{it}.

Models 2 and 3 in Table 6 present the results for the impact of supervisory and regulatory factors on the IFRS adoption effect. For both models, the coefficients on the control variables remain qualitatively similar to our basic specification in Model 1. Model 2 shows that banks smooth their income under local GAAP ($\alpha_6 > 0$) and that this behaviour is reduced by the adoption of IFRS ($\alpha_8 < 0$). The coefficient α_{10} is negative but not significant, suggesting that there is no statistically significant difference between the loan loss provisioning behaviour of banks in more and less stringent supervisory regimes before IFRS adoption. The coefficient of our main variable of interest, α_{11}, is positive and significant, implying that banks in stricter supervisory regimes provide more for expected losses than banks from laxer regimes,

even after IFRS adoption. Thus, banks subject to powerful supervisory authorities provide more for potential losses under the IFRS regime. In effect, they appear to provide for loan losses at about the same level as before the adoption of IFRS.

Model 3 presents the results from including the variable *abCapital*, capturing the stringency of capital requirements (*abCapital*). Under local GAAPs, the positive α_{13} coefficient indicates that banks under strict capital regulatory regimes ($abCapital = 1$) tend to provide more for loan losses; however, the coefficient is not significant. Our main coefficient of interest here, α_{14}, has a negative sign, but is also not statistically significant, implying that income smoothing is mitigated after IFRS adoption. In sum, these results suggest that stringency in capital regulation does not play a major role in determining loan loss provisions after IFRS adoption. However, these results might be influenced by the negative correlation of *abCapital* with the other omitted institutional variables. Therefore, we include all institutional variables in Model 5, which we discuss below.

Model 4 in Table 6 shows the implications of widely held ownership for loan loss provisioning after IFRS adoption. *abWidely* is assigned a value of 1 for countries where at least 50% of large listed banks are widely held (i.e., *abWidely* = 1 for France, Ireland and the UK). Including the variable *abWidely* does not change the main finding of the former models that income smoothing is reduced after IFRS adoption (α_8 is negative and significant). Widely held banks engage less in income smoothing under local GAAP, as indicated by the negative and weakly significant α_{16} coefficient. However, our main coefficient of interest, here α_{17} on $IFRS * abWidely * \text{EBTLLP}_{it}$, is positive and significant at the 1% level, suggesting that the IFRS adoption effect is significantly attenuated for banks with widely held ownership. This is in line with our third hypothesis that managers' incentives to smooth income more in widely held banks works against the effect of the incurred loss standard.

In Model 5 we include all institutional variables. Again, the results regarding the general IFRS adoption effect remain similar to the previous models. Specifically, IFRS adoption significantly reduces the use of loan loss provisions to provide for expected losses and/or to smooth income ($\alpha_8 < 0$). Under local GAAP, banks appear to have smoothed income across all institutional environments. However, while α_{10} and α_{16} are not significantly different from zero, the positive and weakly significant coefficient α_{13} suggests that banks from countries with more stringent capital regulations ($abCapital = 1$) smoothed income even more under local GAAP, but have done so significantly less since IFRS adoption ($\alpha_8 + \alpha_{14} < 0$). The general IFRS effect of reducing income smoothing and loan loss provisions is less pronounced in countries with strict supervisory regimes ($\alpha_{11} > 0$) and for banks with widely held ownership structures ($\alpha_{17} > 0$). This result is in line with previous findings in the literature that incentives matter in shaping financial reporting outcomes. First, supervisors endowed with greater power seem to induce banks to increase their loan loss provisions if the impairment charges recognised according to the incurred loss approach fall short of the amount calculated according to their supervisory rules.[27] Second, in widely held banks, bank managers have incentives to protect private control benefits, and thus, to mask bank performance by managing earnings through loan loss provisions. This is in line with the argument of Beatty et al. (2002) that small and diversified shareholders

27 See, for example, the Annual Report 2006 of Banco BPI (Portugal), p. 135.

do not have the power to, and do not benefit from, monitoring bank managers. However, this result is also consistent with an alternative reasoning that, in countries with more dispersed bank ownership, there is a higher demand for conservatism. Thus, higher levels of loan loss provisions might simply reflect bank managers' responses to the increased demand for conservatism by financial statement users.

(iii) Additional Analyses

(a) Difference-in-Differences Analysis using US Banks as a Control Group

An important issue for studies attempting to analyse the effects of mandatory IFRS adoption is the identification problem. It is not obvious whether observed changes in accounting quality can be attributed to the adoption of IFRS or are the result of other concurrent changes (i.e., changes in enforcement). Our study has one important feature lending support to the hypothesis that we are observing an IFRS effect: the observation of significant transition effects at the adoption date.

In order to further increase confidence in our main results, we include a control sample of US banks and run a difference-in-differences specification. US loan loss accounting rules were the role model for the 2003 IAS 39 revision and thus are very similar, for the entire period of our analysis. If we observe a similar decrease in smoothing for US banks as we do for our European IFRS-adopting banks, then our previous results might not be attributable to the adoption of IFRS. In such a case, our results are also likely to be driven by other factors (e.g., specific macro-economic conditions).

