The Significance of IFRS 9 for Financial Stability and Supervisory Rules

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The Significance of IFRS 9 for Financial Stability and Supervisory Rules

Abstract
This paper examines the interaction of the IFRS 9 expected credit loss model with supervisory rules and discusses potential implications for financial stability. IFRS 9 is more closely aligned with bank supervision, incorporates earlier and larger impairment allowances, and thus, is likely to mitigate the procyclical tendencies of the IAS 39 incurred loss approach. Combined with improved transparency, IFRS 9 might enhance financial stability. However, the potential benefits of the standard will crucially depend on its proper and consistent application.

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# CONTENTS

LIST OF ABBREVIATIONS 5
LIST OF FIGURES 6
EXECUTIVE SUMMARY 7
1. INTRODUCTION 9
2. COMPARISON OF LOAN LOSS PROVISIONING UNDER IAS 39 VERSUS IFRS 9 11
   2.1. Economic versus accounting value of loans 11
   2.2. Incurred loss approach under IAS 39 12
   2.3. The expected loss approach under IFRS 9 12
      2.3.1. The three stages of credit risk 13
      2.3.2. Expected loss of financial assets (debt instruments) at fair value through other comprehensive income (FV-OCI) 15
   2.4. Does IFRS 9 better reflect the credit quality of financial assets? 15
   2.5. Additional qualitative indicators? 16
3. INTERACTION OF IFRS 9 WITH SUPERVISORY RULES 17
   3.1. Objectives of financial reporting and bank supervision/regulation 17
   3.2. IFRS 9 and bank capital (Pillar 1)
      3.2.1. Regulatory adjustments to financial accounting numbers 18
      3.2.2. Expected loss under IFRS 9 versus expected loss under CRR 18
      3.2.3. Prudential filters in Basel III and expected losses under IFRS 9 on FV-OCI debt securities 22
      3.2.4. Other links between IFRS 9, CRR, Capital Maintenance Directive and dividends 24
   3.3. IFRS 9 and the supervisory review process (Pillar 2)
      3.3.1. Supervisory evaluation of loan loss provisioning 25
      3.3.2. Consistency in supervisory practices 26
   3.4. IFRS 9 and market discipline (Pillar 3)
      3.4.1. Loan loss provisioning and market discipline 28
      3.4.2. IFRS 9 and expected loss related disclosures 29
4. IMPLICATIONS OF THE IFRS 9 IMPAIRMENT MODEL FOR FINANCIAL STABILITY 31

