Comparability and predictive ability of loan loss provisions – The role of accounting regulation versus bank supervision

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Abstract
In this paper we investigate the effects of mandatory IFRS adoption on the comparability and informativeness of EU banks' financial statements. Specifically, we are interested in whether and how the application of a restrictive incurred loss approach under IFRS relative to the previously more discretionary forward-looking provisioning practices affects the comparability and predictive ability of banks' main accrual item, the loan loss provision. Given bank supervisors' keen interest in adequate loan loss provisioning we also examine the role of supervisors in determining financial statement effects around IFRS adoption. Using a sample of 89 banks from 12 EU countries we find that loan loss provisioning has become more comparable across countries after the accounting regime switch. IFRS adoption effects are more pronounced in countries where supervisors required or banks voluntarily applied more forward-looking provisioning under local GAAP. However, some differences in loan loss provisioning remain in countries where supervisors were reluctant to strictly enforce the incurred loss approach. Finally, our results suggest that the predictive ability of loan loss allowances (proxied by the ability to explain future losses) improved following IFRS adoption.

Keywords: comparability, loan loss provisions, IFRS, banks

JEL Classification: M41, M48, G21

1. Introduction

The improvement of comparability of financial statements is one of the prime goals of mandatory IFRS adoption and explicitly stated in Article 1 of the EU Regulation 1606/2002. While there is already a large body of research on the effects of adopting IFRS, evidence on the effects on comparability is still scarce and the results of extant studies are mixed. As most of the studies use comparability metrics relying on aggregate accounting items, in particular earnings, different comparability effects for different accounting items both within and across countries may offset each other because of the initial differences between local GAAP and IFRS accounting regulation (see Brüggemann et al., 2012; ICAEW 2014).

In this study we examine the effects of mandatory IFRS adoption in the EU in 2005 on the comparability of banks' main accrual item, i.e., the loan loss provision and the loan loss allowance. Focussing on a specific accrual in one industry allows us to use institutional knowledge to model accrual behaviour and to make better predictions on how changes in accounting regulation are expected to affect the specific accrual item (McNichols, 2001). The application of a restrictive incurred loss approach under IFRS relative to the more discretionary provisioning regimes that previously existed in Europe is expected to result in more comparable loan loss accounting. Our focus on the banking industry is further motivated by the heated debate about the adequacy of loan loss provisioning. Since the beginning of the financial crisis starting in 2008 incurred loan loss provisioning has been criticized as inadequate ("too little too late") and high profile groups have called for more forward looking provisioning (Financial Crisis Advisory Group 2009; Financial Stability Forum 2009; U.S. Treasury 2009). As a response the IASB has issued IFRS 9 in July 2014 with revised impairment rules for financial instruments that require a more comprehensive recognition of expected loan losses compared to the currently applied incurred loss approach. Interestingly, this change can be seen in part as a return to a more discretionary forward

1

looking provisioning regime. Our results thus allow us to form informed expectations about the potential comparability effects of the IFRS 9 loan loss provisioning rules based on the empirical evidence from the (inverse) change to IAS 39.

Recent studies show that the 2005 change to IFRS resulted in a reduction of loan loss provisioning and also reduced earnings management (e.g., Gebhardt and Novotny-Farkas, 2011). However, it has been argued that limiting discretion may impact the informativeness of financial statements negatively (Altamuro and Beatty 2010; Bagnoli and Watts 2005). We exploit the cross-country variation in the level of discretion in loan loss provisioning under previous local GAAPs to examine whether a more restrictive incurred loss approach results in more comparable loan loss accounting, and if so, whether comparability benefits come at the cost of decreased financial reporting infomativeness.

To gauge comparability we measure how credit risk events map to banks' loan loss provisions. In principle, loan loss provisions should be determined by measures of credit risk such as non-performing loans and charge-offs (see, e.g., Beatty and Liao 2014). However, in an international sample of banks because of differences in local GAAP rules and institutional arrangements country factors are also likely to contribute to the cross-country variation of loan loss provisions. If IFRS adoption leads to more comparable accounting then we should observe a significant reduction in the incremental explanatory power of country fixed effects in a regression of loan loss provisions on its firm-specific determinants.

Our measurement of comparability has several appealing features. First, by focusing on one specific accrual item we avoid the problem of aggregate bottom line items (e.g., earnings) that suffer from divergent comparability effects for different items offsetting each other. Second, our measurement relies only on accounting data. We test how a specific economic phenomenon (credit risk) is reflected in specific accounting amounts (i.e., loan loss provision, loan loss allowance). This avoids the problems of studies using the correlation of

2

accounting items and market based measures to gauge comparability. Such metrics cannot disentangle the effects of changes in the economic environment and changes in accounting regulation. Third, unlike other studies that gauge comparability from the perspective of specific financial statement users (e.g., equity markets, rating agencies), our comparability metric is capturing comparability of general purpose financial statements.

When determining the comparability effects of IFRS adoption we also analyse the role of supervisory intervention. We identify three countries (Denmark, Portugal and Spain) where before 2005 supervisors were involved in accounting standard setting and explicitly required banks to apply forward looking provisioning. Specifically, the Danish regulator mandated a form of "fair" value accounting for loans, while the Portuguese and Spanish regulators stipulated statistical and dynamic loan loss provisioning, respectively. In these countries, banks are likely to have built up significant "excess" reserves that are not acceptable under the IAS 39 incurred loss approach. Therefore, one would expect more significant reductions of loan loss allowances in these supervisory regimes than in the other EU countries. However, we conduct a *de jure* analysis of these supervisors' regulations regarding the implementation of IAS 39 and find that only the Danish supervisor accepted the primacy of IFRS from 2005 onwards. In contrast, the Portuguese supervisor applies adjustments to IFRS impairment provisions, while the Spanish supervisor essentially required the continuation of dynamic provisioning under the IFRS label. Based on these insights, the IFRS adoption effects on banks' loan loss accounting might have been more attenuated in the latter two supervisory regimes.

To examine the predictive ability or informativeness of loan loss provisions we follow prior literature and measure the association of loan loss allowances with future charge-offs (Altamuro and Beatty 2010; Beck and Narayanamoorthy 2013). This measure is also in line with the SEC Staff Accounting Bulletin (SAB) 102 that considers a loan loss allowances

methodology as valid when it is able to predict actual subsequent charge-offs. The impact of IAS 39 on the predictive ability of loan loss provisions crucially depends on how the discretion afforded by previous loan loss accounting rules was applied. To the extent that discretion was used to incorporate information regarding future expected losses, the adoption of the incurred loss approach will lead to a decrease in predictive ability of loan loss allowances. However, if managers exploited discretion opportunistically, then the predictive ability of loan loss allowances might improve following the adoption of IFRS.

Using a sample of 89 banks from 12 EU countries we first show how transition effects hamper the identification of comparability even in our setting of specific accruals. In particular, the stepwise adjustment of previous loan loss accounting methods blurs the "true" IFRS impact on comparability. This temporary effect is driven primarily by banks from forward looking provisioning regimes that reverse significant portions of previous loan loss "buffers" that are inconsistent with the incurred loss approach in the years following IFRS adoption. However, after correcting for these transition effects we find that loan loss provisioning has become more comparable across countries after the accounting regime switch. Specifically, while country factors substantially increase the explanatory power of our loan loss provisioning models under local GAAP, their incremental adjusted R^2 is significantly diminished in the period after the adoption of IFRS. This effect is more pronounced for banks whose provisioning practices were further away from IFRS' incurred loss concept either because they voluntarily applied forward looking provisioning or because they were required to do so by their supervisors. These cross-sectional findings mitigate concerns that our primary findings are due to unobserved trends rather than to increased financial statement comparability. However, some differences in loan loss provisioning remain especially in countries where supervisors were reluctant to strictly enforce the incurred loss approach (i.e., Portugal and Spain).

Finally, we provide evidence that the association of loan loss allowances with future charge-offs has improved following IFRS adoption. Interestingly, this result also holds for Danish banks which previously applied "fair" value accounting. Collectively, these results suggest that EU banks did not use the discretion provided to them to incorporate future expected losses, but rather to build "buffers" (e.g., Danmarks Nationalbank 2006, p. 27) or to smooth income (Gebhardt and Novotny-Farkas 2011).

We contribute to the literature in several ways. First, we complement extant literature examining the effects of IFRS adoption on the comparability of financial statements by providing evidence that comparability of banks' loan loss provisioning has increased across EU countries. We argue that our measure is more directly capturing the comparability of general purpose financial statements. Our analysis also highlights issues arising from using aggregate accounting items to identify comparability effects around IFRS adoption by showing how transitional effects can confound comparability measurement. The finding of greater predictive ability of loan loss allowances under a restrictive incurred loss approach as compared to previous (partial) expected loss regimes casts doubts that by allowing more discretion in the estimation of loan losses under the new IFRS 9 standard will result in more informative loan loss accounting. The remainder of the paper is structured as follows. Section 2 provides the institutional background and discusses the related literature. Section 3 develops the hypotheses. Section 4 describes the sample and data. Section 5 presents the research design and the empirical results. Section 6 concludes.

2. Institutional background and related research

2.1. Institutional background

2.1.1. Harmonization efforts in the European Union and loan loss provisioning

Since 2005 publicly traded EU companies are required to apply IFRS for their consolidated financial statements. The EU Regulation 1606/2002 in Article 1 motivates this seminal change in accounting regulation as a means to "to ensure a high degree of transparency and comparability of financial statements and hence an efficient functioning of the Community capital market and of the Internal Market". This EU Regulation also sets up a complex endorsement mechanism which requires IFRS standards to be evaluated against the "criteria of understandability, relevance, reliability and comparability" (Article 2) before adoption for use by EU companies.

The IASB Conceptual Framework describes comparability as "the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items" (IASB 2010, QC 21). It is further stated that "… permitting alternative accounting methods for the same economic phenomenon diminishes comparability" (IASB 2010, QC 25). Firms facing similar economic phenomena (e.g. holding similar portfolio of loans) should then apply similar accounting methods and present similar accounting amounts.

Mandating similar accounting methods does not necessarily result in more comparable accounting amounts as firms may have incentives to interpret standards or apply remaining discretion differently. The quality of auditing and the level of enforcement may also differ across countries or industries. Accounting for loan losses in the EU before 2005 can serve as an example: While bank accounting has been regulated by the Fourth Directive, the Seventh Directive, and the 1986 Bank Accounting Directive the local accounting standards for loan loss provisioning still differed considerably across the EU countries. They were applied

differently also within countries because of differing tax incentives or regulatory capital incentives (e.g., Gebhardt and Novotny-Farkas 2011). Importantly, in some EU countries (e.g., Denmark, Portugal, Spain) bank regulators strongly interfered with the loan loss provisioning of the banks under their supervision (see Section 2.1.2).

The mandatory change to IFRS in 2005 eliminated different loan loss accounting methods as one source of incomparability while other sources more or less continued to exist. It would be therefore naïve to expect that full comparability can be achieved with this step. It is however interesting to learn whether comparability has been improved and to which degree.

Comparability is not an end in itself but thought to be a means to improve the efficacy of EU capital markets. IFRS financial statements should help market participants to make better capital allocation decisions. It is the stated objective of IFRS financial reporting " … to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity" (IASB 2010, OB 2). Better decisions require better predictions of the amounts, timing and uncertainty of future cash flows. When deciding about investments or disinvestments in banks predictions of future loan losses are of particular interest to existing or prospective investors.