We use data from Bankscope, as US banks are well covered in it, in contrast to European banks. Table 7 shows the results of our difference-in-differences analyses. Model 1a includes the total US sample retrieved through Bankscope in addition to our hand-collected EU sample. The average size of the banks in the full US sample is significantly smaller than that of our EU banks. To reduce the effect of small banks, in Model 1b we also benchmark our EU banks against a subset of large US banks. Large banks are those with total assets above the 75th percentile of the total US sample. Results are almost identical for both regressions. The coefficient α_6 (α_7) measures the extent of income smoothing for the US (EU) sample in the pre-IFRS period. We find that the coefficient α_6 is slightly negative, but insignificant, indicating there was no income smoothing in the US in the pre-IFRS period. This might be attributed to the incurred loss approach prevailing in the US since decades. In contrast, α_7 for the EU sample is significantly positive and of similar magnitude to the corresponding coefficient in our base regression (Model 1, Table 6), suggesting the existence of income smoothing, or higher provisions for expected losses, before IFRS adoption. IFRS $*$ EBTLLP$_{it}$ (IFRS $*$ EU $*$ EBTLLP$_{it}$) captures the level of income smoothing for the US (EU) sample in the period after IFRS adoption, starting in 2005. The corresponding coefficient α_9 is close to zero and again insignificant, which implies there was no change in income smoothing behaviour in the period after 2005 for US banks. In contrast, the coefficient α_{11} shows a significant reduction of income smoothing for our European bank sample in the period after IFRS adoption. These results corroborate our main finding that the observed decrease in the level of income smoothing is due to the mandatory adoption of IFRS in the EU.

Table 7

Difference-in-Differences Analysis of the Effect of IFRS Adoption on Income Smoothing using US Banks as Control Group

$$\begin{aligned}\mathrm{LLP}_{it} = {} & \alpha_0 + \alpha_1 \mathrm{NPL}_{it-1} + \alpha_2 \Delta \mathrm{NPL}_{it} + \alpha_3 \Delta \mathit{Loans}_{it} + \alpha_4 \mathit{RegCap}_{it-1} \\ & + \alpha_5 \mathrm{REG} * \mathit{RegCap}_{it-1} + \alpha_6 \mathrm{EBTLLP}_{it} + \alpha_7 \mathrm{EU} * \mathrm{EBTLLP}_{it} + \alpha_8 \mathrm{IFRS} \\ & + \alpha_9 \mathrm{IFRS} * \mathrm{EBTLLP}_{it} + \alpha_{10} \mathrm{IFRS} * \mathrm{EU} + \alpha_{11} \mathrm{IFRS} * \mathrm{EU} * \mathrm{EBTLLP}_{it} \\ & + \sum \mathit{Firm\ fixed\ effects} + \sum \mathit{Period\ fixed\ effects} + \varepsilon_{it}\end{aligned}$$

Variable	*Coefficients*	*Predicted Sign*	*Model 1a All US Banks*	*Model 1b Large US Banks*
NPL_{it-1}	α_1	+	0.081***	0.062***
			(4.35)	(3.04)
$\Delta\mathrm{NPL}_{it}$	α_2	+	0.197***	0.189***
			(6.39)	(4.50)
$\Delta \mathit{Loans}_{it}$	α_3	+	−0.003***	−0.004***
			(−2.96)	(−3.07)
RegCap_{it-1}	α_4	?	−0.034	−0.031
			(−1.09)	(−1.00)
$\mathrm{REG} * \mathit{RegCap}_{it-1}$	α_5	?	0.024	0.038
			(0.75)	(1.18)
EBTLLP_{it}	α_6	?	−0.011	0.002
			(−0.86)	(0.13)
$\mathrm{EU} * \mathrm{EBTLLP}_{it}$	α_7	+	0.259***	0.244***
			(5.77)	(5.37)
IFRS	α_8	?	−0.000	0.000
			(−0.30)	(0.25)
$\mathrm{IFRS} * \mathrm{EBTLLP}_{it}$	α_9	?	0.002	−0.021
			(0.12)	(−0.92)
$\mathrm{IFRS} * \mathrm{EU}$	α_{10}	?	0.004***	0.004***
			(3.92)	(2.71)
$\mathrm{IFRS} * \mathrm{EU} * \mathrm{EBTLLP}_{it}$	α_{11}	−	−0.237***	−0.214***
			(−5.12)	(−3.94)
Firm fixed effects			Included	Included
Period fixed effects			Included	Included
Adjusted R^2			0.292	0.379
Observations			2,246	1,004
of which US observations			1,735	493

Notes:
This table reports results of a difference-in-differences analysis using US banks as the control group against our EU IFRS-adopting banks. Model 1a, includes all US banks with data available on Bankscope. Model 1b includes US banks that have total assets above the 75th percentile of the US sample distribution. The dependent variable LLP_{it} and the explanatory variables (except RegCap_{it} and dummy variables) are deflated by average loans. *R*-squareds are reported excluding fixed effects. We winsorize observations in the top and bottom percentiles of continuous variables. Standard errors are White corrected. *t* values are in parentheses. ***, **, * significant at the 1%, 5% and 10% levels.

