The Implementation of the IFRS 9 in Banking Industry

Jean-François Casta, Christophe Lejard, Eric Paget-Blanc

THE IMPLEMENTATION OF THE IFRS 9 IN BANKING INDUSTRY

December 2018

Jean-François CASTA
Université Paris Dauphine PSL

Christophe LEJARD
Université Perpignan Via Domitia

Eric PAGET-BLANC
Université d'Évry-Val-d'Essonne

Abstract: This study addresses a first post-implementation review of the IFRS 9. Precisely, I focus on short-term effects generated by the standard, i.e. a decline of retained earnings and other equity reserves mainly due to the implementation of the expected losses-based provisioning model, and how did banks accommodate their accounting policy to mitigate those unfavorable effects. By using a sample of 56 EU publicly listed banks, I found banks have incentive to decrease (increase) their level of discretionary loan loss provisions when unfavorable impact on retained earnings is higher (lower), supporting the income smoothing hypothesis. In addition, obtained results do not verify the capital management hypothesis.

Keywords: IFRS 9; banks; income smoothing; capital management; expected credit losses.

1. Introduction

On the aftermath of the 2007-2009's financial crisis, the IAS 39 – *Financial Instruments: Recognition and Measurement* has been widely criticized regarding its complexity and the opacity generated in financial statements comparison, due to multiple exceptions and derogations. Regarding those critics, the delayed recognition of credit losses and the classification of financial assets according their nature are among the most common. In response, the International Accounting Standards Board superseded the IAS 39 by the IFRS 9 – *Financial Instruments* on 24th July 2014.

Implemented in financial statements from the 1st January 2018, the IFRS 9 aims to remedy to the IAS 39 weaknesses by 1) classifying financial instruments according their business model, 2) recognizing loan loss provisions on an expected-losses basis and, 3) aligning the hedge accounting treatment with risk management activities. While the revision of financial instruments classification and hedge accounting have generated relatively few meaningful discussions during the IFRS 9 drafting, the development of the expected credit-losses model prompted many reactions from debate participants. The ambition of this new provisioning model is to improve the timeliness of losses recognition by anticipating future losses, and thus avoid abrupt income depletion as under IAS 39's incurred losses model as suffered during the financial crisis. Although participants agreed with the necessity to reflect credit risk timely, the technical implementation of expected-losses model has been extensively debated. Basically, the International Accounting Standards Board (IASB) suggested that an evaluation based on future cash-flows would be an appropriate method to assess expected losses. In response, financial statement preparers voiced their questions regarding the technical complexity and the related costs to the implementation of such model. Notably, the European Financial Reporting Advisory Group, after conducting a survey of European Union preparers, suggested to the IASB to simplify its approach. Given this situation, the IASB appointed an Expert Advisory Panel (EAP) to assess the feasibility of the future cash-flows based model. This EAP finally concluded the evaluation of expected-losses based on future cash-flows would lead banks to costly overhaul of information systems beyond the accounting framework. Thus, after a two-year reflection period, the IASB issued an exposure-draft suggesting an approach of expected credit-losses based on the previous losses, the current situation, and reasonable forecasting regarding credit-losses. This, now consensual approach considers three stages – also called the three "buckets" – and addresses a gradually recognition of credit-losses: 1) the first bucket includes financial asset at their initial

recognition and shall be provisioned for an amount reflecting the 12 month expected credit losses, 2) the second bucket includes the financial assets for which the credit risk has increased significantly since their initial recognition and shall be provisioned for an amount reflecting the lifetime expected credit losses and, 3) the third bucket includes defaulted assets for which a provision based on incurred credit losses shall be made.

Thus, this paper addresses a post-implementation review, by focusing on the short-term effects of this newly implemented expected losses-based model on banks financial reporting. Actually, the expected losses recognition on existing performing assets would necessarily decrease bank earnings on the first time adoption of the IFRS 9. As noted by O'Hanlon, Hashim and Li (2015) this immediate reduction of the carrying amount would give rise to "day-one losses"; performing financial asset being exempted from depletion hitherto. In addition, the impact of expected-losses is also expected to be effective on regulatory capital ratio. In that sense, Novotny-Farkas (2016) mentions banks are allowed to include general loan loss provisions for regulatory capital calculation. Focusing on banks using the standard approach for capital ratio calculation, whether expected losses recognized on the first and second bucket met the general loan loss provisions criterions – which would likely to be – this could favorably impact the Tier 2 component of regulatory capital as a part of it.

Those observations rise the problematic regarding how banks would accommodate their accounting policy to face those short-term effects due to the first time application of the IFRS 9. Precisely, two research questions are addressed. For earnings smoothing purposes, would banks have incentive to increase (decrease) their level of loan loss provisions to face the IFRS 9 implementation day-one losses (earnings)? And, in a capital management perspective, would banks have incentive to increase (decrease) their level of loan loss provisions to face potential decrease (increase) of their equity capital?

In order to provide answers to these questions, this paper consists in analyzing half-year financial reports of 56 publicly listed European Union banks over a period starting on the second half 2011 and ending on the first half 2018. The method used comprises two stages. The first stage assesses the discretionary level of banks loan loss provisions on the first half 2018 by conducting an ordinary least square estimation of loan loss provisions over 2012-2016. Precisely, I use coefficients obtained from the estimation to determine what would be the standard level of loan loss provisions on the first half 2018 and differentiate with collected loan loss provisions to obtain the discretionary component. The second stage regards an ordinary least squares estimation of previously assessed discretionary loan loss provisions by the quantified impact of IFRS 9 on retained earnings and other equity reserves, as mentioned

in banks statement of change of equity on the first half 2018. Robustness tests consisting in the use of an alternative method to the ordinary least squares estimation and in a falsification test using second half 2017 data complete this analyze.

Supporting the income smoothing hypothesis, results and robustness tests show banks effectively increase (decrease) their level of discretionary provisions when retained earnings day-one losses are lower (higher). Regarding the capital management hypothesis, results denote an inverse association with other reserves day-one losses but are not verified by robustness tests.