4.1. The relation between loan loss accounting and financial stability 31

4.2. Will provisioning under IFRS 9 be less procyclical than IAS 39? 31

4.3. Discretionary loan loss provisioning 33

4.4. Complexity 35

5. INSIGHTS FROM THE ACADEMIC LITERATURE 37

5.1. The impact of IAS 39 on loan loss provisioning in Europe and the interaction with bank supervision 37

5.2. Discretion in loan loss provisioning and its consequences for financial stability 39

6. CONCLUSIONS 41

REFERENCES 43

ANNEX 1: COMPARISON OF THROUGH-THE-CYCLE ESTIMATES VERSUS ACTUAL LOSS RATE 49

ANNEX 2: EXAMPLE OF PILLAR 3 DISCLOSURES 50

ANNEX 3: ONE-YEAR PDS AND LGDS OF EU BANKS 52
**LIST OF ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFS</td>
<td>available-for-sale</td>
</tr>
<tr>
<td>BCBS</td>
<td>Basel Committee on Banking Supervision</td>
</tr>
<tr>
<td>BC</td>
<td>Basis for Conclusions</td>
</tr>
<tr>
<td>CET 1</td>
<td>Common Equity Tier 1</td>
</tr>
<tr>
<td>CRR</td>
<td>Capital Requirements Regulation (EU No 575/2013)</td>
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<tr>
<td>CRD IV</td>
<td>Capital Requirements Directive (Directive 2013/36/EU)</td>
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<tr>
<td>DELR</td>
<td>Delayed expected loss recognition</td>
</tr>
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<td>dr</td>
<td>Discount rate</td>
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<td>EAD</td>
<td>Exposure at Default</td>
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<td>EBA</td>
<td>European Banking Authority</td>
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<td>EC</td>
<td>European Community</td>
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<td>ECLs</td>
<td>Expected credit losses</td>
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<td>ED</td>
<td>Exposure Draft</td>
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<td>EL</td>
<td>Expected loss</td>
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<td>EU</td>
<td>European Union</td>
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<td>FASB</td>
<td>Financial Accounting Standards Board (in the U.S.)</td>
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<td>FV-OCI</td>
<td>Fair value through other comprehensive income</td>
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<td>FVA</td>
<td>fair value accounting</td>
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<tr>
<td>GAAP</td>
<td>Generally accepted accounting principles</td>
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<tr>
<td>GIIPS</td>
<td>(countries:) Greece, Italy, Ireland, Portugal, and Spain</td>
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<tr>
<td>IAS</td>
<td>International Accounting Standard</td>
</tr>
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<td>IASB</td>
<td>International Accounting Standards Board</td>
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<td>IFRS</td>
<td>International Financial Reporting Standards</td>
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<tr>
<td>IG</td>
<td>Implementation guidance</td>
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<tr>
<td>IRB</td>
<td>Internal ratings-based (approach)</td>
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<td>LGD</td>
<td>Loss given default</td>
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<td>lit.</td>
<td>littera</td>
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<tr>
<td>LLA</td>
<td>loan loss allowance</td>
</tr>
<tr>
<td>LLP</td>
<td>loan loss provision</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1: Loan loss recognition under alternative accounting regimes 12
Figure 2: Loan loss recognition IFRS 9 versus ED 2009 and IAS 39 14
Figure 3: Through-the-Cycle versus Point-in-Time PD 19
Figure 4: Regulatory capital treatment of IFRS 9 impairments of IRB banks 21
Figure 5: Regulatory Capital Requirements under CRR/CRD IV 25
Figure 6: Loan loss provisioning and procyclicality 32
Figure 7: The median net impact of changes in loan loss allowances on shareholders’ equity 38
EXECUTIVE SUMMARY

Background
The incurred loss approach underlying current loan loss accounting rules has been criticised to amplify the procyclical effects of bank capital regulation and thereby contributing to the recent financial crisis. Several high profile groups including the G20 and bank supervisors called standard setters to change loan loss accounting standards that allow bank managers more discretion to incorporate forward-looking information into loan loss provisions. In response to these calls, the IASB issued IFRS 9 in July 2014 where impairment rules are based on an expected credit loss model.

Aim
The objective of this paper is to examine the interaction of the new expected loss model of IFRS 9 with supervisory rules and discuss potential implications for financial stability. In doing so, I also assess whether the IFRS 9 expected credit loss model better reflects credit quality of financial assets and whether it reduces the procyclicality of loan loss allowances as compared to the present incurred loss approach of IAS 39.

Summary of findings
By benchmarking the IAS 39 and IFRS 9 impairment models, I find that the expected credit loss model of IFRS 9 incorporates a significantly larger set of information relevant for identifying future expected credit losses. IFRS 9 requires earlier and larger impairment allowances, which will limit the possibility of distributing overstated profits in the form of dividends and bonuses. Furthermore, it will reduce the build-ups of loss overhangs and the overstatement of regulatory capital in boom periods, which in turn, will mitigate capital inadequacy concerns in a downturn. Through these channels, IFRS 9 can mitigate the amplifying effect of the incurred loss approach on procyclicality and enhance financial stability.

However, the IFRS 9 model has also some drawbacks. First, the initial recognition of 12-month expected credit losses is somewhat arbitrary and lacks conceptual justification. The stepwise recognition of loan losses in Stage 1 and Stage 2 will often lead to an over- or understatement of loan loss allowances. The magnitude of these will depend on how banks apply the IFRS 9 requirements, how timely they incorporate relevant information and update loan loss allowances. This is particularly an issue with regard to financial assets moving from Stage 1 to Stage 2 and the corresponding switch from 12-month expected credit losses to the recognition of lifetime expected credit losses. If bank managers are not able or not willing to identify ‘significant increases’ in credit risk on a timely basis, the switch from Stage 1 to Stage 2 will result in significant ‘cliff effects’ (i.e., abrupt and significant increases in loan loss allowances) creating the same problems as IAS 39. In this regard, the paper notes that the scope for judgement and managerial discretion under IFRS 9 is substantially wider than under IAS 39. Finally, similarly as IAS 39, IFRS 9 requires the expected cash flows to be discounted using the original effective interest rate, which results in net loan amounts that merely represent an accounting artefact.