Variable definitions:
LLP_{it}, current year's loan loss provision; NPL_{it-1}, beginning level of non-performing loans; $\Delta\mathrm{NPL}_{it}$, change in non-performing loans; $\Delta \mathit{Loans}_{it}$, change in loans; RegCap_{it-1}, ratio of banks' eligible regulatory capital over risk-weighted assets at $t-1$; REG takes the value of 1 for countries that allow inclusion of general loan loss provisions in regulatory capital (i.e., France, Ireland, Portugal, the UK and the US), and 0 otherwise; EBTLLP_{it}, earnings before taxes and loan loss provisions; EU, dummy with a value of 1 (0) for EU (US) banks; IFRS, dummy with a value of 1 (0) for the Post-IFRS (Pre-IFRS period).

(b) Are Cross-Listed Banks Different?

A considerable number of the banks in our sample are cross-listed in the US, and are thus subject to stricter SEC regulation and enforcement. This suggests that these 20 cross-listed banks might already have exhibited different accounting behaviour to that of the non-cross-listed EU banks, before they adopted IFRS. For example, Lang et al. (2003) find, for an international sample of non-financial firms, that accounting quality is higher for firms cross-listed in the US, relative to a matched sample of foreign firms that are not cross-listed. Specifically, cross-listed firms engage less in earnings management, exhibit more conservative accounting earnings and have accounting numbers that are more strongly associated with stock prices. Transferred to our setting, these results imply that we should see a lower level of income smoothing for our cross-listed banks in the pre-IFRS period. The effect of a change in accounting standards, i.e., the adoption of IFRS, is less obvious. Before IFRS adoption, SEC scrutiny focused on the reconciliation of financial statements. Cross-listed banks that claim to report in compliance with IFRS receive additional SEC scrutiny, particularly after the abandonment of the reconciliation requirement, as the SEC closely monitors compliance with IFRS (Deloitte, 2008). If income smoothing is already low in the pre-IFRS period, there is less room for improvement and the switch to IFRS should yield smaller changes in income smoothing.

Table 8 presents the results for Model 1 applied to banks with and without US cross-listing. In Model 1c we find a similar reduction in income smoothing for the banks that are not cross-listed in the US as we do in our total EU bank sample. This result also holds for the regression models including interactions with institutional variables (Models 2–5, not tabulated). We further find that the level of income smoothing is much lower for EU banks cross-listed in the US even *before* the adoption of IFRS, as captured by the positive but less significant coefficient α_6 in Model 1d. This result is in line with the findings of Lang et al. (2003) for non-financial firms. The coefficient α_8 is negative but not significant at conventional levels. This is consistent with the argument that the reporting behaviour of cross-listed banks was already aligned to US reporting practices in the pre-IFRS period, particularly with respect to loan loss provisioning. In an attempt to reduce reconciliation differences between local GAAP and US GAAP, cross-listed banks appear to have exercised their discretion and provided less for expected losses beyond incurred losses. This left less room for adjustments upon IFRS adoption relative to other IFRS-adopting firms that were not cross-listed in the US. However, we acknowledge that stricter SEC oversight is also likely to have contributed to this finding. Taken together, these results suggest that our primary finding of a decrease in income smoothing after IFRS adoption is mainly due to banks that are not cross-listed in the US.

We should note that although the level of income smoothing is lower for cross-listed firms in the pre-IFRS period, it is still above the level of income smoothing in the US. This is consistent with the findings of Lang et al. (2006) that cross-listed non-financial firms exhibit more evidence of income smoothing than US firms. They interpret their results as evidence of weaker SEC enforcement for non-US firms. However, Leuz (2006) argues that even if enforcement were held constant, incentives provided by ownership structures and home-country institutions would probably lead to differences in cross-listed firms' reporting behaviour. This argument is

Table 8

Comparison of IFRS Adoption Effects on Income Smoothing for Banks Cross-Listed and Not Cross-Listed in the US

$$\begin{aligned}\mathrm{LLP}_{it} = {} & \alpha_0 + \alpha_1 \mathrm{NPL}_{it-1} + \alpha_2 \Delta \mathrm{NPL}_{it} + \alpha_3 \Delta Loans_{it} + \alpha_4 RegCap_{it-1} \\ & + \alpha_5 \mathrm{REG} * RegCap_{it-1} + \alpha_6 \mathrm{EBTLLP}_{it} + \alpha_7 \mathrm{IFRS} + \alpha_8 \mathrm{IFRS} * \mathrm{EBTLLP}_{it} \\ & + \sum Firm\ fixed\ effects + \sum Period\ fixed\ effects + \varepsilon_{it}\end{aligned}$$