The remainder of this paper is presented as follows: the second section presents the institutional background surrounding the IFRS 9; the third section addresses the prior researches and set the hypothesis; the fourth section regards the method employed; obtained results and robustness are detailed in fifth and the sixth sections, respectively. The last section concludes.

2. Institutional background

2.1. Description of the IFRS 9

Financial instruments classification

The IFRS 9 presents substantial changes compared to IAS 39. Comparing the financial assets classification and measurement, IAS 39 required classification according the nature of the asset; classification according which depends on its measure. In accordance with the last version of IAS 39 issued on 13th October 2008, unless the bank voluntarily opts for the assessment at fair value through profit and loss, financial assets could be classified:

1) As trading asset, and thus be measured at fair value through profit and loss (FVTPL);
2) As available-for-sale asset, and be measured at fair value through other comprehensive income (FVTOCI);
3) As loans and receivables, for which a measure at amortized cost is required, and;
4) As held-to-maturity asset, also measured at amortized cost.

IFRS 9 now amends the IAS 39 classification by requiring measures of financial assets based on the business model of the entity, and no longer on the asset nature. Consequently, under IFRS 9 financial asset for which the objective is achieved:

1) By selling, shall be designed at FVTPL;
2) By collecting cash-flows and selling, shall be designed at FVTOCI, and;

3) By collecting cash-flows only, shall be designed at amortized cost.

Likewise, the FVTPL option remains possible in order to reduce a potential accounting mismatch.

In addition, IFRS 9 requires financial instruments shall present additional cash-flow characteristics to be designed at amortized cost or FVTOCI. The cash-flow characteristics test implies contractual terms of the financial asset give rise on specifies dates to cash flows that are solely payments of principal and interest (SPPI) on the principal amount outstanding. Precisely, interests shall only consider the time value of money, the credit risk associated with the principal amount outstanding during a particular period of time and other basic lending risks and costs, as well as a profit margin. Basically, financial instruments for which contractual terms introduce exposure to risks or volatility in the contractual cash flows that is unrelated to a basic lending arrangement are considerate as failing SPPI test and shall be designed at FVTPL.

Recognition of expected credit losses

Regarding the loan loss provisioning, the main weakness addressed to the IAS 39 was the delayed loss recognition due to the incurred losses basis. Indeed, delayed loss recognition plainly affected bank earnings during the financial crisis, as banks recorded at once foreseeable losses. Thus, IFRS 9 presents a major change by requiring to record loan loss provisions on an expected losses basis, which aims to smooth credit losses by a provisioning as soon as the financial asset is recorded on the financial statements. This expected losses-based provisioning applied for assets measured at amortized cost or at FVTOCI and process according three following steps (also called the three "buckets"):

1) At initial recognition, the entity shall measure the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses;
2) The entity shall measure the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly since initial recognition.
3) For incurred credit loss, the entity shall measure the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses, and shall calculate the interest revenue based on the gross carrying amount adjusted for the loss allowance.

Expected losses described in 1) and 2) above are assessed on a historical basis related to previous banks loans losses, and refer to general (portfolio-based) provisions. Credit losses

mentioned in 3) above represent individually assessed provisions related to incurred losses, similarly than in IAS 39.

2.2. The expected effects of IFRS 9 on banks' capital

Impact of business model reclassifications

As mentioned above, IFRS 9 requires banks classify and assess their financial assets according their business model. This change from IAS 39 to IFRS 9 classification implies potential differences in recognition of financial asset. Regarding IAS 39 loans and receivables category for which assets are assessed at their amortized cost, whether such assets do not meet a hold-to-collect business model they shall be assessed at FVTPL (when meeting hold-to-sell business model) or FVTOCI (when meeting hold to collect-and-sell model) under IFRS 9. In addition, an asset which fails to meet SPPI requirement is necessarily assessed at FVTPL. Thus, new recognition at fair value directly impacts, favorably or not, the banks 1) retained earnings when loans and receivables are reclassified at FVTPL or fail at SPPI test and, 2) other reserves when reclassified at FVTOCI. That is especially true when the amount assessed at fair value differs greatly from the amortized cost value.

Assets recognized in other IAS 39 categories – as held to maturity, available for sale and trading – are expected to be subject to minor changes in their value reassessment. This expectation is justified by the fact that those categories suggest assets included in are relatively closer than the business model they are assigned. For example, IAS 39's held-to-maturity assets – assessed at amortized cost – should be IFRS 9's hold-to-collect assets. Similarly, IAS 39's trading assets should meet IFRS 9's hold-to-sell category. As well, IAS 39's available for sale category suggests similarities with IFRS 9 hold to collect-and-sell category.

Finally, it appears relatively difficult to evaluate the potential impact on shareholder's equity induced by assets reclassifications. Multiple scenarios may be raised and this issue shall be considered as bank-specific.

Impact of expected-losses-based provisions

While IAS 39 required provisioning on an incurred-losses basis, i.e. impaired provisions assessed on an individually basis, IFRS 9 now implements provision based on expected losses. Basically, provision on an expected losses basis implies banks allocate general loss allowance to financial assets at their initial recognition – that are assumed to be

performing assets – based on their 12-month expected credit losses. Whether credit risk increase significantly, this general loss allowance shall be raised in order to reflect the lifetime expected credit losses. When credit losses incurred, a loss provision shall be recorded on an individual basis. Consequently, now provisioning performing assets (or non-loss incurred assets) in addition to those for which incurred loss has been recorded would mechanically impact the net income unfavorably (the so-called Day-one losses). Thus, the transition to IFRS 9 implies banks assess their financial assets in accordance with expected-losses model on the 1er January 2018, leading to unfavorable impact on retained earnings.