The IFRS 9 expected loss model is more aligned with the regulatory expected loss model. However, differences pertain to the scope, the applicable parameter estimates and to the relevant time horizon. The scope of IFRS 9 is wider since it applies to all financial assets measured at amortised cost and financial assets measured at fair value through other comprehensive income, while the regulatory expected loss requirements apply only to internal ratings-based (IRB) banks. For regulatory purposes, expected loss should be measured using through-the-cycle estimates of probability of default and downturn loss
given default, which generally results in more conservative and smoother expected loss amounts. Since the expected credit loss model of IFRS 9 aims to reflect current economic conditions, point-in-time parameter estimates should be used to measure expected credit losses, which will yield accounting expected credit loss amounts that can vary considerably over the business cycle. However, the impact of IFRS 9 on regulatory capital will be moderate for IRB banks. During boom times, through-the-cycle regulatory expected loss will generally exceed point-in-time accounting expected credit losses. In a downturn, expected credit losses under IFRS 9 are likely to exceed regulatory expected loss due to the increased recognition of lifetime losses, which impact Tier 1 capital, but ‘excess’ provisions can be included as part of Tier 2 capital. In contrast, the larger expected credit losses under IFRS 9 - relative to IAS 39 - will have a direct impact on the Tier 1 capital of Standardised Approach banks (compared to IRB banks), while ‘collective provisions’ might be eligible to be included in Tier 2 capital.

The paper also illustrates that IFRS 9 can partly mitigate a design flaw in the European implementation of Basel III in the Capital Requirements Regulation (CRR), where effectively banks do not have to hold regulatory capital to cover the risks inherent in European sovereign exposures. If consistently applied, IFRS 9 will require the recognition of expected credit losses that are commensurate with the riskiness of the underlying sovereign exposures, and thus, result in a regulatory capital charge. Given the significant systemic risks stemming from the tremendous sovereign exposures of European banks, IFRS 9 can contribute to improving financial stability in this area.

The paper highlights the role supervisors can play in the enforcement of IFRS 9, but also points to potential threats posed by too conservative supervisory interpretation of the accounting rules and by too much supervisory intervention into loan loss provisioning for the consistency and integrity of financial reporting. The divergence in loan loss accounting practices under IAS 39 resulted primarily from the different interpretation of the incurred loss approach by bank supervisors across jurisdiction in the European Union. In this regard, the European Banking Authority’s efforts are crucial in harmonising supervisory practices, and as consequence, in achieving a consistent application of the expected credit loss approach.

The extended disclosure requirements related to the IFRS 9 expected credit loss model are likely to contribute to the transparency of the process of loan loss accounting, and thus, to promote market discipline. In addition, supervisory disclosures in banks’ individual Pillar 3 reports and the periodic aggregate supervisory disclosures from stress tests will support market participants’ and supervisors’ assessment of the validity and adequacy of reported expected loss amounts.

**Conclusion**

Overall, I believe that the IFRS 9 expected loss approach represents a reasonable compromise between providing relevant information and catering for the needs of supervisors to enhance financial stability. However, the closer alignment of accounting and supervisory rules in combination with the increased minimum capital requirements under the Capital Requirements Regulation will reinforce bank managers’ incentives to opportunistically manipulate loan loss amounts to avoid breaches of regulatory thresholds, which trigger limitations of dividend and bonus payments. The IFRS 9 model will provide a significantly wider scope for managerial discretion than IAS 39. Therefore, whether the introduction of the expected loss approach will yield the desired benefits will ultimately depend on the proper and consistent application of the rules. This, in turn, will require the joint effort of preparers, auditors, supervisors and enforcement bodies.
1. INTRODUCTION

Since the beginning of the recent financial crisis starting in 2008, the delayed recognition of loan losses under the incurred loss approach has been criticised as a major weakness of financial accounting standards. A fundamental problem with the incurred loss model is that impairment allowances for credit losses tend to be at their lowest level before an economic cycle trends downward and actual losses begin to emerge (‘too little too late’). Several high profile groups have argued that the incurred loss approach reinforces the pro-cyclical effects of bank regulation and called standard setters to develop accounting standards that allow for a more forward looking provisioning\(^1\). There is an expectation that earlier recognition of loan losses would mitigate procyclicality and thereby enhance financial stability. In response to these calls the IASB issued the final version of IFRS on 9 July 2014 which requires the incorporation of information about future expected credit losses in provisioning and an earlier recognition of loan losses than under IAS 39.