Variable	*Coefficients*	*Predicted Sign*	*Model 1c Not Cross-Listed*	*Model 1d Cross-Listed*
NPL_{it-1}	α_1	+	0.064**	0.032
			(2.54)	(1.20)
$\Delta\mathrm{NPL}_{it}$	α_2	+	0.180***	0.156***
			(3.23)	(3.15)
$\Delta Loans_{it}$	α_3	+	−0.008**	−0.002**
			(−2.41)	(−2.10)
$RegCap_{it-1}$	α_4	?	−0.038	0.002
			(−1.21)	(0.08)
$\mathrm{REG} * RegCap_{it-1}$	α_5	?	0.002	0.023
			(0.05)	(0.61)
EBTLLP_{it}	α_6	+	0.280***	0.120**
			(5.01)	(2.75)
IFRS	α_7	?	0.004***	0.002*
			(2.66)	(1.91)
$\mathrm{IFRS} * \mathrm{EBTLLP}_{it}$	α_8	−	−0.278***	−0.062
			(−4.90)	(−1.28)
Firm fixed effects			Included	Included
Period fixed effects			Included	Included
Adjusted R^2			0.379	0.534
Observations			383	128

Notes:
This table reports results for the impact of IFRS adoption on income smoothing behaviour for two subsamples based on whether or not they are cross-listed in the US. Model 1c shows the regression results for banks that are not cross-listed in the US. Model 1d presents the results for banks that are cross-listed. The dependent variable LLP_{it} and the explanatory variables (except $RegCap_{it}$ and dummy variables) are deflated by average loans. *R*-squareds are reported excluding fixed effects. We winsorize observations in the top and bottom percentiles of continuous variables. Standard errors are White corrected. *t* values are in parentheses. ***, **, * significant at the 1%, 5% and 10% levels.

Variable definitions:
LLP_{it}, current year's loan loss provision; NPL_{it-1}, beginning level of non-performing loans; $\Delta\mathrm{NPL}_{it}$, change in non-performing loans; $\Delta Loans_{it}$, change in loans; $RegCap_{it-1}$, ratio of banks' eligible regulatory capital over risk-weighted assets at $t-1$; REG takes the value of 1 for countries that allow the inclusion of general loan loss provisions in regulatory capital (i.e., France, Ireland, Portugal and the UK), and 0 otherwise; EBTLLP_{it}, earnings before taxes and loan loss provisions; IFRS, dummy with a value of 1 (0) for IFRS (local GAAP) observations.

also consistent with our untabulated finding that in the cross-listed sample the income smoothing results are mainly due to banks from stricter supervisory regimes.

(c) Other Robustness Tests

We run several additional tests to check the robustness of our primary results. First, although we use period fixed effects that should capture the one-time effect of

transition, we are concerned about whether there is any bias resulting from the transition period. Hence, as a sensitivity test, we include *Transition effect* (i.e., the variable *Transeff* from Table 3).[28] Banks with negative transition effects are those that had to adjust their loan loss allowance downwards to include incurred losses only. In contrast, banks with positive transition effects are those that experienced upward adjustments to their loan loss allowance. To the extent that *Transition effect* captures the loan loss provisioning practices of banks before IFRS adoption, negative values would reflect prudent bank behaviour, while positive values might correspond to under-reserving to some extent. If banks maintain their loan loss provisioning practice (i.e., prudent or under-reserving) after IFRS adoption then *Transition effect* is expected to have a negative coefficient in the regression. However, in our untabulated regressions, *Transition effect* is not significant. Most importantly, our primary findings from Table 6 are not affected by the inclusion of transition effects. This suggests that the use of period fixed effects already adequately controls for the potential impact of transition effects. As a further robustness test, we exclude 2005 IFRS financial statements, to account for the possibility that the inclusion of *Transition effects* and period fixed effects do not remove potential bias from the transition year. Again, our results do not change.

Next, we exclude Italy because it has by far the largest number of observations in our sample. Our results remain qualitatively similar to those from our basic specification. Further, we re-estimate all specifications in Tables 6 to 8 using country fixed effects, because the use of firm fixed effects might be costly in terms of parameter estimation. Our results remain qualitatively similar under all specifications.

We perform additional analyses by partitioning our sample based on several bank-specific characteristics. First, we partition our sample into weakly- and well-capitalised banks, based on the sample median regulatory capital ratio. Second, we examine whether accounting behaviour is different for banks with higher or lower profitability, where partitioning is based on the sample median earnings before taxes and loan loss provisions relative to total assets. In both tests we also use other cut-offs than the sample median to check the sensitivity of our results. However, we consistently find a similar reduction in income smoothing after IFRS adoption for all sample partitions.