The change to IFRS restricts the recognition of expected loan losses to only (incurred) losses for which there is objective evidence that a credit event has occurred as of the balance sheet date (IAS 39.59). Local GAAP offered or even required to recognize loan losses because of events expected to occur after the balance sheet date (e.g., the expected insolvency of a major company in the next fiscal year). Gebhardt and Novotny-Farkas (2011) document for a sample of EU banks that the level of provisioning decreased significantly after the adoption of IFRS even though the volume of loans increased. Thus, the attempt to gain more

comparability is accompanied by reduced loan loss provisioning. This raises the question how this affects the predictability of future loan losses. Compared to local GAAP the IAS 39 incurred loss approach reduces the discretion that preparers have and thus limits the potential for opportunistic earnings management. But, less discretion also restricts the ability to provide more comprehensively for loan losses that are reasonably expected to occur in future periods.

2.1.2. Loan loss provisioning and the role of supervisors

Accounting rules for banks prior to the introduction of IFRS were based on the *EC Bank Accounting Directive* (1986) and relied more on principles rather than detailed rules. According to the *EC Bank Accounting Directive* loans had to be recognized at their nominal value. Deteriorations in the creditworthiness of individually identifiable debtors had to be recognized by specific loan loss provisions. In addition, banks were required to create general loan loss provisions to cover latent risks inherent in the performing loan portfolio. Hence, prior to IFRS adoption banks were allowed or even required to incorporate a forward-looking element into loan loss provisions.

The major difference between pre-IFRS loan loss provisioning regimes and practices across countries is driven by the extent of supervisory intervention.[1] This is due to the fact that bank regulators and supervisors rely heavily on reported accounting amounts when calculating and monitoring banks' regulatory capital adequacy. The definition of regulatory capital requires distinct measurement concepts (e.g., prudence) which are different from that of standard setters (e.g., neutrality) due to different objectives. Standard setters aim at the objective and neutral measurement of net income for a given time period. Hence, for the measurement of loan loss provisions they require to consider only losses expected to result from events during a given period (Wall and Koch 2000). In contrast, supervisors aim at

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[1]   See for a similar argument in the context of bank disclosure Bischof (2009).

financial stability and sound credit risk assessment and valuation. In their view, loan loss provisions should also cover expected losses resulting from future events while regulatory capital should protect banks from unexpected losses. Insufficient loan loss provisions reduce the ability of banks' capital to absorb unexpected losses. Thus, from a possible range of loan loss estimates banks should record a loan loss allowance at the high end of those estimates in their financial statements (Benston and Wall 2005).[2]

Given the importance of accounting numbers for the calculation of regulatory capital, supervisors tend to have their own view or interpretation of accounting rules. Therefore, in the banking industry supervisory agencies play an important role in how accounting standards are applied and enforced (see also Bischof 2009). The degree of supervisors' influence on bank accounting varies across jurisdictions as highlighted in Appendix A. The first five columns provide some general information on supervisory authorities in our sample countries and their power with regard to accounting and auditing of banks. In most countries supervisors have the right to meet and discuss with auditors their report, while in about one half of the sample countries supervisors may even take legal action against auditors. While in most countries (e.g., UK, Ireland) supervisors can give mere recommendations on accounting issues, three countries, i.e., Denmark, Portugal, Spain stand out because supervisory authorities are involved in accounting standard setting. The remaining columns of Appendix A show to what extent supervisors intervene in loan classification and provisioning. It becomes evident that particularly in the Southern countries supervisors tend to issue formal guidelines for loan loss provisioning.

Based on the information provided in Appendix A, we broadly classify loan loss provisioning regimes into interventionist and non-interventionist approaches. The

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[2] This preference for more conservative loan loss accounting stems from the asymmetric loss function of supervisors. Specifically, understated loan loss allowances (overstated regulatory capital) may increase the probability of a bank failure and increase the cost imposed on deposit insurance systems, and ultimately tax payers. In contrast, overstated loan loss allowances do not impose costs to supervisors (Benston and Wall 2005).

interventionist countries include Denmark, Portugal and Spain. These countries further differ in the nature of intervention. In Portugal and Spain supervisors relied more on formal rules and required so-called statistical and dynamic provisioning, respectively, under which loan loss provisions have to be recognized for every newly issued loan based on a formulaic approach. In contrast, the Danish regulator applied a more principles-based approach under which banks were required to essentially write down loans to their fair value (see also Bernard et al. 1995). Finally, the non-interventionist regimes (e.g., Ireland, UK) generally do not interfere with banks' loan loss accounting. Appendix B provides a detailed description of the loan loss provisioning rules of the three interventionist approaches and the UK as a representative example of non-interventionist supervision.

An important question from the perspective of our paper is whether interventionist supervisors enforce the IFRS impairment rules given that the incurred loss approach clearly collides with regulators' preference for forward looking provisioning. The last column in Appendix A indicates that while Denmark and all the non-interventionist countries accept IFRS impairment provisions without adjustments for regulatory purposes, this is not the case in Spain and Portugal. To investigate this further, we gather more information on the rules and regulations that were in place in these regimes before and after IFRS adoption (see Appendix B). Our *de jure* analysis reveals that while all three supervisors implemented the IFRS impairment provisions, Portugal and Spain issued additional regulatory documents that are aimed to provide strong disincentives for banks to decrease the level of loan loss provisions. In Spain, the *Banco de Espana* issued a specific guidance on how to estimate loan losses according to the IFRS rules which in essence requires banks to maintain the previous dynamic provisioning. These regulatory measures raise concerns about the enforcement and proper application of IFRS. In contrast to the Spanish and Portuguese regulators the Danish supervisor seems to have accepted the primacy of IFRS. Specifically, the Danish Financial

Supervisory Authority finds that "the rules for recognition of impairment losses/provisions laid down in the IAS standards and implemented in the Danish regulation give a sufficient measurement of banks' asset quality" (IMF, 2007, p. 27).

2.2. Related research

Our study is related to two streams of the accounting literature. The first is the nascent and growing stream of literature that tries to measure financial statement comparability and to identify its determinants and consequences. The mandatory introduction of IFRS for listed firms in the EU and many other countries in the world has been a primary driver for the emergence of studies in this area. Interestingly, only few studies examine the effects of IFRS adoption on comparability directly. Generally, findings of comparability studies are mixed (see e.g. Brüggemann et al. 2012; ICAEW, 2014).

One potential reason for the mixed findings is the design of the metrics used for measuring comparability. Recent studies mostly rely on correlations of earnings and stock returns to assess comparability by applying the method of DeFranco et al. (2011) (e.g., Cascino and Gassen 2014).[3] De Franco et al. (2011) estimate a reverse regression of earnings on stock returns to capture how economic events map to financial statements. Then they use the coefficients of this regression to predict firm i's earnings using both firm i's stock returns and peer firm j's stock returns. The absolute value of the difference indicates the degree of comparability. Barth et al. (2012) analyze the comparability of IFRS-based and US GAAP based accounting amounts using comparability metrics derived from associations between accounting measures (i.e. earnings and equity) and economic variables (i.e. stock price, stock returns, future cash flows). Other studies have relied valuation multiples to gauge

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[3] We limit our discussion to output based measurements of comparability. For the discussion of other approaches to measure financial statement comparability see ICAEW (2014).

comparability of firms by implementing the method proposed by Bhojraj and Lee (2002) (e.g., Young and Zeng 2015).

Using summary accounting measures allows presenting the net effect of changes in the comparability of different accounting items. It is however of particular interest to identify the accounting items for which comparability increases or decreases as a result of changes in the accounting regulation. Especially in international studies examining the comparability effects of IFRS adoption, the focus on aggregate accounting measures "masks divergent comparability effects for different items in different countries, depending on how the requirements of IFRS compare with those of prior national GAAP" (ICAEW 2014, p. 76). Further, the observed effects on correlations of accounting items and stock returns (or stock price) may result not only from changes in the accounting methods but also from changes in the market pricing of accounting variables induced by concurrent changes in the market infrastructures and environments.

In our study we propose a simple, yet effective way to identify cross-country comparability of bank financial statements. Our approach to measure comparability relies on the differences in the explanatory power of models to explain variation in banks' most important accrual item, the current loan loss provision (LLP), a flow measure, or loan loss allowance (LLA), a stock measure. Thereby, we can rely on institutional knowledge and extensive bank accounting literature in modelling the behavior of this specific accrual (for an overview see Beatty and Liao 2014). In principle, time and firm-specific variation of LLP and LLA should be primarily driven by a clearly defined set of observable economic factors (i.e., proxies of credit risk like the volume of loans and non-performing loans). However, in an international sample of banks because of differences in local GAAP rules and/or institutional arrangements country factors are also likely to play a significant role in the determination of loan loss provisions. The idea is that if IFRS adoption leads to more comparable accounting

then we should observe a significant reduction in the incremental explanatory power of country fixed effects in a regression of LLP/LLA on its firm-specific determinants.

Our approach to measure comparability has two important advantages. First, it focuses on the comparability of accounting amounts (i.e., LLP and LLP) and their determinants (i.e., levels and changes of loans, non-performing loans, gross charge-offs). It therefore avoids the problems of comparability metrics derived from associations between market-based variables (i.e., stock prices, stock returns) and summary accounting variables (i.e., equity, earnings) that the observed effects may result not only from changes in the accounting methods but also from changes in underlying economics reflected in the market pricing of accounting variables. Second, by relying on one specific accrual item we circumvent the problem faced in studies using aggregate items (e.g., earnings) that differential comparability effects of various accounting items can offset each other.

Secondly, our study is also related to the recently growing literature interested in the informativeness of loan loss provisions. Recent studies show that forward versus backward looking features of loan loss provisioning can have substantial impact on bank lending (Beatty and Liao 2011) and risk taking (Bushman and Williams 2012). Motivated by these findings, studies have investigated the relative predictive power of (historical) loan loss provisioning and fair value accounting (Cantrell et al. 2014) or developed new empirical proxies that should perform better in predicting credit losses (Harris et al. 2015). Other studies examine how changes in internal control regulations or SEC intervention have impacted the validity and informativeness of loan loss provisions (Altamuro and Beatty 2010; Beck and Narayanamoorthy 2013).

Our study contributes to this literature by investigating how an important change in accounting regulation impacts the informativeness of loan loss provisions. Specifically, we exploit a setting where we can compare the predictive ability of loan loss accounting amounts

prepared under discretionary forward looking regimes (local GAAPs) with those produced using a more restrictive incurred loss approach (IFRS).

3. Hypotheses

3.1. IFRS adoption and comparability of loan loss provisions

As noted in the previous section, differences in loan loss accounting and discretion provided to banks varied across countries. The adoption of IFRS removes the differences in rules regarding loan loss provisioning and, in particular, limits discretion by prohibiting the creation of reserves that are not based on objective evidence of impairment as of the balance sheet date. The reduction in discretion is expected to increase the association of loan loss provisions and loan loss allowances with their economic determinants (e.g., non-performing loans, charge-offs) and to mitigate cross-country differences in loan loss provisioning practices. As a result, to the extent that the new impairment rules are consistently applied we should observe more comparable loan loss accounting after the accounting regime switch. Supporting evidence for compliance with the incurred loss approach is provided in Gebhardt and Novotny-Farkas (2011). They find that the level of income smoothing via loan loss provisioning has been significantly reduced after the mandatory IFRS adoption of European banks. Therefore, we formulate the following hypothesis:

H1: The mandatory adoption of IFRS leads to more comparable loan loss accounting practices across countries, i.e. a lower association of LLP and LLA with country fixed effects.