The purpose of this paper is to examine the interaction of the new expected loss approach of IFRS 9 with supervisory rules and discuss potential implications for financial stability. In doing so, I also assess whether the IFRS 9 expected credit loss model better reflects credit quality of financial assets and whether it reduces the procyclicality of loan loss allowances as compared to the incurred loss approach of IAS 39.

- First, I discuss the main conceptual differences between IAS 39 and IFRS 9 and highlight the main features of the expected loss model that make it more forward looking. I also assess whether IFRS 9 better reflects the credit quality of financial assets and whether additional qualitative criteria would improve the expected loss model.

- Second, I examine how IFRS 9 interacts with the three pillars of bank supervision which are
  - minimum regulatory capital requirements (Pillar 1),
  - supervisory review (Pillar 2), and
  - market discipline (Pillar 3).

In doing so, I emphasise that financial reporting and bank supervision pursue different objectives and this is reflected in differences in the measurement and supervisory treatment of impairment losses. In the first Pillar, loan loss provisions are used as an input in regulatory capital calculations, and thus have a direct impact on regulatory capital. I discuss the differences in the measurement of regulatory and IFRS 9 expected loss, and how these differences affect the calculation of regulatory capital\(^2\). In the second Pillar, supervisors evaluate banks’ internal credit risk management systems and assess the adequacy of loan loss provisions. I discuss the recent guidance issued by the Basel Committee on Banking Supervision which outlines supervisory expectations with regard to expected loss accounting\(^3\). Because supervisors can, through the supervisory review process, significantly influence how expected loss accounting rules are applied, I highlight the importance of consistency of supervisory practices that has been a major issue within the European Union (EU). Relatedly, I show how too much supervisory intervention can be detrimental to the integrity of financial reporting. Since loan loss accounting significantly

\(^1\) E.g., G20 (2009); BCBS (2009); Financial Crisis Advisory Group (2009); Financial Stability Forum (2009).
\(^2\) In general, the purpose of financial reporting is to provide transparent and useful information to a wide range of financial statement users. Bank supervisors aim at ensuring the safety and soundness of the banking system by limiting the frequency bank failures and the cost imposed on deposit insurance systems.
\(^3\) BCBS (2015a).
affects the transparency of bank financial statements, it also has in impact on market discipline, the third pillar of bank supervision. Therefore, I discuss the role of expected loss related disclosures and their interaction with supervisory disclosures in banks’ Pillar 3 reports and in aggregate disclosures in stress test reports.

Third, I discuss issues related to the potential impact of IFRS 9 on financial stability. Specifically, I evaluate whether the expected loss model of IFRS 9 has less procyclical tendencies than the incurred loss approach of IAS 39. Then, I discuss concerns regarding the scope for managerial discretion in loan loss accounting under IFRS 9 and its implications for financial stability. Furthermore, I evaluate the complexity of the new expected loss approach particularly stemming from its interaction with supervisory rules.

Finally, I review selected studies that provide interesting insights with respect to the issues mentioned above. Specifically, I discuss empirical evidence on the effects of the mandatory adoption of IAS 39 on bank loan loss provisioning in the EU and the lessons that can be learned from that experience. In addition, I discuss recent studies that exploit cross-bank variation in the application of the incurred loss model or cross-country variation in the extent of discretionary loan loss provisions and examine the channels through which managerial discretion in loan loss provisions can impact financial stability.

The rest of the paper is structured as follows: in Chapter 2., I benchmark the IAS 39 incurred loss model with the IFRS 9 expected loss model. Chapter 3. focuses on the interactions of the expected loss model with supervisory rules. Chapter 4. discusses the potential impact of IFRS 9 on financial stability. In Chapter 5., I discuss relevant empirical evidence from the accounting literature, and Chapter 6. concludes.
2. COMPARISON OF LOAN LOSS PROVISIONING UNDER IAS 39 VERSUS IFRS 9

2.1. Economic versus accounting value of loans

To highlight the differences between the approaches to loan loss accounting, it is useful to choose a benchmark to which accounting regimes can be compared. A natural benchmark is the economic value of the loan, which arguably provides the most useful information to primary users of financial statements, i.e., investors and bank supervisors. The economic value represents the present value of the expected cash flows from the borrower. Initially, when loans are recorded at their economic value, there is no need for a loan loss allowance because the contractual interest rate covers all expected losses over the life of the loan. However, upon arrival of new information, the economic value of the loan should be adjusted for changes in the expectation of a borrower’s default probability and changes in interest rates. Formally, the expected losses should be calculated as follows:

$$ EL_t = \sum_{t=1}^{N} \left( PD_t(I_t) \times \frac{LGD_t(I_t)}{(1+dr)^t} \right) $$

where

- $EL_t$ are the expected lifetime losses;
- $PD_t(I_t)$ is the (cumulative) probability of default;
- $LGD_t(I_t)$ is the loss given default; and
- $dr$ is the discount rate that is used to discount expected cash flows.