(iv) Timely Loan Loss Recognition

In order to get an insight into how IFRS affect timely loss recognition by banks, we analyse the impact of IFRS adoption on the persistence of changes in banks' earnings components. Specifically, following the approach of Nichols et al. (2009), we decompose the change in earnings before taxes into (1) the change in earnings before taxes and loan loss provisions, and (2) the change in loan loss provisions. To assess the role of earnings components in timely loss recognition, we estimate the following regression:

28 For a detailed explanation of the variable *Transition effect* see Section 5.

$$
\begin{aligned}
\Delta\text{EBT}_{it+1} = {} & \beta_0 + \beta_1 \text{D}\Delta\text{EBT}_{it} + \beta_2 \Delta\text{EBTLLP}_{it} + \beta_3 \Delta\text{LLP}_{it} \\
& + \beta_4 \Delta\text{EBTLLP}_{it} * \text{D}\Delta\text{EBTLLP}_{it} + \beta_5 \Delta\text{LLP}_{it} * \text{D}\Delta\text{LLP}_{it} + \beta_6 \text{IFRS} \\
& + \beta_7 \text{IFRS} * \text{D}\Delta\text{EBT}_{it} + \beta_8 \text{IFRS} * \Delta\text{EBTLLP}_{it} + \beta_9 \text{IFRS} * \Delta\text{LLP}_{it} \\
& + \beta_{10} \text{IFRS} * \Delta\text{EBTLLP}_{it} * \text{D}\Delta\text{EBTLLP}_{it} + \beta_{11} \text{IFRS} * \Delta\text{LLP}_{it} * \text{D}\Delta\text{LLP}_{it} \\
& + \beta_{12} \textit{Size}_{it} + \beta_{13} \textit{Size}_{it} * \text{D}\Delta\text{EBT}_{it} + \beta_{14} \textit{Size}_{it} * \Delta\text{EBTLLP}_{it} \\
& + \beta_{15} \textit{Size}_{it} * \Delta\text{EBTLLP}_{it} * \text{D}\Delta\text{EBTLLP}_{it} + \beta_{16} \textit{Size}_{it} * \Delta\text{LLP}_{it} \\
& + \beta_{17} \textit{Size}_{it} * \Delta\text{LLP}_{it} * \text{D}\Delta\text{LLP}_{it} + \beta_{18} \textit{Size}_{it} * \text{IFRS} \\
& + \beta_{19} \textit{Size}_{it} * \text{IFRS} * \text{D}\Delta\text{EBT}_{it} + \beta_{20} \textit{Size}_{it} * \text{IFRS} * \Delta\text{EBTLLP}_{it} \\
& + \beta_{21} \textit{Size}_{it} * \text{IFRS} * \Delta\text{EBTLLP}_{it} * \text{D}\Delta\text{EBTLLP}_{it} \\
& + \beta_{22} \textit{Size}_{it} * \text{IFRS} * \Delta\text{LLP}_{it} + \beta_{23} \textit{Size}_{it} * \text{IFRS} * \Delta\text{LLP}_{it} * \text{D}\Delta\text{LLP}_{it} \\
& + \textit{Country dummies} + \varepsilon_{it} \qquad (3)
\end{aligned}
$$

where ΔEBT_{it+1} denotes the change in earnings before taxes from year t to $t + 1$, scaled by total assets at the end of year t; $\text{D}\Delta\text{EBT}_{it}$ is an indicator variable that takes on the value of 1 if the change in earnings before taxes in year t is negative, and 0 otherwise; ΔEBTLLP_{it} is the change in earnings before taxes and loan loss provisions in year t ($\text{EBTLLP}_{it} - \text{EBTLLP}_{it-1}$) divided by total assets at the beginning of year t; $\text{D}\Delta\text{EBTLLP}_{it}$ is an indicator variable that takes on the value of 1 if ΔEBTLLP_{it} is negative in year t, and 0 otherwise; ΔLLP_{it} is the change in loan loss provisions in year t ($\text{LLP}_{it} - \text{LLP}_{it-1}$) divided by total assets at the beginning of year t. As in Nichols et al. (2009), we define ΔLLP_{it} in such a way that a positive (negative) value denotes an increase (decrease) in earnings from reducing (increasing) the loan loss provisions and, thus, reflects good (bad) news. $\text{D}\Delta\text{LLP}_{it}$, is an indicator variable that takes on the value of 1 if ΔLLP_{it} is negative, and 0 otherwise. We also include $\textit{Size}_{it}$, which is bank i's rank, based on total assets in year t, and interactions to control for potential agency costs related to firm size (Ball and Shivakumar, 2005).

As regards earnings before taxes and loan loss provisions (ΔEBTLLP_{it}), under local GAAP we expect some degree of asymmetric timeliness of gain and loss recognition. Under asymmetric timeliness of gain and loss recognition, economic gains require a higher degree of verification in order to be recognised. Thus, we expect to observe increases in earnings before taxes and loan loss provisions to be less timely and more persistent, implying a positive β_2 coefficient. In contrast, the verification threshold for economic losses is lower, which is expected to result in a more timely recognition of economic losses. Earlier recognition of losses makes decreases in earnings more transitory, in the sense that they are more likely to reverse. Therefore, we expect to find a negative coefficient β_4. The results in Table 9 are consistent with these expectations. Specifically, β_2 is positive and significant, suggesting that positive changes in earnings before taxes and loan loss provisions are persistent. Conversely, decreases in earnings before taxes and loan loss provisions tend to reverse under local GAAP, as implied by the negative and weakly significant β_4.