Another expected impact of expected-losses model regards the banks Basle's capital adequacy ratio (CAR). Basically, the CAR is computed as the bank regulatory equity by risk-weighted assets (RWA). Regulatory equity consists in the sum of 1) Tier 1 capital related to common stock plus retained earnings (the core Tier 1) and additional Tier 1 capital (generally preferred shares and minority interests), and 2) Tier 2 capital mainly related to other reserves and general provision allowances. Thus, the numerator of CAR is Tier 1 plus Tier 2. The denominator refers to RWA which are the total of assets, net of individually assessed credit risk allowances, weighted by credit risk factors ranging from 0 to 1,250 percent. Assuming than individually assessed allowances (related to incurred-credit risk) do not differ significantly from IAS 39 to IFRS 9, the reinstatement of general provisions (related to expected-credit risk) as capital surplus in Tier 2 (with limit equal to 1.25 percent of RWA) could be relatively benefit to banks[1].

3. Prior literature and hypotheses

3.1. The existing literature

The empirical literature regarding the IFRS 9 is just nascent due to its recent implementation. At the time of writing this paper, no empirical study related to financial reporting has been realized yet, and this study aims to provide a first approach on how banks use their discretion to face Day-one expected losses. Unlike, the literature addressing banks discretionary use of loan loss provisions (LLP) or loan loss allowance (LLA) – the mains bank accruals – is abundant and identifies four primary incentives from bank managers to

[1] For further explanations and example, we refer to Deloitte (2016) *A Drain on Resources? The Impact of IFRS 9 on Banking Sector Regulatory Capital*. Available at: https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/financial-services/ch-en-fs-impact-of-ifrs-9-on-banking-sector-regulatory-capital.pdf

manage LLP (LLA). Those identified incentives mainly regard signaling, risk taking, income smoothing and capital management (Lobo 2017). As the implementation of the IFRS 9 would impact both banks retained earnings and other reserves as described above, this paper focuses on income smoothing and capital management incentives.

Regarding income smoothing by unexpected level of LLP, the main hypothesis driving prior researches relates a positive association of LLP and earnings before LLP. To test this hypothesis, the ordinary least squares regression of LLP or estimated discretionary LLP, by earnings and other variables constituted the main method used. Thus, the income smoothing hypothesis is supported by numerous studies as Greenawalt and Sinkey (1988), Wahlen (1994), Lobo and Yang (2001), Kanagaretnam, Lobo and Yang (2005), Fonseca and Gonzalez (2008), Bushman and Williams (2012), Kilic, Lobo, Ranasinghe and Sivaramakrishnan (2013). In a same vein, Andries, Gallemore and Jacob (2017) found evidence that banks facing higher tax rate are more willing to increase their LLP. In contrast, Collins, Shackelford and Wahlen (1995) mitigate those findings as bank ability to use LLP for income smoothing depends on intrinsic factors as size, growth and profitability. As well, Ahmed, Takeda and Thomas (1999) found negative association with earnings before LLP.

Capital management incentive is an important topic for research related to banking industry. As described above, general LLP are considered as a part of Tier 2 capital (up to a limit of 1.25 percent of total RWA). Thus, the main hypothesis surrounding capital management researches relates banks have better increase their general LLP to compensate regulatory capital low level. Prior researches essentially focused on US banks regulatory changes, which previously permitted to include loan loss allowance in primary capital without limit prior to 1990 (Ryan 2011). As mentioned in Lobo (2017), several studies regarding pre-1990 changes supported the capital management hypothesis. Regarding post-1990 regulatory changes, Kim and Kross (1998) show banks use LLP to manage capital in a lesser extent, better increasing charge-offs. In addition, Ahmed et al. (1999) and Lobo and Yang (2001) support capital management hypothesis post-1990, the former prividing evidence that banks with higher level of LLA have weaker incentives to manage capital by LLP.

3.2. Hypotheses setting

In prior sections of this paper, I discuss the potential effects of the implementation of IFRS 9 and consequences on financial reporting. Notably, I discuss how the IFRS 9 classification and expected-loss provisions should affect retained earnings and other reserves.

Regarding retained earnings, I expect more unfavorable impact mainly due to the implementation of the expected-loss provisions on existing financial assets, the day-one losses. According prior literature, most studies denotes banks use of their discretionary power on LLP to smooth earnings. Thus, I expect banks decrease (increase) their level of LLP when day-one losses reported in retained earnings are higher (lower). Formally, my first hypothesis is as follow:

H1: I predict a negative association between LLP as reported on 30th June 2018 and day-one losses reported in retained earnings as on 1st January 2018.

In addition, previous discussion denotes the IFRS 9 could impact other equity reserves, mainly when related to the other comprehensive income. This expected impact better addresses the reclassification of financial assets at FVTOCI for which no overall effects on banking industry could be assessed as depending on bank business model and assets. In any event, literature showed banks have interest in increasing their level of general LLP for capital management purpose in respect of regulatory limitations. Thus, I expect banks increase (decrease) their level of LLP when day-one losses reported in OCI and other equity reserves are higher (lower). Stated in an alternate form, my second hypothesis is as follow:

H2: I predict a positive association between LLP as reported on 30th June 2018 and day-one losses reported in OCI and other equity reserves as on 1st January 2018.

4. Research design, sample and descriptive statistics

4.1. Methodology

To examine whether banks decrease (increase) their level of loan loss provisions according to their IFRS 9 Day-one losses (gains), I base my approach on two distinct research designs. First, I estimate banks discretionary loan losses provisions (DLLP) on the first half 2018 using ordinary least squares (OLS) regression. Precisely, I estimate the standard level of loan loss provisions by the association of multiple independent primarily related from prior literature, over a period ranging from the first half 2012 to the second half 2016. Second, obtained DLLP are estimated by OLS regression where Day-one losses (gains), as reported separately in retained earnings and in other reserves on the 1st January 2018, are set as the

main independent variables. Furtherly, obtained results from second research design are tested for robustness by tests consisting first in alternate method to OLS regression and then, in data falsification test.

All data have been collected manually from banks financial reporting on a half-year basis. Although the majority of prior studies address a quarter or year basis, this choice is driven by discrepancies existing between banks in terms of financial reports publication periods. Indeed, most of banks publish "earnings reports" quarterly, but only a few discloses complete financial information on these reports. In contradiction, the publication of audited half-year financial reports is mandatory and, consequently, this ensures to disclose a sufficient level of detailed financial information.