However, many credit risk models assume LGD to be constant. Thus, changes in the economic value of the loan are primarily driven by changes in the probability of default and changes in interest rates. In accounting terms, expected losses should be reflected in the loan loss allowance (LLA) and changes in expected losses from period $t$ to $t+1$ should be recognised through loan loss provisions (LLP$_t$).

However, when and to what extent expected losses are recognised varies significantly across different loan loss accounting approaches, as shown in Figure 1. below. Under the assumption that LGD is constant, differences in loan loss recognition arise from the extent that changes in PD are considered, which information (I$_t$) is used to determine PD (past versus future) and from the discount rate (dr) used to account for the time value of money.

As is evident from Figure 1., only fair value accounting (FVA) incorporates all expected losses arising both from changes in credit risk (as reflected in changes in PD) and from changes in market interest rates (dr). Therefore, FVA corresponds to the economic valuation of loans.

In the following subsections, I benchmark loan loss recognition under the IAS 39 **incurred loss approach** and the IFRS 9 expected loss approach against economic valuation.

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4 This illustration mainly follows Gebhardt and Novotny-Farkas (2011) and Benston and Wall (2005).
5 Benston and Wall 2005, p. 82.
2.2. **Incurred loss approach under IAS 39**

Under the current *incurred loss approach* of IAS 39, banks may only provide for credit risk when there is 'objective evidence' that impairment has occurred, as of the balance sheet date\(^7\). IAS 39.59 provides a non-exclusive list of 'trigger events' that are indicators of impairment. Reporting entities are not allowed to incorporate the effects of future events occurring *after* the balance sheet date, even if they are expected\(^8\).

Combined with a very restrictive attitude towards loan loss provisioning, the application of the incurred loss model can result in impairments that are recognised just before default occurs (i.e., too late)\(^9\). Essentially, this means that loan losses are only considered when the PD is close to 100 \%. Thus, even when bank management has information \((I_t)\) available about future losses, he or she is not allowed to incorporate this information for accounting purposes. To calculate the present value of expected losses that are deemed to be incurred, the original effective interest rate has to be used as the discount rate \((d_r)\).

Figure 1 highlights that from the continuum of possible estimates of expected losses, incurred losses represent the lowest boundary\(^10\).

2.3. **The expected loss approach under IFRS 9**

IFRS 9 significantly broadens the information set that an entity is required to consider when determining its expectations of credit losses. Specifically, reporting entities are required to incorporate information from *past* events, *current* conditions, as well as reasonable and supportable *forecasts* in their measurement of expected credit losses\(^11\). Importantly, the new standard eliminates the threshold, i.e., the 'trigger event' requirement of IAS 39 for the recognition of credit losses. Reporting entities always have to account for expected

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\(^7\) IAS 39.58.  
\(^8\) IAS 39.59. Furthermore, general loan loss provisions for unspecified credit risks as allowed or required under several local accounting standards are not accepted under the IAS 39 rules. Specifically, '[a]mounts that an entity might want to set aside for additional possible impairment in financial assets, such as reserves that cannot be supported by objective evidence about impairment, are not recognised as impairment or bad debt losses under IAS 39', see IAS 39.IG.E.4.6.  
\(^9\) Hoogervorst (2014).  
\(^11\) IFRS 9 5.5.17 lit. c.
credit losses (ECLs), i.e. from the point they are first recognised, and periodically update the loan loss allowance for changes in ECLs\textsuperscript{12}. If properly applied, this will result in an earlier and timelier recognition of ECLs than under IAS 39.

2.3.1. The three stages of credit risk

IFRS 9 differentiates between three stages of credit risk.