3.2. Cross-sectional predictions – the role of supervisory intervention

If IFRS leads to more cross-country comparability as predicted in H1, one would expect banks from countries with more forward-looking local GAAP provisioning to make more significant changes to their loan loss accounting around the adoption of IFRS. In Section 2.1.2 we identified three countries where supervisors explicitly required forward looking provisioning. Banks in these countries are expected to have built up significant reserves prior the adoption of IFRS that are not consistent with the incurred loss approach. As a consequence, we predict that the reduction of these "excess" reserves will be more significant upon IFRS adoption in these countries, thus, leading to the following hypothesis:

H2a: The mandatory adoption of IFRS leads to more pronounced reductions in over-reserving for banks from more forward-looking provisioning regimes (Denmark, Portugal, Spain).

Because, in principle, fair value accounting involves the most comprehensive incorporation of expected losses, conditional on compliance with the IFRS rules, we expect to observe the most significant decrease in loan loss allowances for banks in Denmark.

A maintained assumption underlying H1 and H2a is that banks comply with the new impairment rules. However, recent studies provide evidence that comparability (Barth et al. 2012) and capital market benefits of IFRS adoption (Christensen et al. 2013) vary with the level of enforcement. On average, we expect that IFRS rules are properly enforced within the banking industry because in addition to auditors and securities market regulators, bank supervisors also scrutinize bank financial statements. Nevertheless, the discussion in section 2.1.2 suggests that in two countries regulators appear to deviate in the implementation of the

incurred loss approach which might result in a less pronounced change in loan loss accounting. Therefore, we formulate the following alternative hypothesis to H2a:

H2b: The mandatory adoption of IFRS leads to less significant reductions in over-reserving for banks in former dynamic LLP regimes (Spain and Portugal).

3.3. Predictive ability

While our previous hypotheses predict an increase in comparability, an important question is how the predictive ability or informativeness of loan loss allowances will be affected. In theory, an expected loss approach allows for an earlier recognition of future expected losses. A switch to an incurred loss approach would then imply a decrease in predictive ability. However, an expected loss approach provides greater room for discretion. On the one hand, discretion facilitates the incorporation of information about future expected losses; on the other hand, it also provides room for opportunistic accounting behaviour by bank management (Bushman and Landsman 2010). Bushman and Williams (2012) examine variation in loan loss provisioning practices across countries and document that banks in high discretion regimes do not necessarily impound more forward-looking information. In addition, given that the incurred loss approach relies more on past events, the probability of an actual loss in the short term is higher. Therefore, if the incurred loss model is consistently applied, we might observe a higher association of loan loss allowances with charge-offs occurring in the near future. Considering the opposing arguments we formulate the following non-directional hypothesis:

H3: The predictive ability of loan loss allowances does not change after the mandatory adoption of IFRS.

16

4. Sample selection and descriptive statistics

4.1. Sample selection

To select our sample we start with the population of 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 harmonization of bank accounting across these states. We exclude Germany and Austria, because most listed banks in those countries are voluntary adopters before 2005. In addition, these banks experienced several changes in impairment rules in the period before the mandatory adoption of IFRS, which resulted in a step-by-step adoption of the incurred loss approach by Austrian and German banks.[4]

We also exclude Luxembourg 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 identify 118 listed banks. We lose 15 banks whose financial statements are not available from their websites, or not available in English. Further, we exclude seven subsidiaries that operate in the same sector as their parent and six banks for which lending is not their main business and one bank because of insufficient data. Our final sample consists of 89 mandatory IFRS adopters.

We download the financial statements from the websites of the banks for the period from 2000 to 2008. Hand-collection is necessary as most of the key variables (i.e., non-performing loans and loan loss allowances) used in our analyses are rarely available in commercial databases for European banks, especially for the period before the mandatory adoption of IFRS.

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[4] See also Gebhardt and Novotny-Farkas (2011).

Table 1 presents distributions by country for the period before and after IFRS adoption respectively. The sample is almost balanced with regard to the number of pre- (297) and post-adoption (307) observations.

{Insert Table 1 here}

4.2. Descriptive data analysis

Table 2 reports descriptive statistics for the variables used in the three sets of multivariate analyses for the pre- and post-IFRS adoption period separately. Table 2 Panel A suggests that banks set aside significantly less loan loss provisions in the period after IFRS adoption, although the indicators of credit risk increase. For example, the mean (median) loan loss provision to total loans decreases from 0.59% (0.50%) to 0.48% (0.35%), while growth in non-performing (ΔNPL) and performing loans (ΔLoans) increases from 0.11% (0.07%) to 0.59% (0.19%) and from 10.9% (8.96%) to 33.9% (16.11%), respectively. Gross charge-offs (GCO) which represent actual loan losses decrease from about 0.42% (0.30%) to 0.40% (0.22%) for the average (median bank). The results for gross loan loss provisions and for the loan loss allowances before and after the mandatory adoption of IFRS show a similar pattern (Table 2 Panels A and C).

{Insert Table 2 here}

5. Empirical results

5.1. Comparability of loan loss provisions

We start our analysis by examining the comparability of loan loss provisions (LLP) before and after IFRS adoption. The choice to begin the analyses with the income statement

LLP is driven by the focus of extant comparability studies on earnings, i.e., income statement, comparability. Moreover, most of the prior literature examining earnings and capital management in banks uses LLP. Finally, we exploit the analysis of the LLP to highlight potential issues arising in using aggregate (earnings) items in studies investigating comparability effects around IFRS adoption. The results motivate our later analyses that focus on the loan loss allowance (LLA).

To derive our comparability measure we rely on loan loss provisioning models widely used by prior literature (e.g., Beatty et al. 1995; Kim and Kross 1998; Bushman and Williams 2012; Beck and Narayanamoorthy 2013). The advantage of specific accrual studies is that one can use institutional knowledge to model accrual behaviour (McNichols 2001). This allows us to make better predictions on how changes in accounting regulation are likely to affect the accrual under consideration. Because Beck and Narayanamoorthy (2013) analyse a comparable change in loan loss accounting in the US, we follow their research design closely.[5] To test the comparability of loan loss provisions we estimate the following equations:

$$LLP_{it} = \beta_0 + \beta_1 \Delta NPL_{it} + \beta_2 AVEGCO_{it} + \beta_3 \Delta Loans_{it} + \beta_4 Size_{it} + \varepsilon_{it} \tag{1a}$$

$$LLP_{it} = \beta_0 + \beta_1 \Delta NPL_{it} + \beta_2 AVEGCO_{it} + \beta_3 \Delta Loans_{it} + \beta_4 Size_{it} + Country\ Dummies + \varepsilon_{it} \tag{1b}$$

where LLP_{it} is the loan loss provision of bank i in year t. $AVEGCO_{it}$ is the average of the current (GCO_{it}) and previous year's gross charge-offs (GCO_{it-1}). The variables on the right hand side of the above equations are deemed to be non-discretionary measures of credit risk. The coefficients on gross charge-offs (GCO), change in non-performing loans (ΔNPL_{it}) and

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[5] Specifically, Beck and Narayanamoorthy (2013) investigate SEC's intervention in loan loss accounting following concerns that US banks' loan loss allowances were overstated. Like the incurred loss approach under IFRS, the SEC's intervention represents an effort to limit opportunistic discretion in loan loss provisioning.

change in total loans ($\Delta Loans_{it}$) are predicted to be positive. As outlined before, local GAAP accounting allowed or even required to provide for future expected losses to a varying extent. Before IFRS adoption these country-specific differences likely to have led to a relatively large proportion of unexplained variation, and in turn, lower R^2 of the base model (1a) in a pooled international sample. The inclusion of country dummies is then expected to yield a significant increase in R^2. If the switch to IFRS leads to more comparable loan loss accounting we should observe the following: First, for the base specification (1a) R^2 is likely to be higher under the IFRS regime as compared to local GAAPs. If countries move closer to the incurred loss approach of IAS 39, then our base regression model (1a) should explain the variation in loan loss provisions across banks better after IFRS adoption. Second and more importantly, the additional explanatory power of country dummies in model (1b) should be higher under local GAAP than under IFRS. Specifically, we test whether $\left(R_{1b}^2 - R_{1a}^2\right)^{\text{Pre-IFRS}}$ is significantly greater than $\left(R_{1b}^2 - R_{1a}^2\right)^{\text{Post-IFRS}}$. For this test we estimate equations (1a) and (1b) 1000 times, randomly assigning banks to the relevant partitions (i.e., pre- and post-IFRS adoption) and base our significance test on the standard deviation of the empirical distribution of the difference $\left(R_{1b}^2 - R_{1a}^2\right)^{\text{Post-IFRS}}$ - $\left(R_{1b}^2 - R_{1a}^2\right)^{\text{Pre-IFRS}}$ (see for a similar approach Barth et al. 2012).

Table 3 Panel A reports results for two regressions testing the comparability of loan loss provisions. Columns (1) to (4) use model (1a) as the base specification, while in columns (5) to (8) we add future charge-offs (*F_GCO*) as an additional explanatory variable. The addition of *F_GCO* is based on the idea that, in principle, LLP should cover future write-downs (even when they are triggered or incurred based on past events only).

The results in Table 3 Panel A show that, as expected, loan loss provisions are primarily determined by the changes in non-performing loans (*ΔNPL*) and past charge-offs (*AVEGCO*). The explanatory power of the base model generally is high (e.g., $R^2 = 0.70$ in column (1)). However, the incremental explanatory power of country dummies is relatively low both

before and after IFRS adoption. Moreover, the difference in the incremental R^2 between the two accounting regimes is not significant for both regression specifications suggesting that IFRS adoption has not improved the comparability of LLP.

Interestingly, the explanatory power of the base models is significantly lower in the post-adoption period. However, this result may be attributable to different transitory adjustments of LLP in the post-adoption period that may vary significantly depending on how much the countries' provisioning regime under local GAAP differs from the IFRS' incurred loss approach. To investigate this further we decompose the loan loss provision into its main components. Specifically, the LLP item recorded on the income statement consists of the following elements:

LLP = Gross additions – Reversals – Recoveries (+ Direct write-offs)

where gross additions are management's current year's estimate of future expected losses. Reversals represent corrections of estimation errors from previous periods. Recoveries are recoveries from loans previously written off. Direct write-offs are charge-offs of loans for which no LLP has been made in previous periods. Direct write-offs do not increase the loan loss allowance, but directly reduce the value of loans through the income statement. This item is in brackets because banks in some countries include direct write-offs in gross additions, while other banks disclose it separately.

The decomposition of the LLP is useful to illustrate how differences in prior local GAAP accounting practices might inhibit us to identify cross-country comparability of LLP. To the extent that the transition process occurs gradually and not at one point in time, banks from accounting regimes that require more forward looking provisioning will have relatively higher "Reversals" of prior provisions and lower "Gross additions" than banks from countries whose local GAAP LLP practice was closer to the IFRS model. These transition effects potentially prevent us from identifying increased comparability of the aggregate LLP item.