Under IFRS, there are less accounting choices in terms of revenue recognition. In particular, gains are, in part, recognised earlier (e.g., fair value gains for financial instruments). This suggests that increases in earnings before taxes and loan loss provisions are likely to be recognised in a timelier manner after IFRS adoption.

Table 9

The Effect of IFRS Adoption on the Timeliness of Bank Earnings Components

$$\begin{aligned}\Delta EBT_{it+1} = {} & \beta_0 + \beta_1 D\Delta EBT_{it} + \beta_2 \Delta EBTLLP_{it} + \beta_3 \Delta LLP_{it} \\ & + \beta_4 \Delta EBTLLP_{it} * D\Delta EBTLLP_{it} + \beta_5 \Delta LLP_{t} * D\Delta LLP_{it} + \beta_6 IFRS \\ & + \beta_7 IFRS * D\Delta EBT_{it} + \beta_8 IFRS * \Delta EBTLLP_{it} + \beta_9 IFRS * \Delta LLP_{it} \\ & + \beta_{10} IFRS * \Delta EBTLLP_{it} * D\Delta EBTLLP_{it} + \beta_{11} IFRS * \Delta LLP_{it} * D\Delta LLP_{it} \\ & + \beta_{12} Size_{it} + \beta_{13} Size_{it} * D\Delta EBT_{it} + \beta_{14} Size_{it} * \Delta EBTLLP_{it} \\ & + \beta_{15} Size_{it} * \Delta EBTLLP_{it} * D\Delta EBTLLP_{it} + \beta_{16} Size_{it} * \Delta LLP_{it} \\ & + \beta_{17} Size_{it} * \Delta LLP_{it} * D\Delta LLP_{it} + \beta_{18} Size_{it} * IFRS \\ & + \beta_{19} Size_{it} * IFRS * D\Delta EBT_{it} + \beta_{20} Size_{it} * IFRS * \Delta EBTLLP_{it} \\ & + \beta_{21} Size_{it} * IFRS * \Delta EBTLLP_{it} * D\Delta EBTLLP_{it} + \beta_{22} Size_{it} * IFRS * \Delta LLP_{it} \\ & + \beta_{23} Size_{it} * IFRS * \Delta LLP_{it} * D\Delta LLP_{it} + Country\ dummies + \varepsilon_{it}\end{aligned}$$

Variable	*Coefficients*	*Predicted Sign*	*Coefficient Estimate*	*t-Statistic*
Intercept	β_0	?	0.002	1.19
$D\Delta EBT_{it}$	β_1	?	0.001	0.67
$\Delta EBTLLP_{it}$	β_2	+	0.158***	4.44
ΔLLP_{it}	β_3	?	0.500	1.18
$\Delta EBTLLP_{it} * D\Delta EBTLLP_{it}$	β_4	−	−0.949*	−1.94
$\Delta LLP_{it} * D\Delta LLP_{it}$	β_5	−	−0.676	−0.95
IFRS	β_6	?	0.003*	1.70
$IFRS * D\Delta EBT_{it}$	β_7	?	−0.000	−0.06
$IFRS * \Delta EBTLLP_{it}$	β_8	−	−0.107	−0.49
$IFRS * \Delta LLP_{it}$	β_9	?	−1.436	−1.47
$IFRS * \Delta EBTLLP_{it} * D\Delta EBTLLP_{it}$	β_{10}	?	−0.512	−1.00
$IFRS * \Delta LLP_{it} * D\Delta LLP_{it}$	β_{11}	+	2.872**	2.01
$Size_{it}$	β_{12}	?	−0.000	−0.34
$Size_{it} * D\Delta EBT_{it}$	β_{13}	?	−0.000	−0.94
$Size_{it} * \Delta EBTLLP_{it}$	β_{14}	?	−0.009**	−2.34
$Size_{it} * \Delta EBTLLP_{it} * D\Delta EBTLLP_{it}$	β_{15}	?	0.020**	2.41
$Size_{it} * \Delta LLP_{it}$	β_{16}	?	−0.001	−0.15
$Size_{it} * \Delta LLP_{it} * D\Delta LLP_{it}$	β_{17}	?	0.001	0.05
$Size_{it} * IFRS$	β_{18}	?	−0.000**	−2.53
$Size_{it} * IFRS * D\Delta EBT_{it}$	β_{19}	?	−0.000	−0.19
$Size_{it} * IFRS * \Delta EBTLLP_{it}$	β_{20}	?	0.002	0.22
$Size_{it} * IFRS * \Delta EBTLLP_{it} * D\Delta EBTLLP_{it}$	β_{21}	?	0.001	0.04
$Size_{it} * IFRS * \Delta LLP_{it}$	β_{22}	?	0.010	0.24
$Size_{it} * IFRS * \Delta LLP_{it} * D\Delta LLP_{it}$	β_{23}	?	−0.080	−1.59
Country dummies			Included	
Adjusted R^2			0.252	
Observations			292	