- **Stage 1** includes financial instruments with no significant increase in credit risk since initial recognition, or financial instruments that have low credit risk at the reporting date. For these assets, 12-month ECLs are recognised in profit or loss. 12-month ECLs are expected credit losses that result from default events that are possible within 12 months after the reporting date (i.e. 12-month ECL = 12 month PD x LGD). The recognition of 12-month ECLs aims to reflect that the yield on the instrument includes a return to cover those credit losses expected from when a financial instrument is first recognised. It addresses the concern raised with respect to the IAS 39 model that it overstates interest revenue\textsuperscript{13}. Specifically, under the IAS 39 impairment model the full yield is recognised as interest revenue with no adjustment for credit losses that are expected at the time of the origination or purchase of an asset.

- **Stage 2** includes financial instruments with ‘significant deterioration in credit quality’ since initial recognition, but with no objective evidence of impairment. For Stage 2 assets lifetime ECLs are recognised. This accounting treatment is based on the rationale that an economic loss arises when ECLs significantly exceed initial expectations\textsuperscript{14}. By recognising lifetime ECLs following a significant increase in credit risk this economic loss is reflected in the financial statements.

- **Stage 3** comprises financial instruments for which objective evidence indicates impairment at the reporting date. For Stage 3 assets, lifetime ECLs are recognised. Stage 3 credit exposures are similar to those deemed to be individually impaired under IAS 39, while Stage 1 and 2 credit exposures will essentially replace those exposures that are collectively assessed for impairment under IAS 39\textsuperscript{15}. For example, financial assets that are disclosed under the label ‘Financial assets past due, but not impaired’ in bank financial statements would largely fall into Stage 2 under IFRS 9. Therefore, the recognition of lifetime ECLs will occur earlier than under IAS 39, i.e., already when there is a significant increase in credit risk (Stage 2), but before actual default (Stage 3).

The difference between Stage 2 and Stage 3 relates to the recognition of interest revenue. In Stage 1 and Stage 2 interest recognition and impairment are decoupled. Interest revenue is calculated on the gross carrying amount. In Stage 3 interest revenue is calculated on the adjusted amortised cost, i.e., the gross carrying amount net of the impairment allowance (similar to IAS 39).

In Figure 1., the IFRS 9 expected loss model is positioned between the IAS 39 incurred loss approach and fair value accounting, because it recognises expected credit losses but ignores changes in market interest rates. The three-stage model of IFRS 9 tries to approximate economic expected credit losses that conceptually were most faithfully represented by the expected cash flow model originally proposed by the IASB in the

\textsuperscript{12} IFRS 9 IN9.
\textsuperscript{13} IFRS 9 BCS.83.
\textsuperscript{14} IFRS 9.BCS.93 lit. b and IFRS 9.BCS.150 lit. a.
\textsuperscript{15} EY (2014), p. 8.
Exposure Draft ED/2009/12 Financial Instruments: Amortised Cost and Impairment (ED 2009 model)\textsuperscript{16}. In the ED 2009 model, initial ECLs would be recognised over the life of an asset through the credit-adjusted effective interest rate\textsuperscript{17}. As illustrated by the curved dashed line ("Economic expected credit losses") in Figure 2, at initial recognition, the loan loss allowance would be nil and subsequently built up over the life of a financial asset. This would effectively ‘match’ the recognition of credit losses with that of the credit spread implicit in the interest rates charged. Subsequent changes in ECLs would be recognised in profit or loss using the original effective interest rate\textsuperscript{18}. This model would come closest to the economic valuation of the loan (except that changes in market interest rates would not be recognised). However, because this model was perceived as operationally too challenging, it has not been implemented.

The solid red line in Figure 2 illustrates that the IFRS 9 three-stage model results in a stepped profile as compared to the more continuous profile of the ED 2009 model. Initially, the IFRS 9 model overstates the loan loss allowance, then - as credit risk (PD) increases - it understates the loan loss allowance, and when deterioration in credit quality is deemed significant, it again overstates the allowance.

**Figure 2:** Loan loss recognition IFRS 9 versus ED 2009 and IAS 39

\begin{center}
\includegraphics[width=\textwidth]{loan_loss_recognition.png}
\end{center}

**Source:** adapted from IASB March 2013 snapshot: Financial Instruments: Expected Credit Losses, slide 9 snapshot\textsuperscript{19}.