21

Panel B of Table 2 provides descriptive statistics for the "Gross additions" (*LLP_gross*) and "Reversals" (*LLP_reversal*) components of the LLP for the subsample of banks that disclosed these items separately. It indicates that reversals amount to about one third of "Gross additions". Figure 1 compares the development of the median *LLP_net* (the aggregate LLP item recorded on firms' income statements) with *LLP_gross*, the "Gross addition" component for three accounting regimes through the sample period. Figure 1 reveals that while *LLP_net* follows a similar trend across accounting regimes, its development is more dispersed in the period after IFRS adoption. Specifically, for Danish banks (indicated by the dashed line labelled as "FVA") which were previously required to follow a provisioning model close to fair value accounting *LLP_net* even turns negative in the year 2006 suggesting that they reversed significant portions of prior provisions. The lower part of Figure 1 shows that while the levels of "Gross additions" were more dispersed before IFRS adoption they converge in the post-adoption period. Interestingly, Danish banks were more aggressive under their local GAAP regime in terms of provisioning, but decreased their "Gross additions" below the level of Dynamic and non-interventionist banks after 2005.

{Insert Figure 1 here}

The above discussion suggests that in order to test whether countries' provisioning practices become more comparable, it is more appropriate to focus on the "Gross additions" part of the loan loss provision (*LLP_gross*). Therefore, we rerun the regression analyses with *LLP_gross* as the dependent variable. Consistent with the patterns observed in Figure 1 or in Panel B of Table 3 shows that country factors play a more dominant role in explaining the variation gross loan loss provisions before the adoption of IFRS. When using model (1a) as the base specification (columns (1) to (4)) we observe a reduction in the incremental R^2 of country dummies by 10 percent that is significant at the 10 percent level. This difference

becomes even more significant, when we add future charge-offs (F_GCO) to the base model (columns (5) to (8)). In fact, in the period after IFRS adoption the addition of country dummies reduces the adjusted R^2 by one percent relative to the base model (see columns (7) and (8)). We conclude from these results that cross-country comparability of (gross) loan loss provisions has increased after the accounting regime switch. A comparison of the two different base models further reveals that the addition of F_GCO significantly improves R^2 in the post-adoption period, but not in the period before IFRS adoption.

{Insert Table 3 here}

Taken together, the decomposed analysis of the LLP highlights the difficulty in identifying accounting comparability around IFRS adoption due to transitional effects that are affecting aggregate accrual items. This issue is even more severe in studies that use aggregate items like earnings. Specifically, our analyses confirm a conjecture that "… overall assessments of comparability mask divergent comparability effects for different items in different countries, depending on how the requirements of IFRS compare with those of prior national GAAP" (ICAEW 2014, p. 76).

5.2. Comparability of loan loss allowances

Next, we examine the comparability of European banks' loan loss allowances. We expect the effects of IFRS adoption to be more pronounced for the loan loss allowance for several reasons. First, regulators, managers and auditors typically take a balance sheet, rather than income statement, perspective when evaluating the adequacy of the allowance account. Specifically, "loans are reviewed as of a given point in time (e.g., year-end) and are categorized or graded according to delinquency status. Probable principal loss is then assigned to each category of loans and the sum across categories is compared with the

allowance account. The provision then becomes the amount needed to be added to the allowance account to make the allowance 'adequate'" (Beaver and Engel 1996, p. 182).[6] Second, the loan loss allowance reflects the cumulative effect of previous and current over- or under-reserving, while loan loss provisions can be over- or understated in any given year. Therefore, country factors should be more significantly reflected in the level of loan loss allowances under local GAAP regimes. Furthermore, if IFRS leads to more comparability we should observe more pronounced convergence effects. In addition, transitory effects stemming from gradual adjustments to the incurred loss approach influence the loan loss allowance to a lesser extent than loan loss provisions. Therefore, the subsequent analyses focus on the loan loss allowance. To test the comparability of the loan loss allowance we estimate the following regressions:

$$LLA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 AVEGCO + \beta_3 Loans_{it} + \beta_4 Size_{it} + \varepsilon_{it} \qquad (2a)$$

$$LLA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 AVEGCO + \beta_3 Loans_{it} + \beta_4 Size_{it} + Country\ Dummies + \varepsilon_{it} \qquad (2b)$$

where LLA_{it} is the loan loss allowance amount of bank at the end of year t. Models (2a) and (b) resemble models (1a) and (1b) except that because LLA_{it} is a stock variable the right-hand side variables non-performing loans (NPL_{it}) and performing loans ($Loans_{it}$) are included in levels.

{Insert Table 4 here}

Table 4 reports the results for regressions (2a) and (2b) and an additional specification that includes future charge-offs. For both specifications we find a significant reduction in the

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[6] The following accounting identity holds for the loan loss allowance: $LLA_t = LLA_{t-1} + LLP_t - NCO_t + Other_t$, where LLA_t (LLA_{t-1}) is the ending (beginning) balance of loan loss allowances, LLP_t is current year's loan loss provision, NCO_t is current year's net charge-offs (gross charge-offs net of recoveries from loans previously written off), and represents $Other_t$ changes in the loan loss allowance due to changes in exchange rates or changes in the scope of consolidation etc.

incremental explanatory power of country dummies by 15 and 14 percent, respectively, suggesting substantial improvement in the cross-country comparability of loan loss allowances. Even without the inclusion of country fixed effects, the explanatory power of both base specifications is very high, especially in the post-IFRS adoption period, (i.e., 74 percent in column (3) and 84 in column (4)).

Figure 2 shows the time series of the explanatory power as measured by R^2 of the regressions (2a), (2b) and the incremental R^2 of country dummies (i.e. the difference between the R^2s of (2a) and (2b)) from yearly regressions throughout our sample period. We observe a significant increase in the R^2 of the base model particularly in 2005, i.e., in the year of IFRS adoption. Furthermore, the incremental R^2 of the country dummies significantly drops starting from the year 2004 and reaching the lowest value of 4 percent in the year 2006. Overall, our results suggest that the loan loss allowances experienced a structural shift around the mandatory adoption of IFRS leading to more comparable loan loss accounting across EU countries.

{Insert Fig. 2 here}

5.3. The role of supervisory intervention in loan loss provisioning

In this section we investigate whether and how supervisory agencies and their actions upon IFRS adoption affect the comparability of loan loss provisioning practices. This analysis serves two purposes. First, we are interested in how comparability effects of IFRS adoption interact with regulatory actions by supervisors (see Brüggemann et al. 2013). Specifically, we examine whether supervisors' attitude towards the IFRS' incurred loss approach supports or hinders comparability. Second, to the extent that comparability effects

predictably vary with cross-sectional differences in regulatory actions, this mitigates concerns that our primary findings are driven by other unobserved trends.

To test the impact of supervisors on loan loss allowances we modify the analyses reported in columns (5) to (8) of Table 4 by replacing the country dummies in the non-nested models (columns (6) and (8)) with indicator variables capturing the different provisioning regimes discussed in Section 2.1.2. Specifically, *Dynamic* is an indicator variable taking the value of one for banks from Portugal and Spain, where statistical or dynamic provisioning was in place, and zero otherwise. *FVA* takes the value of one for banks from Denmark that had to apply fair value accounting before the adoption of IFRS, and zero otherwise. In this specification *Dynamic* and *FVA* capture the level of provisioning beyond the provisioning of banks in countries with no supervisory intervention in accounting standard setting (i.e., non-interventionist regimes).

Based on our *de jure* analysis we expect to observe positive coefficients on *Dynamic* and *FVA* before the adoption of IFRS. If IFRS leads to more comparable loan loss allowances, we expect all firms to reduce the level of overprovisioning after IFRS adoption. However, this reduction should be more pronounced in the *Dynamic* and *FVA* provisioning regimes.

{Insert Table 5 here}

Table 5 reports the results consistent with banks from *Dynamic* and *FVA* countries maintaining higher allowances beyond incurred losses than banks from non-interventionist countries both in the period before and after mandatory IFRS adoption (columns (2) and (4) of Table 5). In line with fair value accounting incorporating expected losses more comprehensively before the adoption of IFRS, loan loss allowances were highest for *FVA* banks (column (2)). Column (5) tests for difference-in-differences for *Dynamic* and *FVA*, i.e., the incremental change in provisioning in these regimes relative to the base group. Both *FVA*

26

and *Dynamic* banks decreased the loan loss allowance more than banks in non-interventionist countries. *FVA* banks experienced the largest reduction in over-reserving as indicated by the tests in columns (5) and (6). This result is consistent with the pattern of loan loss provisions in Figure 1 showing a large drop in net loan loss provisions (*LLP_net*) for FVA banks after IFRS adoption suggesting that they reversed significant portions of the loan loss allowance.

Taken together, the findings in Table 5 corroborate the convergence of different loan loss accounting regimes following the adoption of IFRS. However, the coefficients on *Dynamic* and *FVA* in column (4) indicate that supervisory intervention still matters. In particular, the level of over-reserving in *Dynamic* regimes remains significant relative to non-interventionist countries, consistent with banks being reluctant to release their loan loss buffers possibly due to the pressure from their supervisors. This latter finding suggests that intervention by supervisors can hinder compliance with accounting standards.

5.4. Additional cross-sectional analyses – Exploiting transition effects

So far our cross-sectional analyses have relied on an *ex ante* classification of countries into more or less forward looking provisioning regimes based on the extent of supervisory intervention. However, it is possible that even in non-interventionist countries banks used the discretion afforded to them to apply a forward looking provisioning or to build up reserves. Therefore, in this section we use *bank-specific* IFRS transition effects on the loan loss allowance as an *ex post* measure of revealed differences between banks' prior provisioning practices and the incurred loss approach. Specifically, we exploit the fact that in their first IFRS statement banks had to restate their prior-year results according to IFRS; that is, for the year prior to IFRS adoption we can compare loan loss allowance numbers prepared under local GAAP with those reported under IFRS. Since the accounting numbers are for the *same set of firm years*, the differences between IFRS and local GAAP loan loss allowance figures

will capture the extent of banks' prior over- or under-provisioning relative to the incurred loss approach.

Table 6 provides descriptive statistics on the differences between loan loss allowances reported under the IFRS and those reported under local GAAP by country. Three major country clusters emerge from the observed transition effects. There is a group of countries where most banks experienced a significant decrease in loan loss allowances reflecting previous over-reserving (e.g., Denmark, Ireland and Italy). The result for Denmark is consistent with the reversal of the excess reserves that Danish banks built up due to the previous application of "mark-to-market" accounting. It further provides support for the argument that the Danish supervisor has accepted the primacy of IFRS to regulate bank accounting. Another group of countries show only small changes in their loan loss allowances (e.g., Netherlands, United Kingdom[7], Sweden). Local GAAP provisioning rules in these countries were close to those in IAS 39. However, the direction of the impact of IFRS varies widely; for example, in the United Kingdom 40 percent of the banks experience an increase and 60 percent a decrease in the loan loss allowance. Finally, there is a cluster of countries consisting of Belgium, France and Greece that experienced a significant increase in loan loss allowances. The increase in loan loss allowances is primarily attributable to the fact that banks in these countries used undiscounted expected cash flows to measure the amount of impairments, while IFRS requires discounted cash flows.

Interestingly, Portugal and Spain show relatively small transition effects. Given that the underlying local GAAP regimes required forward-looking provisioning, we expected significant reversals of their loan loss allowances upon transition to IFRS. Yet, only 50 percent and 25 percent of Spanish and Portuguese banks, respectively, exhibit (minor) decreases in their loan loss allowance. This finding is consistent with the argument that

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[7]   In the United Kingdom the large mean increase in the loan loss allowance is driven by one outlier, the London Scottish Bank.

supervisors in these countries were reluctant to accept the incurred loss approach and instead required banks to maintain more prudent provisioning practices even under IFRS.