Thus, the first stage of my analyze addresses the estimation of discretionary loan losses provisions (DLLP). Based on findings from prior studies, my estimating model presented in Equation (1) is set as follows:

$$\begin{aligned} LLP_h = \ & \beta_0 + \beta_1 OpInc_h + \beta_2 TaxRate_h + \beta_3 Loans_{h-1} + \beta_4 \Delta Loans_{h,h-1} \\ & + \beta_5 Impaired_{h-1} + \beta_6 \Delta Impaired_{h,h-1} + \beta_7 CapRatio_{h-1} \\ & + \beta_8 Equity_{h-1} + \beta_9 Size_h + \beta_{10} HY_h + \varepsilon \end{aligned} \quad (1)$$

LLP is the dependent variable representing the amount of loan loss provisions reported on the half-year *h*, and scaled by total gross loans reported on half-year *h*–1. *OpInc* and *TaxRate* are the income smoothing and tax management hypotheses proxies. *OpInc* relates the operational income, i.e. the net income before tax and loan loss provisions, as reported on the half-year *h* and scaled by total assets on *h*–1. *TaxRate* is the top statutory corporate income tax rate effective in each EU countries. As noted by Andries et al. (2017), LLP are generally tax deductible and in consequence, banks with higher operational income should be more willing to lower their level of LLP to monitor tax expenses. In addition, a higher local income tax rate may increase the incentive from banks to minimize their pretax income. Thus, considering the income smoothing hypothesis, I predict a positive sign of β_1 and β_2.

Regarding the credit risk management hypothesis, *Loans* and *ΔLoans* both refer to the banks' lending activity. *Loans* is computed as total gross loans at *h*–1 scaled by total assets and *ΔLoans* denotes the total gross loans variation from *h*–1 to *h*, scaled by total gross loans at *h*–1. For both variables, I expect a positive sign of β_3 and β_4 as banks having higher lending activity and/or experiencing positive changes in lending activity present higher potential credit risk and higher probability to increase their LLP. Focusing on the incurred credit risk,

Impaired denotes the total of gross loans mentioned as being impaired, accruing or not, in banks financial reports; scaled by total gross loans. In prior literature, impaired loans are among the most used proxies to explain banks level of LLP. Obviously, a bank presenting a higher level of impaired loans is more likely to provision and a positive sign of β_5 is expected. Similarly, *ΔImpaired* denotes the change in impaired loans from *h–1* to *h* scaled by impaired loans at *h–1*. For similar reason than for *Impaired*, a positive sign of β_6 is expected.

As developed in prior literature, capital management also constitutes a motivation for bank managers to increase loan loss reserve (LLR), as LLR are part of regulatory capital. In consequence, banks presenting lower capital adequacy ratio should present higher level of LLP. Thus, I aim to capture capital management incentives by *CapRatio*, the total Basel's capital adequacy ratio at *h*–1, for which a negative sign of β_7 is predicted.

Finally, three commonly used control variables are added to the estimating model. *Equity* is the total shareholders' equity by total assets and denotes the banks financial leverage. As LLP would reduce shareholders income, I predict a positive sign of β_8. *Size* is computed by the natural logarithm of total assets and *HY* is dummy variable noted one for first half-year and zero otherwise, accounting for banks seasonality. No sign expectations are made for β_9 and β_{10}.

The second stage aims to analyze the existing association between DLLP as estimated in Equation (1), and Day-one losses (gains). This association is estimated by model presented in Equation (2) below:

$$DLLP_h = \beta_0 + \beta_1 RetEarn_h + \beta_2 OCI\&Other_h + \beta_3 NetComFee_h + \beta_4 OperExp_h + \varepsilon \quad (2)$$

DLLP denotes the discretionary loan loss provisions on the first half 2018, as estimated in Equation (1). I particularly focus on *RetEarn* which is the most important variable of this model. *RetEarn* presents the Day-one losses (gains) reported on retained earnings on January 1st 2018, obtained on the banks statement of changes in shareholders' equity. Actually, this variable relates both the losses (gains) directly allocated to the net income, due to the first application of the expected losses model and the business model-based classification of financial instruments. A lower value of *RetEarn* relates a higher negative impact of the first implementation of the IFRS 9 on retained earnings. Consequently, a positive sign of β_1 is expected.

In a similar vein, *OCI&Other* addresses the Day-one losses (gains) allocated to the other comprehensive income and/or other reserves, as reported in the statement of changes in

shareholders' equity on January 1st 2018. Following the capital management hypothesis developed in the literature, banks benefit in allocating provisions as a part of equity capital. Then, as other comprehensive income and other reserves generally do not constitute distributable profit, banks may have no interest in decreasing their level of LLP. Thus, I predict a negative sign of β_2.

In addition, *NetComFee* and *OperExp* are two control variables relating the banks net commissions and fees income and operating expenses, respectively. Actually, banks may consider non-discretionary alternatives instead DLLP to compensate day-one losses. First, banks should increase their commissions and fees albeit at the expenses of their competitiveness facing concurrent banks. Nevertheless, the commissions and fees income increase could constitute an economic response to face day-one losses, especially for banks facing higher losses. Thus, a positive sign of β_3 is expected. Similarly, the decrease of operating expenses – which generally relate administrative expenses, compensations and amortizations – should be a more or less convenient mean to compensate incurred day-one losses, and I predict a negative sign of β_4.

4.2. Selected sample and descriptive statistics

My sample consists in 56 European Union (EU) publicly listed banks representing 18 EU countries, and for which all data have been collected manually from half-year financial reports and regard a period starting on the second half 2011 and ending on the first half 2018. The first filter regarding this sample relates the listing of banks shares, in order to ensure a convergence of interests among incentives regarding income smoothing. Thus, my primary sample related 68 banks. The second filter consists in data availability, especially regarding sufficient information regarding impaired loans. Therefore, 11 banks have been eliminated from the sample as half-year impaired loans amount were not disclosed. Finally, I removed one bank for which financial year does not coincide with calendar year, reducing the final sample at 56 banks.