\textsuperscript{16} IASB (2009).
\textsuperscript{17} IFRS 9 BC5.88.
\textsuperscript{18} EY (2014), p. 4.
\textsuperscript{19} IASB (2013a).
2.3.2. Expected loss of financial assets (debt instruments) at fair value through other comprehensive income (FV-OCI)

An important difference relative to IAS 39 is that IFRS 9 now applies the same impairment model for financial assets through other comprehensive income (FV-OCI) as for assets recognised at amortised cost. However, unlike for assets measured at amortised cost, there is no separate allowance account for FV-OCI assets. Impairment gains and losses are recognised in the revaluation reserve in *accumulated other comprehensive income* and charged against profit or loss. Conceptually, this means that management estimates of 12-month or lifetime ECLs are charged to income, while other credit related changes in fair value (e.g., due to changes in market credit default swap spreads) and non-credit related changes (due to changes in interest rates and liquidity) are recognised in *accumulated other comprehensive income*. As will be discussed more in detail in Section 4.4., this solution of IFRS 9 complicates the interpretability of the accounting for FV-OCI financial assets. That being said, the new requirement will lead to an earlier recognition of credit risk associated with listed debt instruments in profit or loss, which is particularly relevant for riskier securities that are currently held in banks’ *available-for-sale portfolio* and that might be classified as FV-OCI under IFRS 9 (e.g., mortgage backed securities, some sovereign bonds).20

2.4. Does IFRS 9 better reflect the credit quality of financial assets?

IFRS 9 will lead to more timely recognition of provisions than IAS 39, primarily due to

- the earlier recognition of 12-month ECL for all exposures in Stage 1,
- the earlier recognition of lifetime losses when credit risk significantly increases in Stage 2, and
- through the use of a broader range of information including macroeconomic conditions and forward-looking information.

In particular, as illustrated in Figure 2., the IFRS 9 ECL method incorporates changes in the probability of default (PD) earlier than IAS 39. For rapidly increasing loan portfolios, where the PD is expected to increase over time, **IFRS 9 will require earlier and higher loan loss allowances**. In addition, new extended disclosure requirements are likely to increase the transparency of banks’ loan loss provisioning procedure and credit risk profile.

However, some **caveats** of the IFRS 9 expected loss model are in order. The three stage system is based on a **relative credit risk model**, where all assets are initially allocated to Stage 1 and movements between stages only occur, when initial credit risk expectations change (i.e., when credit quality deteriorates). Under an **absolute credit risk model**, loans would be allocated to the three stages based on their absolute risk, where riskier loans would be directly classified as Stage 2 or Stage 3. The **disadvantage of the absolute model** is that it would require **immediate recognition of lifetime losses, which conceptually would be questionable**, since initially expected credit losses can be assumed to be incorporated in the pricing of the loan. The **relative credit model mitigates this initial conceptual ‘mis-measurement’ only to some extent** by recognising the 12-month ECL. A **potential drawback of the relative credit risk model** is that the same asset could be included in Stage 1 for one bank and in Stage 2 for the other bank, which might impair comparability across banks. This concern will be partly mitigated by the fact that riskier assets in Stage 1 will have a higher 12-month ECL and probably also larger periodic adjustments of 12-month ECL.

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20 See also Section 3.2.3. and Gebhardt (2015).
Relatedly, it is not clear how financial statement users will be able to interpret loan values that are adjusted by Stage 1 and Stage 2 loan loss allowances. In Stage 1, the economic value of loans will be initially understated and subsequently - as PD increases - potentially overstated, and when they move to Stage 2 understated again. The interpretation of the resulting net loan amounts is further complicated by the use of the original effective interest rate to discount expected cash flows, which results in an artificial accounting construct that is neither cost nor fair value\(^ {21}\). Since the applicable discount rate does not incorporate changes in market interest rates, reported loan values do not reflect expected future cash collections. This, in turn, means that information provided to financial markets about the value of bank loans is incomplete\(^ {22}\). As evidenced in the U.S. savings and loans crisis in the 1980s and 1990s, interest rate changes are also relevant for determining loan values and the financial strength of a bank\(^ {23}\).

2.5. Additional qualitative indicators?

IFRS 9 requires entities to consider ‘reasonable and supportable information that is available without undue cost or effort to determine whether credit risk has increased significantly increased’\(^ {24}\). In addition, it provides a comprehensive (non-exhaustive) list of 16 classes of indicators that entities may consider in their assessment. Most of these indicators have a significant explanatory power for future ECLs, but they are also highly correlated with each other. A good credit loss model should depict reality in a meaningful way and generally relies only on a subset of relevant factors. Too much focus on multiple indicators bears the risk of model fitting, which can impair the predictive ability of credit loss models\(^ {25}\). This is to some extent reflected in the less restrictive language of the final version of IFRS 9 as compared to the ED/2013/3 Financial Instruments: Expected Credit Losses by removing the term ‘best available information’. In addition, IFRS 9 now acknowledges that ‘credit risk analysis is a multifactor and holistic analysis; whether a specific factor is relevant, and its weight compared to other factors, will depend on the type of the product, characteristics of the financial instruments and the borrower as well as the geographical region’\(^ {26}\).