Notes:
This table reports results of the regression of next year's change in earnings before taxes on current changes in earnings components, i.e., change in earnings before taxes and loan loss provisions and change in loan loss provisions. We winsorize observations in the top and bottom percentiles of earnings changes and loan loss provisions. Standard errors are White corrected. ***, **, * significant at the 1%, 5% and 10% levels.

Variable definitions:
ΔEBT_{it+1} denotes the change in earnings before taxes from year t to $t+1$, scaled by total assets at the end of year t; $D\Delta EBT_{it}$, dummy variable that takes on the value of 1 if the change in earnings before taxes in year t is negative, 0 otherwise; $\Delta EBTLLP_{it}$, the change in earnings before taxes and loan loss provisions in year t ($EBTLLP_{it} - EBTLLP_{it-1}$) scaled by total assets at the beginning of year t; $D\Delta EBTLLP_{it}$, dummy variable that takes on the value of 1 if $\Delta EBTLLP_{it}$ is negative, 0 otherwise; ΔLLP_{it}, the earnings effect of a change in the loan loss provisions in year t: $-1 * (LLP_{it} - LLP_{it-1})$; $D\Delta LLP_{it}$, dummy variable that takes on the value of 1 if the change ΔLLP_{it} is negative, 0 otherwise; IFRS, dummy with a value of 1 (0) for IFRS (local GAAP) observations; $Size_{it}$, bank i's rank based on total assets in year t.

Consequently, we expect to find a negative coefficient (β_8) on the interaction between IFRS and $\Delta EBTLLP_{it}$. The effect of IFRS adoption on the timeliness of loss recognition in earnings before taxes and loan loss provisions (IFRS $*$ $\Delta EBTLLP_{it}$ $*$ $D\Delta EBTLLP_{it}$) is less clear. For example, the impairment rules of IAS 36 and the rules for recognising non-financial liabilities (IAS 37) are known to be more restrictive than the comparable rules in the local GAAPs of most EU countries. Therefore, we refrain from predicting the sign of β_{10} for the interaction term IFRS $*$ $\Delta EBTLLP_{it}$ $*$ $D\Delta EBTLLP_{it}$. In Table 9, the coefficients β_8 and β_{10} are both negative but are not statistically significant. This suggests that the persistence of increases or decreases in earnings before taxes and loan loss provisions does not differ between the two periods (before and after IFRS adoption). In other words, there are no changes in the timeliness of gain and loss recognition in earnings before taxes and loan loss provisions.

In the case of positive earnings changes due to decreases in loan loss provisions (ΔLLP_{it}) under local GAAP, predictions are more difficult. Given the benign economic conditions which characterise our period of analysis, banks might adjust loan loss provisions on the existing loan portfolio downwards as economic prospects improve. If banks gradually reverse loan loss provisions during a boom period, this should be reflected in persistent earnings increases ($\beta_3 > 0$). However, in economic growth, banks increase their lending volume and consequently increase the level of credit risk, which then requires additional loan loss provisions. As a result, there are compensating earnings changes due to the reversal of loan loss provisions on the existing loans, and additions to the loan loss provisions on new lending. Because of these countervailing effects, we refrain from making predictions for β_3. Decreases in earnings due to increases in loan loss provisions will have a transitory nature if banks anticipate loan losses in a timely manner. Hence, under the assumption that banks recognise expected losses from future events under local GAAP, we predict a negative coefficient (β_5) on ΔLLP_{it} $*$ $D\Delta LLP_{it}$. The results in Table 9 do not indicate that increases in earnings due to decreases in the loan loss provisions are persistent ($\beta_3 > 0$, but not significant). Similarly, we do not find significant reversals of earnings following decreases of earnings due to increases of loan loss provisions (ΔLLP_{it} $*$ $D\Delta LLP_{it}$, $\beta_5 < 0$, but not significant). The latter finding suggests that, although banks applied a partial expected loss approach before IFRS adoption, they did not anticipate all the expected losses in a timely manner.