My final sample consists in 560 half-year observations for Equation (1) and 56 for Equation (2). All data are expressed in percentage except *HY*, the seasonality dummy variable and *Size*, the natural logarithm of total assets. Descriptive statistics of Equations (1) and (2) are exhibited in table 1 below.

TABLE 1
Descriptive statistics of variables in Equation (1) and Equation (2)

Panel A: Descriptive statistics of data in Equation (1) (N = 560)

	Mean	Std. Dev.	Min.	25%	Med.	75%	Max.
LLP_h	0.5253	0.7075	–0.7128	0.1367	0.3310	0.6540	7.2837
$OpInc_h$	0.5245	0.5490	–3.7632	0.2456	0.4568	0.7158	5.6924
$TaxRate_h$	24.6039	5.2615	12.5000	22.0000	25.0000	27.5000	33.3300
$Loans_{h-1}$	55.8240	15.6032	17.2456	46.6808	59.2439	67.6584	81.5027
$\Delta Loans_{h,h-1}$	0.2402	9.5484	–24.9464	–3.2468	–0.6798	2.5899	161.8823
$Impaired_{h-1}$	9.2177	8.3612	0.3040	3.6530	6.5734	11.8908	42.5561
$\Delta impaired_{h,h-1}$	1.7521	22.5931	–62.3341	–7.0273	–1.0324	5.8363	277.6709
$CapRatio_{h-1}$	12.5677	6.2489	–5.0900	10.5060	14.0000	16.0075	34.3000
$Equity_{h-1}$	6.7813	3.1285	–4.8990	4.7043	6.3476	7.7880	16.9883
$Size_h$	11.9762	1.6033	8.1831	10.5493	12.1038	13.3752	14.6696
HY_h	0.5000	0.5004	0	0	0.5000	1	1

Panel B: Descriptive statistics of data in Equation (2) (N = 56)

	Mean	Std. Dev.	Min.	25%	Med.	75%	Max.
$DLLP_h$	0.1221	0.3909	–0.7030	–0.0412	0.1464	0.2813	2.0310
$RetEarn_h$	–2.8875	4.7517	–21.2196	–3.0141	–1.3652	–0.3083	1.9029
$OCI\&Other_h$	–0.3616	8.8564	–40.3634	–1.2451	–0.2143	0.0617	50.3332
$NetComFee_h$	0.4053	0.3047	–0.0022	0.2385	0.3452	0.4975	2.1028
$OpExp_h$	0.7963	0.3012	0.1382	0.6024	0.7747	0.9689	1.6758

Panel A exhibits an average level of LLP by lagged gross loans of 0.53 percent with standard deviation of 0.71 percent, suggesting strong differences in provisions' level among banks. A similar point is made for operating income suggesting banks experienced mixed fortunes during the sample period. In opposition, balance sheet data appear more reliable as all variables present standard deviations below mean values, with exception for variation-related data.

Data in Panel B show banks experienced on average, Day-one losses amounting to 2.89 percent for retained earnings and 0.36 percent for OCI and other reserves; both variables being scaled by total lagged shareholders' equity. Meanwhile, discretionary loan loss provisions scaled by lagged gross loans present a positive amount of 0.12 percent. Nevertheless, those figures shall be put in perspective as together present strong standard deviations.

5. Results

5.1. Estimation of discretionary loan loss provisions

The banks discretionary loan loss provisions are estimated by ordinary least squares regression over the period starting on the first half 2012 and ending on the second half 2016. I account for cross-sectional and time series dependence by robust standard errors clustered by banks half-years. Results of estimating Equation (1) are exhibited in table 2.

TABLE 2
Estimation of LLP over the period from the 1st half 2012 to the 2nd half 2016

	Dependent variable: LLP_h		
	Coeff.	t-stat.	VIF
Intercept	–0.2506	–0.71	-
$OpInc_h$	0.0259	0.22	1.46
$TaxRate_h$	0.0096	1.28	1.32
$Loans_{h-1}$	0.0024*	1.93	1.52
$\Delta Loans_{h,h-1}$	–0.0076	–1.55	1.22
$Impaired_{h-1}$	0.0419***	9.04	1.27
$\Delta Impaired_{h,h-1}$	0.0098***	4.79	1.18
$CapRatio_{h-1}$	–0.0170***	–2.72	1.35
$Equity_{h-1}$	–0.0155	–1.34	1.60
$Size_h$	0.0308**	2.11	1.89
HY_h	–0.1205***	–2.62	1.03
N			560
Fisher's F			20.16
Adj-R^2			34.06%

Notes: This table reports β-coefficients from ordinary least square regression of Equation (1). Cross-sectional and time-series dependences are controlled by robust model clustered by bank-half years. VIF is the variance inflation factor relating lower correlation of the independent variable as closer to 1. *, ** and *** denote a statistical significance level at 0.1, 0.05 and 0.01, respectively.

First, coefficients obtained from estimating Equation (1) explain 34.06 percent of LLP; an adjusted R-square relatively higher than most estimating models from previous studies. In addition, data do not suffer from severe collinearity as none of variance inflation factors (VIF) exceeds 2, below the commonly admitted value of 3. The highest VIF value is 1.89, related to *Size*.

Regarding tax management-related variables, the signs of *OpInc* and *TaxRate* are both positive as expected, presenting values of 2.59 and 0.96 percent, respectively. However, both coefficients are not statistically significant. Oppositely, most of the coefficients related to

credit risk variables appear significant. Thus, one unit of gross loans at the beginning of the half-year yield to an increase of 0.24 percent (p-value < 0.1) of the amount of LLP, while change in total gross loans is negatively associated and insignificant (p-value = 0.123). This may be explained by the low likelihood of a loan to be subjected to depreciation during the six month following its issuance. Unsurprisingly, *Impaired* and *ΔImpaired* are consistent with expectations. Actually, for one unit of impaired loan at the beginning of the half-year, LLP increase of 4.19 percent (p-value < 0.01). Similarly, LLP increase of 0.98 percent for one unit change of impaired loan (p-value < 0.01).