Next, we use the observed transition effects as a proxy for the (dis)similarity of banks' prior provisioning practices and IFRS' incurred loss approach and explore whether it is associated with the IFRS impact on comparability. Specifically, we expect that the comparability effects of IFRS adoption reported in Table 4 will be more pronounced for banks whose loan loss provisioning practices were further away from the incurred loss approach. To test this prediction, we split our sample based on the observed transition effects and assign banks with an absolute change in their loan loss allowance of more (less) than 6 percent to the *Large transition effects* (*Small transition effects*) partition.[8] Then, we replicate our analysis from Table 4 using the specification that includes *F_GCO* for the two subsamples separately.

Table 6 Panel B shows that the incremental explanatory power of country dummies reduces by 16 and 4 percent for *Large transition effects* and *Small transition effects* banks, respectively. The larger improvement in the comparability of loan loss allowances in the *Large transition effects* subsample is consistent with our prediction and mitigates concerns that our primary findings in Table 4 are driven by omitted factors or a general time trend. Nevertheless, the relatively large incremental R^2s of country dummies in the *Small transition effects* subsample in both the pre- and post IFRS period is unexpected, since banks in this cluster are assumed to have had provisioning practices similar to the IFRS approach. One explanation for this result might be that, as observed earlier, several Portuguese and Spanish banks did not significantly adjust their loan loss allowance upon IFRS adoption, even though they previously applied statistical or dynamic provisioning. Indeed, when we exclude these

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[8] The 6 percent cut-off point was chosen based on two considerations. First, the transition effects in the *Small_transition_effect* group should be indeed relatively small. Second, both subsamples should include sufficient number of observations. Using other cut-offs points (e.g., the median transition effect) yields similar results.

banks from the *Small transition effects* subsample we find that the pre-IFRS incremental power of country dummies is only 9 percent and it drops by 6 percent to 3 percent after IFRS adoption (untabulated). This latter finding provides further indirect evidence that Portuguese and Spanish banks do not comply with IFRS. However, overall the results reported in this section support our previous inferences that IFRS adoption has led to a convergence of loan loss accounting practices.

5.5. *Predictive ability of loan loss allowances*

The analyses in the previous sections suggest that loan loss provisioning has become more comparable across countries after the adoption of IFRS. However, they also show that the level of loan loss reserves has been significantly reduced. This raises the concern that by reducing discretion the incurred loss approach also limits managements' ability to incorporate information about future expected losses, which might result in lower loan loss informativeness. We address this question in the following analysis.

To test the impact of IFRS adoption on the predictive ability of loan loss allowances we estimate the following regressions separately for the local GAAP and IFRS period (see Beck and Narayanamoorthy 2013):

$$AVEGCO_{it+2} = \beta_0 + \beta_1 LLA_{it} + \beta_2 Size_{it} + \varepsilon_{it} \tag{3a}$$

$$AVEGCO_{it+2} = \beta_0 + \beta_1 LLA_{it} + \beta_2 LLA_{it} * Dynamic + \beta_3 LLA_{it} * FVA + \beta_4 Dynamic +$$
$$+ \beta_5 FVA + \beta_2 Size_{it} + \varepsilon_{it} \tag{3b}$$

We use as the dependent variable the average of the charge-offs one year (GCO_{it+1}) and two years ahead (GCO_{it+2}). We do not include the independent credit risk variables (NPL_{it} and $Loans_t$) in the above models to facilitate the evaluation of the ability of loan loss allowances to explain future charge-offs on a stand-alone basis (see also Beck and

Narayanamoorthy 2013). In model (3b) we include interactions of LLA with *FVA* and *Dynamic* to test whether the predictive ability of loan loss allowances is higher under regimes that were in principle more forward-looking. β_1 captures the predictive ability of loan loss allowances in *non-interventionist* countries. We cluster standard errors at the bank level.

Table 7 presents the results for the predictive ability of loan loss allowances for the pre- and post-IFRS period separately. A comparison of models (1) and (3) suggests that the association of loan loss allowances with future charge-offs has increased, on average, after the adoption of IFRS (significant at the 5% level). Column (2) shows that for banks in *Dynamic* regimes there is a higher association between future charge-offs and LLA as evidenced by the positive (0.16) and significant interaction term LLA_Dynamic. The coefficient on this interaction term in column (4) is even higher (0.24) after IFRS adoption but not significant any more.

Interestingly, fair value accounting in Danish banks does not result in a higher association of loan loss allowances with future charge-offs in the pre-IFRS period (column (2)). Furthermore, the insignificant interaction term on *LLA_FVA* in column (4) suggests that predictive ability of Danish banks' loan loss allowances has increased similar to the average bank. These findings are surprising and contrast with what one would expect, since, in theory, fair value accounting is by definition more forward looking than other loan loss accounting approaches. However, even in Denmark fair values of loans were not based on observable market prices but estimated by management, and thus, were subject to significant discretion. Our results do not suggest that this discretion was used to incorporate information about future expected losses. Accordingly, Danmarks Nationalbank acknowledges that "[u]nder the previous accounting rules based on the prudential principle the banking institutions' loan loss provisions were not necessarily reflected in losses whereby the accumulated provisions partly served as buffer" (Danmarks Nationalbank 2006, p. 27).

Our results show that the predictive ability of loan loss allowances has increased under IFRS relative to the predictive ability of loan loss allowances under the (partial) expected loss approaches as implemented under different local GAAPs. It should be noted, however, that our test captures only predictive ability for the near term of two years. For this short horizon one should actually expect a higher association of loan loss allowances with charge-offs as allowances for incurred losses reflect future loan losses that are expected to occur with a rather high probability.

The challenge for a more comprehensive loan loss provisioning as attempted with variants of expected loss provisioning models (e.g., the IFRS 9 impairment model) is to capture future loan losses also for longer horizons. Therefore, we caution the reader to interpret our findings in a way that the incurred loss approach is to be preferred to more forward looking expected loss approaches.

6. Conclusion

In this paper we investigate the impact of mandatory IFRS adoption on the comparability of loan loss accounting of banks in 12 European countries. We find that loan loss provisioning has become more comparable across countries after the accounting regime switch. Some differences in loan loss provisioning remain in countries where supervisors has been historically involved in accounting standard setting and supervisors were reluctant to enforce the incurred loss approach. Our study also provides evidence that the association of loan loss allowances with future charge-offs has improved following IFRS adoption. We do not claim that the incurred loss approach is more forward looking than the pre-IFRS expected loss approaches. Nevertheless, we believe our findings have important implications for the current debate and recent changes in loan loss accounting that will require a broader recognition of future expected losses. First, the discretion in loan loss provisioning provided under previous local GAAP regimes does not appear to have been used to incorporate future

expected losses, unless there is a strong supervisor that enforces very detailed formula-based rules as in the case of Portugal and Spain. Second, while in theory the incurred loss approach has conceptual deficiencies, in practice it seems to fare better than the previous forward looking approaches. Specifically, it increases comparability of loan loss accounting across banks and countries and improves the validity of the reported loan loss numbers. Therefore, our results raise concerns over whether a switch back to more discretionary expected loss provisioning will achieve its desired objectives of greater informativeness of loan loss accounting.

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Appendix A

		Supervisory powers with regard to intervention in accounting regulation			Loan loss provisioning and supervision				
Country	Supervisory authority	Does the supervisory authority have the right and power to issue accounting standards?	Does the supervisory agency have the right to meet with external auditors to discuss their report without the approval of the bank?	Can supervisors take legal action against external auditors for negligence?	Do specific regulatory guidelines exist on loan classification?[4]	Do specific guidelines on loan loss provisioning exist (formulas, provisioning matrix)?[5]	Does the supervisors have the power to raise the level of provisions?[4]	Are general loan loss provisions part of Tier 2 capital?[4]	Are IFRS impairment provisions accepted without adjustments for regulatory purposes?
Belgium	Banking, Finance and Insurance Commission	No	Yes	Yes	Yes	No	Yes	No	Yes
Denmark	Danish Financial Supervisory Authority (Finanstilsynet)	Yes[1]	Yes	Yes	No	No	Yes	No	Yes
Finland	Financial Supervisory Authority	No	Yes	No	No	No	No	No	Yes
France	Commission Bancaire	No	Yes	No	Yes	No	Yes	Yes	Yes
Greece	Bank of Greece	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Ireland	Irish Financial Regulator	No[2]	Yes	Yes	No	No	Yes	Yes	Yes
Italy	Banda d'Italia	No	Yes	No	Yes	No	No	No	Yes
Netherlands	De Nederlandsche Bank	No	Yes	Yes	No	No	Yes	No	Yes
Portugal	Banco de Portugal	Yes	Yes	Yes	Yes	Yes	Yes	Yes[6]	No
Spain	Banco de Espana	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Sweden	Swedish Financial Supervisory Authority (Finansinspektionen)	No	No	No	No	No	No	No	Yes
UK	Financial Services Authority	No[3]	Yes	No	No	No	Yes	Yes	Yes

[1] According to section 196 of the *Financial Business Act* the *Danish Financial Supervisory Authority* (DFSA) has the authority to issue more detailed guidelines on accounting issues. [2] The *Irish Financial Regulator* issues guidelines on accounting issues. [3] The *British Bankers' Association* issues Standards of Recommended Practice (SORP). [4] This information is based on the World Bank Database 2007 on Bank Regulation and Supervision. For a detailed description of the database see Barth et al. (2001). [5] Information is based on the International Monetary Fund's Coordinated Compilation Exercise (CEE) for Financial Soundness Indicators (http://fsi.imf.org/cce). [6] Since the introduction of IFRS.

Appendix B

Detailed de jure analysis of loan loss provisioning regulations

Spain

In Spain the *Banco de Espana* has the authority to set accounting rules for financial institutions. Spain was the first country to introduce a so called dynamic provisioning approach in 2000.[9] Under this approach in addition to specific and general provisions banks also had to recognize statistical provisions which were meant to cover expected credit losses. The rationale behind this method is to recognise expected losses reflected in the risk premia on loans as an accounting expense that is matched with the recognition of interest income in profit and loss. In a sense the statistical provision is a reserve built up during good times (i.e. high credit growth) that can be depleted during bad times. It is "dynamic" because it increases when expected credit losses exceed realized losses and decreases when it is used to offset specific provisions in times of higher than expected realized losses.[10] Banks may use their own internal models in order to determine the statistical provision: Alternatively, they may choose the standard approach where the parameters are provided by the *Banco de Espana*.[11] Banks have to disclose separately the level and movements of each type of provision (specific, general and statistical) and the methods used to determine the provisions.[12]

Upon the transition to IFRS the rules had to be changed because such statistical provisions are incompatible with the incurred loss approach of IAS 39. Therefore, the *Banco de Espana* issued Circular No. 4/2004 on *Public and Confidential Reporting Rules and Formats for Credit Institutions*. The objective of this Circular was to adapt the Spanish

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[9]   Later Colombia (in 2007) and Peru (in 2008) also introduced dynamic provisioning. For the Spanish background to introduce dynamic provisioning see Fernandez de Lis and Herrero (2009).

[10]   See also Mann and Michael (2002), p. 133.