After IFRS adoption, it is not clear how positive earnings changes because of reductions in the loan loss provisions (IFRS $*$ ΔLLP_{it}) will affect future earnings. In addition to the countervailing effects described earlier for the local GAAP regimes, there might be additional IFRS adjustment effects on top of the previous local GAAP loan loss provisions. Specifically, as shown in Table 3, some countries (i.e., Denmark and Sweden) even have a negative loan loss provision for the median bank in the post-IFRS period. This implies that, for the current period, banks have reversed their provisions in excess of the provisions for incurred losses. However, these effects are likely to occur only in the first few years after IFRS adoption and, thus, are non-recurring. To the extent that the post-IFRS reversals play a role, we should observe a negative coefficient (β_9), because such reversals are not expected to persist over a longer period. However, if these IFRS reversals are infrequent or of negligible size, then β_9 will not be significant. With respect to negative changes in earnings due to increases in loan loss provisions (IFRS $*$ ΔLLP_{it} $*$ $D\Delta LLP_{it}$), we expect the IAS 39 incurred loss approach to result in a less timely recognition of loan losses relative to

the local GAAP period. Specifically, under the incurred loss approach expected losses are not recognised unless the probability of default is close to 100%. Therefore, loan losses accumulate before they are accounted for in banks' balance sheets.

When trigger events occur, banks are faced with often extraordinarily high amounts of unrecognised loan losses. Instead of charging the full amounts immediately to net income, banks may have incentives to spread the formerly unrecognised losses over several future periods. In that case, negative changes in earnings due to increases in loan loss provisions in one period will not reverse immediately but persist in future periods, yielding a positive serial correlation of subsequent losses. Hence, we predict a positive coefficient (β_{11}) for the interaction term IFRS $*$ ΔLLP$_{it}$ $*$ DΔLLP$_{it}$. The results are in line with our expectations. Specifically, as shown in Table 9, the coefficient β_{11} is positive and significant, implying that loan losses are more persistent under IFRS. This finding is consistent with banks delaying loan losses until too late and then spreading the unrecognised losses over more than one period.

Overall, our analysis of the timeliness of gain and loss recognition in earnings indicates that credit losses are incorporated in a less timely manner under IFRS. However, the results of our earnings persistence tests have to be interpreted cautiously. The time period of our analysis is relatively short. Specifically, for the post-IFRS period, we only have two years of observations of changes in earnings (the change from 2005 to 2006 and 2006 to 2007). Thus, our results might have been affected by other concurrent effects. Further, due to the relatively small number of observations, our analysis might lack statistical power. Tentatively, we interpret our results as supportive of the argument that the switch to the incurred loss approach results in banks delaying the recognition of loan losses.

7. CONCLUSIONS

In this paper we examined the effects of mandatory IFRS adoption on the accounting quality of EU banks. Specifically, we investigated how the application of the IAS 39 incurred loss approach affects the main operating accrual item of (commercial) banks, the loan loss provision. We find that the tighter IAS 39 rules significantly reduce discretionary behaviour, as measured by less income smoothing. Further, consistent with the notion that financial reporting outcomes are not only shaped by accounting standards, we find that this IFRS adoption effect is significantly less pronounced in stricter supervisory regimes and in countries with more dispersed ownership of banks.

We benchmark our primary findings for the EU banks against a sample of US banks in order to control for other factors that may be responsible for our results. In particular, we were concerned that the benign economic conditions during our period of analysis might have contributed to the significant decrease in the level of discretionary loan loss provisions. However, we do not find similar results for the US sample, which strengthens our confidence in our primary findings.

Our results from splitting the sample into banks that are cross-listed in the US and those that are not reveals that the decrease in income smoothing is primarily driven by non-cross-listed banks. Cross-listed banks appear to have smoothed their income to a lesser extent *before* IFRS adoption and do not show a significant change in accounting behaviour after the transition to IFRS.

Our last set of analyses suggests that banks recognise loan losses in a less timely manner after IFRS adoption. Specifically, using an earnings persistence test we find

that decreases in earnings due to increases in loan loss provisions do not reverse immediately, but tend to persist in future periods. This is consistent with banks delaying the recognition of loan losses until too late, and then recognising accumulated losses over more than one period. This effect is likely to be more pronounced during economic downturns. However, given the short time period available for our analysis, this result might be affected by other concurrent effects.

While we do not have the intention of giving normative guidance, we believe our results have relevant implications for standard setting and financial regulation. First, while finding significantly less income smoothing might be interpreted as an improvement in accounting quality, it is not clear whether this outcome is also optimal from an economic perspective. To the extent that banks used the discretion provided under local GAAP to communicate private information, signaling using loan loss provisions have become more difficult under IFRS. Also, if income smoothing in the pre-IFRS period was due to the gradual incorporation of expected loss estimations, less smooth income is not necessarily more informative about the true economic performance. Further, as our final results suggest, the incurred loss approach leads to a delayed recognition of loan losses. Therefore, the restriction to incurred losses may result in less decision-useful information and less transparency about credit risk in banks' financial statements.

Finally, the incurred loss approach might provide incentives for managers, particularly during boom times, to defer loan loss recognition to periods when the reduced cash flows are realised, allowing them to pass on the earnings consequences of their investment decisions to subsequent generations of managers.[29] This behaviour might further fuel the systemic procyclicality of bank earnings and exacerbate economic downturns.

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29 See Ball and Shivakumar (2005) for the economic role of timely loss recognition.

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