Concerning capital management incentive hypothesis, results denotes banks consider loan loss allowance as a part of regulatory capital. Actually, *CapRatio* as reported at h–1 presents negative ($\beta = -0.017$) and significant sign (p-value < 0.01), consistent with capital management hypothesis. Finally, control variables for which I did not have sign expectations present various signs. *Equity* is negative and not statistically significant, while *Size* is positive and significant (p-value = 0.05), denoting larger banks present higher level of LLP. *HY*, the dummy variable for seasonality, is negative and significant (p-value < 0.01) and shows banks tend to make more provisions during the second half.

5.2. Association between DLLP and Day-one losses

The association between DLLP and Day-one losses (earnings) is estimated by robust bank-clustered OLS regression on the first half 2018. Version (1) restricts Equation (2) to the two mains variables; version (2) presents the full form of Equation (2). Results from estimating Equation (2) are presented in table 3 below.

TABLE 3
Results of estimating ordinary least squares regression of Equation (2)

	Dependent variable: $DLLP_h$					
	Version (1)			**Version (2)**		
	Coeff.	t-stat.	VIF	Coeff.	t-stat.	VIF
Intercept	–0.0176	–0.31	-	–0.1664	–1.46	-
$RetEarn_h$	0.0335***	3.23	1.00	0.0326***	3.36	1.09
$OCI\&Other_h$	–0.0060***	–11.11	1.00	–0.0042*	–1.80	1.16
$NetComFee_h$				0.8073***	3.15	1.68
$OpExp_h$				–0.2264	–1.12	1.96
N			56			56
Fisher's F			68.81			10.15
Adj-R^2			19.71%			49.28%

Notes: This table reports β-coefficients from ordinary least squares regression of Equation (2). Cross-sectional dependences are controlled by robust model clustered by banks. VIF is the variance inflation factor relating lower correlation of the independent variable as closer to 1. *, ** and *** denote a statistical significance level at 0.1, 0.05 and 0.01, respectively.

Regarding version (1), both *RetEarn* and *OCI&Other* signs are as predicted and statistically significant (p-value < 0.01). Supporting income smoothing hypothesis, one unit of change in Day-one losses (earnings) induces a variation of 3.35 percent of discretionary loan loss provisions. In other words, as Day-one losses are higher as the level of DLLP is smaller. By comparing this result with *RetEarn* means provided in table 1, Panel B, on average banks decrease their level of DLLP by 9.67 percent (0.0335 × –2.8875) to face retained earnings related Day-one losses. Thus, H1 is supported.

Focusing on capital management hypothesis, results show a negative association with *OCI&Other* of 0.60 percent and denote banks have incentive to increase their level of DLLP when Day-one losses allocated to OCI and other reserves are higher. Thus, the capital management hypothesis is supported. Precisely, banks increased on average by 0.22 percent (–0.0060 × –0.3616) their level of DLLP regarding unfavorable Day-one impact on OCI and other reserves. In consequence, H2 is supported.

Results from expended version (2) do not substantially modify previous findings as sign and magnitude of *RetEarn* and *OCI&Other* are closer than in version (1) (amounting to 0.0326 and –0.0042, respectively) still statistically significant. Nevertheless, *NetComFee* presents positive and significant sign (p-value < 0.01) as expected. On average, banks increase their DLLP by 32.72 percent (0.8073 × 0.4053) due to net commission and fee income. This result is not surprising as first, commission and fee constitutes an economic response to compensate Day-one losses, and then income smoothing by increasing LLP is possible only whether banks dispose of sufficient level of earnings. Similarly, *OpExp* is

negative as predicted, albeit insignificant (p-value = 0.269), which may suggest banks may increase their LLP for income smoothing when operating expenses are monitored.

6. Robustness tests

6.1. Estimation of LLP by generalized least squares regression

My first robustness test consists in first, re-estimate the Equation (1) with an alternative method and then, estimate Equation (2) with alternate DLLP (Alt-DLLP) obtained as dependent variable.

Thus, I estimate Equation (1) considering panel data and use feasible generalized least squares (FGLS) regression including half-year and country as fixed effects. This method enables to account for lagged-one autocorrelation across panel and cross-sectional data, and control for potential heteroskedascity across panel. FGLS are considered as an alternative to the robust bank half-year-clustered OLS regression previously used in this paper. Then, Alt-DLLP on first half 2018 are alternately estimated by FGLS coefficients, and serve as dependent variable in the estimation of Equation (2). Whether results reported in the paper are relevant, there should be no substantial differences with the Alt-DLLP version of Equation (2). Results from re-estimation by FGLS regression of Equation (1) and estimation on Equation (2) with Alt-DLLP as dependent variable are exhibited in table 4 and table 5, respectively.

TABLE 4
Estimation of LLP over the period from the 1st half 2012 to the 2nd half 2016 by feasible generalized least squares (FGLS) regression

	Dependent variable: LLP_h	
	Coeff.	z-stat.
Intercept	3.8727***	6.64
$OpInc_h$	–0.1908***	–3.71
$TaxRate_h$	–0.1448***	–5.49
$Loans_{h-1}$	0.0019	0.82
$\Delta Loans_{h,h-1}$	–0.0018	–0.69
$Impaired_{h-1}$	0.0245***	5.02
$\Delta Impaired_{h,h-1}$	0.0065***	5.95
$CapRatio_{h-1}$	–0.0073	–1.05
$Equity_{h-1}$	–0.0351***	–3.11
$Size_h$	0.0127	0.53
HY_h	–0.2143**	–2.27
Half-year as fixed effect: yes		
Country as fixed effect: yes		
N		560
Number of groups		56
Number of periods		10
Wald's Khi-square		574.29
Log Likelihood		–402.69

Notes: This table reports β-coefficients from by feasible generalized least squares (FGLS) regression of Equation (1). *, ** and *** denote a statistical significance level at 0.1, 0.05 and 0.01, respectively.