[11]   The standard approach establishes six risk categories ranging from "Without risk" to "High risk" and for each category a risk weight is allocated. For example, for a 100 EUR loan within the "High risk" ("Without risk") category the bank has to recognize a statistical provision of 1.5 % (0.0 %), i.e. 1.5 (0) EUR.

[12]   For a more detailed discussion see Fernandez de Lis et al. (2001) and Mann and Michael (2002).

accounting rules for banks to IFRS. While Rule 29 of Circular No. 4/2004 largely resembles the respective impairment provisions of IAS 39.58ff. in paragraph 23 it refers to Annex IX which provides further detailed guidance to estimate credit losses. Annex IX contains comprehensive instructions on the classification of loans and on the calculation of the loan loss provision. In essence, the features of the previous provisioning regime have been retained. As a consequence of the new regulation, the general and the statistical provisions have been merged under the label "general provisions".[13] Hence, it seems that Spanish regulators maintain their prudent and detailed loan loss provisioning practice, at least to a large extent, even under IFRS.

Portugal

Similarly to Spain, the regulator in Portugal sets out very detailed provisioning rules which are formalized in a provisioning matrix. According to Article 115 paragraph 1 of *Legal Framework for Credit Institutions and Financial Companies* it is incumbent on the *Banco de Portugal* to set forth accounting standards to be applied by institutions subject to its supervision. Furthermore, *Decree-Law No 35/2005*[14] conferred upon the *Banco de Portugal* the right to regulate the scope and application of IAS/IFRS with respect to the consolidated accounts of companies subject to its supervision. In order to exercise this right the Banco de Portugal issued *Notice 1/2005* which requires the application of IAS/IFRS for consolidated accounts of *all* banks (i.e. also non-listed banks except for savings banks[15]). For the preparation of individual accounts the Notice requires the application of *Adjusted Accounting Standards*. The *Adjusted Accounting Standards* largely correspond with the IAS/IFRS with

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[13] The general loan loss provision has to be calculated as the (i) the sum of the products of the positive or negative change during the period in the amount of each risk class and the related α parameter, plus (ii) the sum of the products of the total amount of the transactions included in each risk class at the end of the period and the related β, less (iii) the amount of the overall net impairment charges for the relevant specific allowances or provisions made in the period. The *Banco de Espana* determines the parameters α and β which take into account the historical inherent loss and the adjustments to adapt them to the current economic circumstances. For further details and the currently applied values for α and β see paragraph 29 of Annex IX to Circular 4/2004.

[14] Decree-Law No. 35/2005 implements the IAS Regulation (EC Regulation No. 53/2005) in Portugal.

[15] Banco de Portugal (2004), p. 103.

some important exceptions. One major exception is the maintenance of previous valuation and provisioning rules for credit granted.[16] Banks are required to maintain minimum levels of specific and general provisions which are laid out in *Notice 3/1995* and *Notice 8/2003* of the *Banco de Portugal*.

As regards consolidated accounts the *Banco de Portugal* issued several regulations in order to adjust the calculation of regulatory capital through so called "prudential filters". These prudential filters mainly neutralize effects of the wider use of fair value accounting. However, the respective *Notice 2/2005* also envisions the deduction of the sum of the differences – when positive – between the value of regulatory provisions defined by the *Banco de Portugal* (as defined by *Notice 3/1995* and *Notice 8/2003*) and the value of impairment, calculated in accordance with IAS/IFRS. As a further measure, transitional periods have been established to defer the prudential recognition of the effects occurring upon transition to IFRS. For example, for impacts arising from the change in the recognition and measurement criteria of financial instruments a deferral period of 3 years has been defined. Furthermore, provisions set up for securities under previous regulation which under IFRS are accounted for using fair values are not allowed to be released to income. Rather, they have to be recorded under a specific item of reserves that is not eligible for regulatory capital. Interestingly, as a final measure related with loan loss provisioning, the *Banco de Portugal* changed the regulatory treatment of general provisions. Since 2005 general provisions are accepted as a positive item of Tier 2 capital which was not the case before IFRS adoption. To sum up, the *Banco de Portugal* adopted the IFRS provisioning rules as they are, but at the same time the Portuguese regulator issued additional regulations that should dampen the effects of the new accounting regime. Specifically, the measures

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[16] See Banco de Portugal (2004), p. 103-104.

mentioned above are likely to serve as incentives for banks not to reduce their level of provisions extensively.

Denmark

In contrast to the regimes outlined above, in Denmark supervisors rely less on formal rules. Accounting and regulation is principles based, however, strict enforcement is achieved through frequent and strict on-site inspections. Under Danish GAAP loans had to be recognized at nominal value less provisions. Loan loss provisions were based on the probable risk of losses according to the prudential principle of accounting (Danmarks Nationalbank 2006, p. 18). Therefore, the Danish regulator required banks to make provisions for losses deemed to be unavoidable (B provisions) but also for foreseeable losses (A provisions). By considering all potential future losses loan book values under old Danish GAAP approximated market values (Bernard et al. 1995). However, "[u]nder the previous accounting rules based on the prudential principle the banking institutions' loan loss provisions were not necessarily reflected in losses whereby the accumulated provisions partly served as buffer" (Danmarks Nationalbank 2006, p. 27). This suggests that substantial portions of loan loss allowances covered unidentified future credit risk which would be incompatible with IFRS. Hence, Danish banks are expected to have high reversals of unjustified reserves upon IFRS transition.

In the course of the introduction of IFRS there has been a switch from the prudential principle to the principle of neutrality (Danmarks Nationalbank 2006, p. 71). In fact, the Danish national accounting standards for credit institutions have also been adjusted to match IFRS rules. According to section 196 of the Financial Business Act the Danish Financial Supervisory Authority (DFSA) has the authority to "lay down more detailed regulations on the annual report, including regulations on the recognition and measurement of assets, liabilities, revenue and expenditure, presentation of the income statement and balance sheet, and requirements regarding notes and the management's review". As a consequence, the

DFSA issued Executive Order (EO) No. 1466 on Financial Reports for Credit Institutions and Investment Companies, etc.". Section 1 paragraph 2 of the EO makes clear that the provisions of the order are applicable for IFRS-adopters only insofar as IFRS do not regulate an accounting matter. This means that in contrast to the Spanish and Portuguese regulators the DFSA accepts the primacy of IFRS. In addition, the provisions in the EO that have to be primarily followed by banks applying Danish GAAP have been significantly adjusted in order to achieve a higher degree of convergence with international accounting standards. Sections 51 to 54 of the EO on the recognition of impairment of loans and receivables largely resemble the respective provisions of IAS 39.

In contrast to the regulators in Portugal and Spain, the DFSA does not issue further guidelines on loan loss provisioning. It relies on the valuations used by banks according to IAS 39. The DFSA finds that "the rules for recognition of impairment losses/provisions laid down in the IAS standards and implemented in the Danish regulation give a sufficient measurement of banks' asset quality" (IMF 2007, p. 27). However, according to Section 124 paragraph 6 the DFSA may require banks to write down assets, etc. for the purpose of calculation of the capital base. To sum up, the Danish supervisor accepts and enforces compliance with the IAS/IFRS impairment rules, but under certain circumstances it can force banks to change their level of loan loss provisions.

United Kingdom

In the UK there were only general rules on loan loss provisioning. According to the statement by the UK *Accounting Standards Board* (*ASB*) the *British Bankers' Association* (*BBA*) has the right to issue *Statements of Recommended Accounting Practice* (*SORP*). The *BBA*'s *SORP* have several recommendations in paragraphs 7 to 22 regarding provisioning. Generally, valuation of loans should reflect any decrease of their realizable amount below their cost (*SORP*, paragraph 8). According to the recommendations a loan is deemed to be

"impaired when, based on current information and events, the bank considers that the creditworthiness of a borrower has undergone a deterioration such that it no longer expects to recover the advance in full" (*SORP*, paragraph 12). In such a case a specific provision should be recognised, the amount of which should reflect the bank's estimate of the amount needed to reduce the carrying value to the expected net realizable value. The *SORP* do not limit the recognition of impairment to specific triggers, rather it requires that loan loss provisions should be considered whenever information available suggests impairment. As regards general loan loss provisions paragraph 17 of *SORP* states that: "Experience shows that portfolios of advances often contain advances which are in fact impaired at the balance sheet date, but which will not be specifically identified as such until some time in the future". To cover such not yet identified impaired loans in portfolios a general loan loss provision should be made. Interestingly, the cited text has a similar wording as IAS 39 related to the collective provisions ("incurred but not reported losses"). However, under UK provisioning practice some banks implemented forward-looking elements in their provisioning policies (Mann and Michael 2002).

The UK supervisory authority, the *Financial Services Authority* (*FSA*), does not pose any further requirements regarding loan loss provisioning. Loan classification and provisioning practices of banks are reviewed by external audit and discussed during on-site inspections (IMF 2003, p. 25). Concurrent with IFRS adoption the *ASB* issued FRS 26: *Financial Instruments: Recognition and Measurement* which has to be applied by all listed banks starting from 1 January 2005. FRS 26 implements the recognition and measurement requirements of IAS 39 for financial instruments into UK GAAP. For IFRS adopters the *FSA* judges banks' provisioning practices against IAS 39 requirements. In its Consultation Paper 04/17 *Implications of a changing accounting framework* (CP04/17) the FSA addresses several regulatory issues arising from the application of IFRS. As regards provisioning the

FSA only discusses the treatment of general loan loss provisions, which under UK GAAP have been treated as part of regulatory capital (within Tier 2). CP04/17 proposes to give the same capital treatment to collective provisions under IAS 39 as to general loan loss provisions under UK GAAP. This is remarkable because conceptually collective provisions under IFRS should merely cover incurred losses, while general loan loss provisions include some forward-looking element.