TABLE 5
Results of estimating ordinary least square regression of Equation (2) with Alt-DLLP estimated by FGLS

	Dependent variable: Alt-$DLLP_h$					
	Version (1)			**Version (2)**		
	Coeff.	t-stat.	VIF	Coeff.	t-stat.	VIF
Intercept	–0.2013***	–4.61	-	–0.0359	–0.19	-
$RetEarn_h$	0.0384***	3.91	1.00	0.0332***	3.32	1.09
$OCI\&Other_h$	–0.0017	–1.16	1.00	–0.0046	–1.26	1.16
$NetComFee_h$				0.4279***	3.25	1.68
$OpExp_h$				–0.4461	–1.33	1.96
N			56			56
Fisher's F			8.24			9.35
Adj-R^2			30.20%			40.82%

Notes: This table reports β-coefficients from ordinary least square regression of Equation (2) with Alt-DLLP estimated by FGLS regression including half-year and country as fixed effects. VIF is the variance inflation factor relating lower correlation of the independent variable as closer to 1. *, ** and *** denote a statistical significance level at 0.1, 0.05 and 0.01, respectively.

Coefficients presented in table 5 are overall closer than those reported in the paper. Regarding income smoothing hypothesis, signs related to *RetEarn* remain positive and

statistically significant (p-value < 0.01) for each version. In addition, the magnitudes of coefficients do not differ significantly than those reported in the paper 3 (0.0335 and 0.0326, for table 3, versions (1) and (2), respectively). This test confirms the validation of H1.

In that concern capital management hypothesis, signs of *OCI&Other* are negative with closer value than previously reported, but loss their statistical significance. Thus, this invalidates reported findings and no longer supports H2. Finally, those results do not enable to conclude to capital management incentive.

6.2. Falsification test

The second robustness test aims to ensure the association between discretionary loan loss provisions and Day-one impact on retained earnings is well due to income smoothing incentive and not related to economic reasons. To do so, I conduct a falsification test which consists in assigning amount of *RetEarn* and *OCI&Other* to bank second half 2017 observations in Equation (2). Actually, I reasonably assume banks known, on the 31st December 2017, the impact of Day-one losses (gains) reported in shareholder's equity on the 1st January 2018. Thus, whether banks really have incentive to smooth their income, *RetEarn* coefficient obtained from falsification test should be insignificant. Results from falsification test are reported in table 6.

TABLE 6
Results of falsification test in estimating ordinary least square regression of Equation (2)

	Dependent variable: $DLLP_h$ ***RetEarn* and *OCI&Other* on 1st Half 2018 are assigned to these variables on 2nd Half 2017**					
	Version (1)			**Version (2)**		
	Coeff.	t-stat.	VIF	Coeff.	t-stat.	VIF
Intercept	–0.1572***	–3.26	-	–0.1884*	–1.94	-
$RetEarn_h$	**0.0042**	0.20	1.00	**0.0054**	0.24	1.15
$OCI\&Other_h$	0.0068*	1.72	1.00	0.0071*	1.71	1.07
$NetComFee_h$				–0.0172	–0.17	1.31
$OpExp_h$				0.0507	0.34	1.50
N			56			56
Fisher's F			1.48			0.77
Adj-R^2			3.69%			3.92%

Notes: This table reports β-coefficients from ordinary least square regression of Equation (2). Cross-sectional dependences are controlled by robust model clustered by banks. VIF is the variance inflation factor relating lower correlation of the independent variable as closer to 1. *, ** and *** denote a statistical significance level at 0.1, 0.05 and 0.01, respectively.

The first column of each set shows coefficients of independent variables. *RetEarn* and *OCI&Other* present values as on the 1st January 2018. DLLP, the dependent variable, is estimated similarly than in Equation (1) with data reported on the second half 2017. *NetComFee* and *OpExp* denote values as reported on 31 December 2017. Results exhibited in table 6, show extensively statistically insignificant coefficients of *RetEarn* for both version (1) (p-value = 0.839) and version (2) (p-value = 0.813). These findings indicate results previously reported in the paper are attributable to income smoothing incentive, and not economic facts. Thus, H1 is still supported.

7. Conclusion

This paper addressed a first post-implementation review of the IFRS 9. Especially, this study focuses on short-term effects induced by the new standard on financial statements and how banks accommodate their accounting policy to mitigate those impacts. Supporting earnings smoothing hypothesis, results indicate banks use their discretionary power to decrease the level of their loan loss provisions when unfavorable impact of the IFRS 9 on retained earnings is higher and vice versa. Falsification test using second half 2017 data corroborate earnings management incentive showing statistically insignificant results while impact on the 1st January 2018 is assumed to be accurately assessed by banks on 31th December 2017, all else being equal. In addition, my results do not support capital management hypothesis as results, although primarily consistent with, failed to the robustness tests. Overall, those findings show the implementation of IFRS 9 has not been neutral regarding banks accounting management and provide a post-implementation review addressed to IASB and regulatory bodies regarding the impact on financial reporting reliability, although limited to a short-term view.

Thus, we could reasonably predict that long-term effects of the IFRS 9 will provide a prolific field of investigations for future academic researches, and avenues are here addressed. Regarding financial reporting management, the issue related to expected losses-based provisions and consequences on regulatory capital ratio appears as being obvious. As well, it seems predicable than business model accounting for financial instruments may provide an additional lever for banks to manage accounting data. In addition, expected losses-based model have been basically set by IASB to enable investors to better assess banks credit risks. In consequence, an analysis of the volatility and liquidity of banks shares or bonds appears as being particularly relevant to evaluate the soundness of the IFRS 9.

REFERENCES

Ahmed, A.S., Takeda, C. & Thomas, S. (1999). Bank Loan Loss Provisions: A Reexamination of Capital Management, Earnings Management and Signaling Effects. *Journal of Accounting and Economics*, 28, 1–25.

Andries, K., Gallemore, J., & Jacob, M. (2017). The Effect of Corporate Taxation on Bank Transparency: Evidence from Loan Loss Provisions. *Journal of Accounting and Economics*, 63, 307–328.

Bushman, R.M., & Williams, C.D. (2012). Accounting Discretion, Loan Loss Provisioning, and Discipline of Banks' Risk-Taking. *Journal of Accounting and Economics*, 54, 1–18.

Collins, J.H., Shackelford, D.A., & Wahlen, J.M. (1995). Bank Differences in the Coordination of Regulatory Capital, Earnings, and Taxes. *Journal of Accounting Research*, 33, 263–291.

Fonseca, A.R., & Gonzalez, F. (2008). Cross-country determinants of bank income smoothing by managing loan-loss provisions. *Journal of Banking and Finance*, 32, 217–228.

Greenawalt, M.G., & Sinkey, J.F. (1988). Bank Loan-Loss Provisions and the Income-Smoothing Hypothesis: An Empirical Analysis, 1976-1984. *Journal of Financial Services Research*, 1, 301–318.

International Accounting Standards Board (1999). IAS 39 – Financial Instruments: Recognition and Measurement. IASCF, London, UK.

International Accounting Standards Board (2014). IFRS 9 – Financial Instruments. IASCF, London, UK.

Kanagaretnam, K., Lobo, G.J., & Yang, D.H. (2005). Determinants of Signaling by Banks through Loan Loss Provisions. *Journal of Business Research*, 58, 312–320.

Kilic, E., Lobo, G.J., Ranasinghe, T., & Sivaramakrishnan, K. (2013). The Impact of SFAS 133 on Income Smoothing by Banks through Loan Loss Provisions. *The Accounting Review*, 88, 233–260.

Kim, M.S., & Kross, W. (1998). The Impact of the 1989 Change in Bank Capital Standards on Loan Loss Provisions and Loan Write-Offs. *Journal of Accounting and Economics*, 25, 69–99.

Lobo, G.J. (2017). Accounting Research in Banking – A Review. *China Journal of Accounting Research*, 10, 1-7.

Lobo, G.J., & Yang, D.H. (2001). Bank Managers' Heterogeneous Decisions on Discretionary Loan Loss Provisions. *Review of Quantitative Finance and Accounting*, 16, 223–250.

Novotny-Farkas, Z. (2016). The Interaction of the IFRS 9 Expected Loss Approach with Supervisory Rules and Implications for Financial Stability. *Accounting in Europe*, 13, 197–227.

O'Hanlon, J., Hashim, N., & Li, W. (2015). Expected-Loss-Based Accounting for the Impairment of Financial Instruments: the FASB and IASB IFRS 9 Approaches. European Parliament, Brussels. Available at: http://www.europarl.europa.eu/RegData/etudes/STUD/2015/563463/IPOL_STU%282015%29563463_EN.pdf.

Ryan, S.G. (2011). Financial Reporting for Financial Instruments. *Foundation and Trends in Accounting*, 6, 187–354.

Wahlen, J.M. (1994). The Nature of Information in Commercial Bank Loan Loss Disclosures. *The Accounting Review*, 69, 455–478.

Appendix

List of the 56 EU banks included in the sample

Name	*Country*	*ISIN*
Erste Bank	Austria	AT0000652011
Raiffeisen Bank	Austria	AT0000606306
Dexia	Belgium	BE0974290224
KBC	Belgium	BE0003565737
Bank of Cyprus	Cyprus	CY0104810110
Komerční Banka	Czech Republic	CZ0008019106
Danske Bank	Denmark	DK0010274414
Jyske Bank	Denmark	DK0010307958
Sydbank	Denmark	DK0010311471
Alandsbanken	Finland	FI0009000103
BNP Paribas	France	FR0000131104
Crédit Agricole	France	FR0000045072
Natixis	France	FR0000120685
Société Générale	France	FR0000130809
Commerzbank	Germany	DE000CBK1001
Deutsche Bank	Germany	DE0005140008
Piraeus Bank	Greece	GRS014003016
OTP Bank	Hungary	HU0000061726
Allied Irish Banks	Ireland	IE00BYSZ9G33
Bank of Ireland	Ireland	IE00BD1RP616
Permanent TSB	Ireland	IE00BWB8X525
Banca Carige	Italy	IT0005108763
Banca Generali	Italy	IT0001031084
Banca Popolare dell'Emilia Romagna	Italy	IT0000066123
Banca Popolare di Milano	Italy	IT0005218380
Banca Popolare di Sondrio	Italy	IT0000784196
Credito Emiliano	Italy	IT0003121677
Credito Valtellinese	Italy	IT0005319444
Intesa Sanpaolo	Italy	IT0000072618
Monte dei Paschi di Siena	Italy	IT0005218752
UBI Banca	Italy	IT0003487029
Unicredit Group	Italy	IT0005239360
ABN AMRO	Netherlands	NL0011540547
ING Groep	Netherlands	NL0011821202
Van Lanschot	Netherlands	NL0000302636
Bank Pekao	Poland	PLPEKAO00016
Citi Handlowy	Poland	PLBH00000012
mBank	Poland	PLBRE0000012
PKO BP	Poland	PLPKO0000016
Banco BPI	Portugal	PTBPI0AM0004
Millennium BCP	Portugal	PTBCP0AM0015
Banco Sabadell	Spain	ES0113860A34
Banco Santander	Spain	ES0113900J37
Bankia	Spain	ES0113307039
Bankinter	Spain	ES0113679I37
BBVA	Spain	ES0113211835
CaixaBank	Spain	ES0140609019
Handelsbanken	Sweden	SE0007100599
Nordea	Sweden	SE0000427361
Skandinaviska Enskilda Banken	Sweden	SE0000148884
Swedbank	Sweden	SE0000242455
Barclays	United Kingdom	GB0031348658
HSBC	United Kingdom	GB0005405286
Lloyds Banking Group	United Kingdom	GB0008706128
Royal Bank of Scotland	United Kingdom	GB00B7T77214
Standard Chartered	United Kingdom	GB0004082847