FIGURE 1

Evolution of Net versus Gross LLP by provisioning regimes

Evolution of Median Net LLP

Evolution of Median Gross LLP
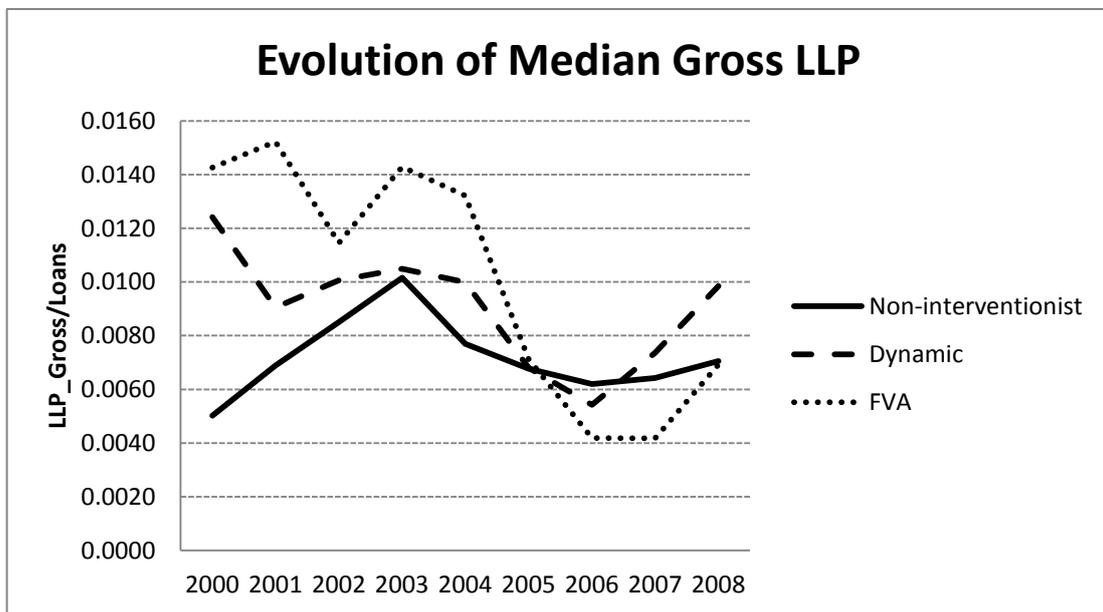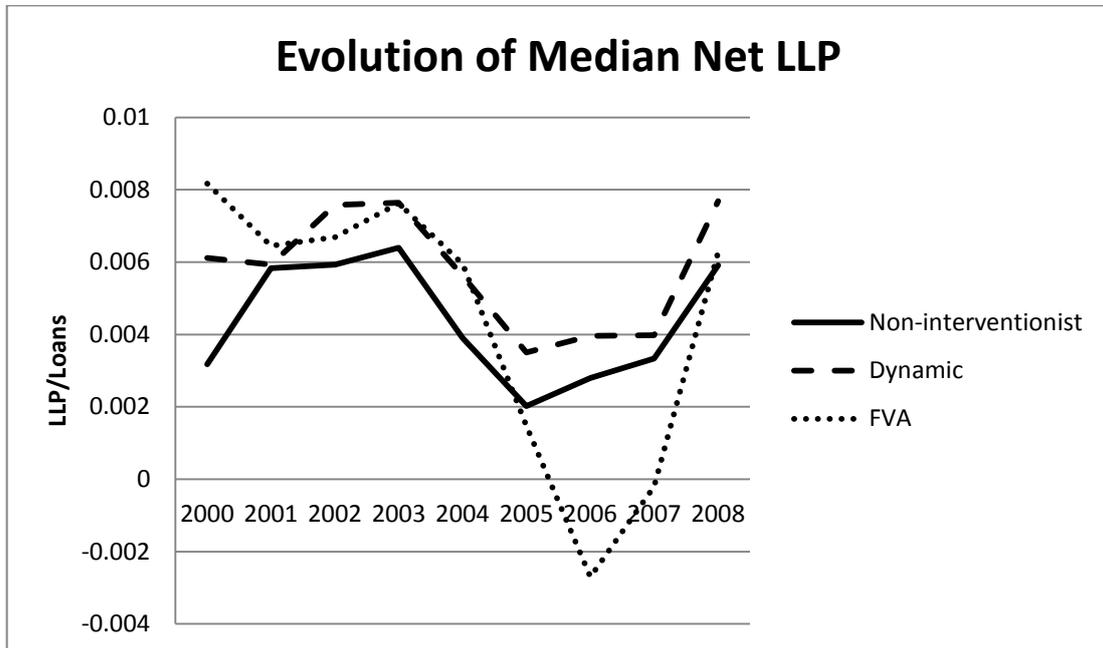
FIGURE 2

Evolution of adjusted R^2 over time

Adjusted R^2:

$$LLA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 AVEGCO + \beta_3 Loans_{it} + \beta_4 Size_{it} + \varepsilon_{it} \tag{2a}$$

$$LLA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 AVEGCO + \beta_3 Loans_{it} + \beta_4 Size_{it} + Country\ Dummies + \varepsilon_{it} \tag{2b}$$
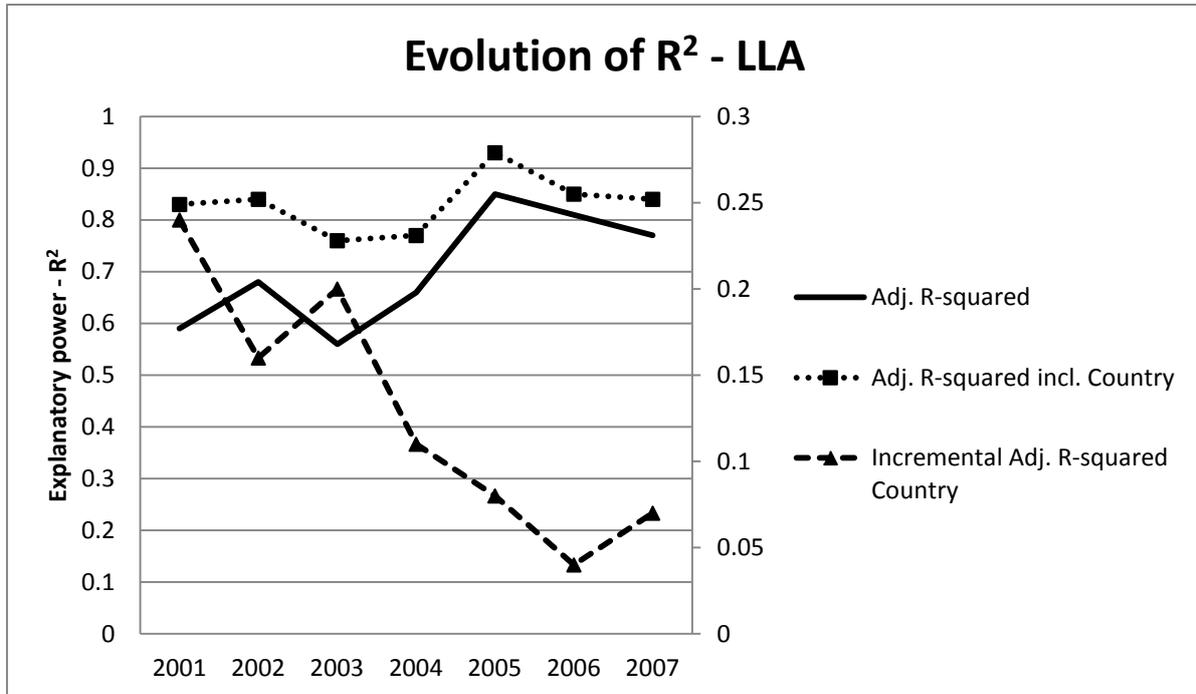
TABLE 1

Sample distribution by country

Country	No. banks	Local GAAP	IFRS	Total observations
Belgium	3	9	9	18
Denmark	7	19	22	41
Finland	2	4	5	9
France	9	27	27	54
Greece	7	10	22	32
Ireland	4	18	15	33
Italy	25	76	84	160
Netherlands	6	22	24	46
Portugal	5	22	20	42
Spain	8	31	30	61
Sweden	4	19	14	33
United Kingdom	9	40	35	75
TOTAL	89	297	307	604

Notes: The sample comprises 89 banks that mandatorily adopted IFRS. The sample covers the period from 2000 to 2008.

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TABLE 2

Descriptive statistics of variables used in analyses

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Panel A: Loan loss provision analyses

| | **Before Mandatory IFRS Adoption** | | | | | | **After Mandatory IFRS Adoption** | | | | |
	N	mean	p25	p50	p75	sd	N	mean	p25	p50	p75	sd
LLP	247	0.0059	0.0026	0.0050	0.0079	0.0048	303	0.0048	0.0016	0.0035	0.0060	0.0065
ΔNPL	247	0.0011	-0.0012	0.0007	0.0036	0.0143	303	0.0059	-0.0004	0.0019	0.0076	0.0206
GCO	247	0.0042	0.0013	0.0030	0.0059	0.0039	303	0.0040	0.0008	0.0022	0.0047	0.0067
ΔLoans	247	0.1094	0.0309	0.0896	0.1518	0.1595	303	0.3390	0.0868	0.1611	0.2587	2.5750
Size	247	10.8416	9.5258	10.8757	12.4693	1.8743	303	11.0870	9.7837	11.1325	12.7568	1.9268

Panel B: Gross loan loss provision analyses

| | **Before Mandatory IFRS Adoption** | | | | | | **After Mandatory IFRS Adoption** | | | | |
	N	mean	p25	p50	p75	sd	N	mean	p25	p50	p75	sd
LLP_gross	179	0.0101	0.0064	0.0095	0.0129	0.0060	208	0.0079	0.0040	0.0068	0.0093	0.0076
LLP_reversal	179	0.0031	0.0009	0.0022	0.0045	0.0028	208	0.0027	0.0009	0.0019	0.0040	0.0027
ΔNPL	179	0.0012	-0.0016	0.0007	0.0053	0.0167	208	0.0066	-0.0004	0.0019	0.0079	0.0220
GCO	179	0.0046	0.0014	0.0037	0.0066	0.0042	208	0.0039	0.0008	0.0022	0.0046	0.0066
ΔLoans	179	0.1049	0.0267	0.0796	0.1372	0.1750	208	0.1918	0.0862	0.1447	0.2274	0.2601
Size	179	10.5951	9.2340	10.6524	12.3265	1.8948	208	11.0834	9.7186	11.1350	12.7254	1.8774

Panel C: Loan loss allowance analyses

| | Before Mandatory IFRS Adoption | | | | | | After Mandatory IFRS Adoption | | | | |
	N	mean	p25	p50	p75	sd	N	mean	p25	p50	p75	sd
LLA	297	0.0239	0.0122	0.0196	0.0332	0.0165	307	0.0211	0.0082	0.0171	0.0272	0.0192
NPL	297	0.0314	0.0098	0.0212	0.0451	0.0298	307	0.0345	0.0100	0.0241	0.0464	0.0368
GCO	297	0.0042	0.0014	0.0030	0.0059	0.0039	307	0.0040	0.0008	0.0022	0.0048	0.0066
Loans	297	0.6118	0.5449	0.6240	0.7150	0.1490	307	0.6520	0.5782	0.6746	0.7702	0.1682
Size	297	10.8555	9.6575	10.8840	12.4308	1.8475	307	11.0616	9.7543	11.1205	12.6940	1.9330

Variable definitions: LLP, current year's loan loss provision (flow variable); ΔNPL, change in non-performing loans; GCO, gross charge-offs; ΔLoans, change in loans; LLP_Gross, the "Gross additions" component of LLP; LLP_reversal, the "Reversal" component of LLP; LLA, loan loss allowance (stock variable); NPL, non-performing loans; *Loans*, loans scaled by total assets; Size is the natural logarithm of total assets. All variables except for Loans and Size are scaled by the ending balance of loans.

TABLE 3

Comparability of loan loss provisions

Panel A: Loan loss provisions

	Pre-IFRS		Post-IFRS		Pre-IFRS		Post-IFRS	
	(1) LLP	(2) LLP	(3) LLP	(4) LLP	(5) LLP	(6) LLP	(7) LLP	(8) LLP
ΔNPL	0.31***	0.30***	0.20***	0.19***	0.30***	0.30***	0.24**	0.23**
	(5.9)	(5.2)	(4.8)	(4.7)	(5.2)	(4.9)	(2.5)	(2.3)
AVEGCO	0.84***	0.77***	0.48***	0.35***	0.74***	0.69***	0.38**	0.3
	(11.3)	(9.1)	(5.2)	(3.1)	(6.6)	(6.3)	(2.3)	(1.4)
F_GCO					0.11	0.095	0.29***	0.27***
					(1.1)	(0.9)	(3.3)	(3.2)
Size	-0.001***	-0.001***	0.000	-0.000	-0.001***	-0.001***	0.000	0.000
	(-6.3)	(-3.8)	(0.4)	(-0.02)	(-6.4)	(-3.6)	(0.7)	(0.3)
ΔLoans	-0.001	-0.001	-0.004***	-0.005***	-0.001	-0.001	-0.004	-0.004*
	(-1.0)	(-1.2)	(-3.3)	(-3.7)	(-0.7)	(-0.9)	(-1.6)	(-1.8)
Country dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	215	215	296	296	212	212	215	215
Adjusted R2	0.70	0.72	0.40	0.43	0.71	0.72	0.47	0.47
Incremental Adj. R^2 Country	0.02		0.03		0.01		0.00	
Diff-in-Diff Adj. R^2	0.01				-0.01			

Panel B: Gross loan loss provisions

	Pre-IFRS		Post-IFRS		Pre-IFRS		Post-IFRS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LLP_gross	LLP_gross	LLP_gross	LLP_gross	LLP_gross	LLP_gross	LLP_gross	LLP_gross
ΔNPL	0.30***	0.30***	0.13*	0.12	0.27***	0.28***	0.31*	0.32*
	(5.5)	(5.0)	(1.7)	(1.6)	(4.2)	(4.3)	(2.0)	(1.9)
AVEGCO	1.02***	0.87***	0.73***	0.59***	0.82***	0.73***	0.90***	0.95***
	(8.4)	(7.6)	(4.2)	(3.1)	(5.1)	(5.5)	(4.4)	(3.4)
F_GCO					0.19	0.15	0.25**	0.25**
					(1.2)	(1.3)	(2.2)	(2.1)
Size	-0.001***	-0.001***	-0.001**	-0.001***	-0.001***	-0.001***	-0.000	-0.000
	(-3.8)	(-3.6)	(-2.5)	(-2.6)	(-4.4)	(-3.6)	(-1.5)	(-1.4)
ΔLoans	-0.002	-0.003**	-0.004*	-0.004**	-0.003	-0.003**	-0.006*	-0.007*
	(-1.4)	(-2.3)	(-1.9)	(-2.3)	(-1.6)	(-2.3)	(-1.8)	(-2.0)
Country dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	154	154	203	203	151	151	140	140
Adjusted R2	0.60	0.72	0.31	0.33	0.61	0.72	0.61	0.60
Incremental Adj. R^2 Country	0.12		0.02		0.11		-0.01	
Diff-in-Diff Adj. R^2	**-0.10***				**-0.12***			

Notes: F_GCO is forward GCO (i.e., GCO_{t+1}). All other variables are defined in Table 2. ***, **, * significant at the 1%, 5% and 10% level, respectively.

TABLE 4

Comparability of loan loss allowances

	Pre-IFRS		Post-IFRS		Pre-IFRS		Post-IFRS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LLA	LLA	LLA	LLA	LLA	LLA	LLA	LLA
NPL	0.34***	0.47***	0.37***	0.39***	0.31***	0.46***	0.39***	0.44***
	(12.0)	(8.9)	(7.5)	(6.1)	(8.0)	(9.6)	(9.2)	(8.0)
AVEGCO	1.07***	0.43	1.08***	0.95***	0.82**	0.34	0.66***	0.52***
	(3.4)	(1.5)	(5.2)	(4.6)	(2.2)	(1.0)	(4.2)	(3.3)
F_GCO					0.37	0.039	0.77***	0.72***
					(1.5)	(0.1)	(4.7)	(4.1)
Size	-0.002***	-0.001**	-0.000	0.000	-0.002***	-0.001**	-0.000	0.000
	(-3.3)	(-2.0)	(-0.4)	(0.2)	(-3.5)	(-1.7)	(-1.1)	(0.3)
Loans	-0.017**	-0.013***	0.003	-0.002	-0.018**	-0.013***	0.003	-0.003
	(-2.6)	(-3.5)	(0.8)	(-0.7)	(-2.6)	(-3.5)	(0.9)	(-1.2)
Country dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	219	219	299	299	216	216	218	218
Adjusted R2	0.60	0.80	0.74	0.79	0.60	0.80	0.84	0.90
Incremental Adj. R^2 Country	0.20		0.05		0.20		0.06	
Diff-in-Diff Adj. R^2	**-0.15***				**-0.14***			

Notes: AVEGCO, the average of GCOt and GCOt-1. F_GCO is forward GCO (i.e., GCO_{t+1}). All other variables are defined in Table 2. ***, **, * significant at the 1%, 5% and 10% level, respectively.

TABLE 5

The impact of supervisory intervention on the loan loss allowance

	Pre-IFRS		Post-IFRS			
	(1)	(2)	(3)	(4)	(5)	(6)
	LLA	LLA	LLA	LLA	Difference Post-Pre (4) - (2)	Difference Dynamic vs. FVA
NPL	0.31***	0.47***	0.39***	0.46***		
	(5.4)	(9.3)	(7.9)	(9.2)		
AVEGCO	0.82	0.17	0.66***	0.56***		
	(1.5)	(0.4)	(4.2)	(3.0)		
F_GCO	0.37	0.080	0.77***	0.69***		
	(1.3)	(0.3)	(4.0)	(3.4)		
Size	-0.002**	-0.000	-0.000	0.000		
	(-2.1)	(-0.4)	(-0.7)	(0.1)		
Loans_ta	-0.018	-0.023***	0.003	-0.007		
	(-1.7)	(-2.8)	(0.5)	(-1.6)		
Dynamic		0.017***		0.012***	-0.0051**	-0.0122**
		(8.1)		(6.5)		
FVA		0.023***		0.0057*	-0.0173***	
		(3.8)		(1.7)		
Constant	0.041***	0.021*	0.005	0.004	-0.0173*	
	(2.7)	(1.9)	(0.8)	(0.8)		
Observations	216	216	218	218		
Adjusted R^2	0.60	0.76	0.84	0.87		

Notes: FVA, takes the value of one for bank observations from Denmark, and zero otherwise; Dynamic, takes the value of one for bank observations from Portugal and Spain, and zero otherwise. All other variables are defined in Table 2. Standard errors are clustered at the bank level. ***, **, * significant at the 1%, 5% and 10% level, respectively.

TABLE 6

Comparability of loan loss allowances by different pre-IFRS provisioning practices

Panel A: Descriptive statistics of loan loss allowances in the transition year

Country	N	LLA Local GAAP mean	LLA Local GAAP p50	LLA IFRS mean	LLA IFRS p50	% change LLA mean	% change LLA p50	% Increase	% Decrease	% Zero change
Belgium	3	0.0124	0.0075	0.0156	0.0106	32.1%	37.8%	100.0%	0.0%	0.0%
Denmark	7	0.0346	0.0356	0.0311	0.0340	-12.7%	-11.7%	0.0%	100.0%	0.0%
Finland	1	0.0031	0.0031	0.0028	0.0028	-11.5%	-11.5%	0.0%	100.0%	0.0%
France	8	0.0437	0.0386	0.0467	0.0400	6.1%	4.9%	100.0%	0.0%	0.0%
Greece	7	0.0377	0.0354	0.0556	0.0374	38.2%	22.0%	85.7%	14.3%	0.0%
Ireland	4	0.0069	0.0068	0.0055	0.0051	-22.2%	-18.6%	0.0%	75.0%	25.0%
Italy	22	0.0338	0.0238	0.0299	0.0257	-13.9%	-14.5%	18.2%	81.8%	0.0%
Netherlands	6	0.0104	0.0098	0.0100	0.0098	-2.5%	-1.9%	40.0%	43.3%	16.7%
Portugal	4	0.0359	0.0290	0.0352	0.0306	1.4%	4.2%	75.0%	25.0%	0.0%
Spain	8	0.0212	0.0207	0.0207	0.0209	-2.5%	-0.1%	50.0%	50.0%	0.0%
Sweden	4	0.0046	0.0039	0.0046	0.0040	-0.2%	0.0%	50.0%	0.0%	50.0%
United Kingdom	10	0.0204	0.0096	0.0435	0.0102	28.9%	-1.1%	40.0%	60.0%	0.0%
Total	84	0.0270	0.0233	0.0301	0.0226	2.1%	-1.2%	43.8%	51.5%	4.8%

Panel B: Comparability of loan loss allowances by different transition effect clusters

	Small transition effects				*Large transition effects*			
	Pre-IFRS		**Post-IFRS**		**Pre-IFRS**		**Post-IFRS**	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	LLA	LLA	LLA	LLA	LLA	LLA	LLA	LLA
NPL	0.40***	0.70***	0.46***	0.47***	0.36***	0.38***	0.40***	0.40***
	(9.6)	(11.1)	(15.4)	(5.8)	(6.0)	(6.3)	(5.5)	(4.8)
AVEGCO	0.27	-0.42	1.60***	1.01**	0.53	-0.02	0.80***	0.62***
	(0.7)	(-1.6)	(3.9)	(2.7)	(-0.8)	(-0.0)	(3.8)	(2.8)
F_GCO	0.41	0.35	-0.63*	-0.23	0.24	0.19	0.87***	0.86***
	(1.2)	(1.2)	(-1.7)	(-0.9)	(0.8)	(0.7)	(3.5)	(3.4)
Size	-0.004***	-0.002**	-0.001*	-0.001*	-0.002	-0.000	-0.000	0.000
	(-8.4)	(-2.3)	(-1.9)	(-1.9)	(-1.6)	(-0.4)	(-0.3)	-0.7
Loans	-0.041***	-0.012**	-0.007	-0.010*	-0.031***	-0.012*	-0.006	0.002
	(-5.3)	(-2.4)	(-1.1)	(-2.0)	(-3.5)	(-1.8)	(-1.0)	-0.3
Country dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	89	89	78	78	96	96	106	106
Adjusted R-squared	0.76	0.92	0.82	0.94	0.66	0.78	0.88	0.9
Incremental Adj. R2 Country	0.16		0.12		0.12		0.02	
Diff-in-Diff Adj. R2			-0.04***				-0.10***	

Notes: Panel A presents the differences in loan loss allowance numbers (scaled by loans) reported under local GAAP versus IFRS in the transition year. Panel B replicates the analysis of Table 4 for sample partitions based on transition effects. The *Small transition effects* (*Large transition effects*) subsample includes banks with an absolute change in the loan loss allowance of less (more) than 6 percent in the transition year.

TABLE 7

Predictive ability of the loan loss allowances

	Pre-IFRS		Post-IFRS		
	(1)	(2)	(3)	(4)	(5)
	F_AVEGCO	F_AVEGCO	F_AVEGCO	F_AVEGCO	Difference in coefficients (4) - (2)
LLA	0.16***	0.15***	0.28***	0.28***	0.12**
	(6.6)	(5.5)	(3.6)	(3.6)	
LLA_Dynamic		0.16***		0.24	0.07
		(3.1)		(1.2)	
LLA_FVA		-0.00		0.00	0.00
		(-1.1)		(0.9)	
Size	0.00	0.00	0.00	0.00	
	(0.6)	(0.7)	(0.6)	(0.3)	
Dynamic		-0.004***		-0.006**	
		(-2.9)		(-1.6)	
FVA		0.00		-0.00	
		(0.3)		(-1.4)	
Constant	-0.00	-0.00	-0.00	-0.00	
	(-0.4)	(-0.4)	(-1.2)	(-0.7)	
Observations	303	303	230	230	
Adjusted R^2	0.40	0.41	0.50	0.50	

Notes: F_AVEGCO, the average of GCO_{t+1} and GCO_{t+2}. All other variables are defined in Table 2. Standard errors are clustered at the bank level. ***, **, * significant at the 1%, 5% and 10% level, respectively.