Against this background, I do not believe that including additional qualitative criteria (such as lacking servicing capability) would improve the expected loss model of IFRS 9.

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\(^{24}\) IFRS 9 B5.5.15.

\(^{25}\) Grünberger (2013), p. 53 and 64.

\(^{26}\) IFRS 9 B5.5.16.
3. INTERACTION OF IFRS 9 WITH SUPERVISORY RULES

3.1. Objectives of financial reporting and bank supervision/regulation

Since regulators use financial statement information to calculate regulatory capital numbers and rely on market participants to trade on this information to discipline banks, financial reporting and bank supervision are closely intertwined. Given that the loan loss provision is the key accrual item in bank financial statements, which has a significant impact on earnings and regulatory capital, both accounting standard setters and regulators are concerned about the estimation of loan losses, but each has a different perspective on this matter.

The differences in accounting versus supervisory perspectives on loan loss provisioning result from the fact that financial reporting and bank supervision pursue different objectives. Supervisors’ primary objective is to reduce the level of risk to which depositors are exposed, and to maintain financial stability. Regulators have different informational needs than, for example, investors, because they face an asymmetric loss function:

- 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.
- However, overstated loan loss allowances do not impose costs to supervisors.

Therefore, it is understandable, that from the range of estimates for potential loan losses, supervisors prefer that loan losses are valued at the higher end of these estimates. In contrast, the main objective of financial reporting is to provide information that is useful to a wide range of financial statement users, including investors, creditors and regulators. In the standard setter’s view, faithful representation of expected losses is depicted through loan loss provisions that are neutral and free from bias in any direction.

Bank supervisors have different tools at their disposal to discipline banks’ risk taking, and in turn, to enhance financial stability. Specifically, since the introduction of Basel II, bank regulation has been resting on three pillars:

- **Pillar 1** requires banks to hold a minimum amount of regulatory capital that reflects the riskiness of banks’ assets. Minimum capital requirements reduce risk taking incentives by inducing bank owners to raise capital and place more of their personal wealth at risk in the bank, when they invest in more risky assets.
- **Pillar 2** - supervisory review – provides supervisors with the authority to evaluate banks’ risk management practices and to impose more stringent capital requirements if they deem a bank’s capitalisation to be inadequate.
- **Pillar 3** - market discipline – requires transparent reporting that enables capital markets to serve as a complementary force to discipline banks’ behaviour.

Financial reporting, and in particular loan loss provisioning, and bank supervision intersect at all three pillars as I discuss in more detail in the following sections.

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27 See, e.g., Barth and Landsman (2010) and Bushman and Landsman (2010).
28 For an excellent and more detailed discussion of the different perspectives on loan loss provisioning see Wall and Koch (2000) and Benston and Wall (2005).
29 Benston and Wall (2005), p. 97.
30 This is also made clear in IFRS 9 BC5.86.
31 Kim and Santomero (1988).
3.2. **IFRS 9 and bank capital (Pillar 1)**

3.2.1. Regulatory adjustments to financial accounting numbers

Bank regulators use accounting numbers as inputs to regulatory capital calculations. However, to preserve the prudential role of regulatory capital, they make certain adjustments using so-called prudential filters. For example, they exclude goodwill because in case of a liquidation of the bank, goodwill has zero liquidation value. Furthermore, unrealised gains and losses from changes in the value of fair valued liabilities are excluded to avoid that during financial distress banks experience an increase in regulatory capital due to the increase in own credit risk.

Importantly, because of the direct impact of loan loss provisions on regulatory capital, regulators have their own estimate of expected credit losses and benchmark this with the reported loan loss allowances. In the following subsections, I will elaborate on differences in the measurement of expected losses in IFRS 9 versus Basel III and discuss how these differences are reflected in regulatory capital calculations. In doing so, I will refer to the provisions of Basel III as they are implemented in the EU in the Capital Requirements Regulation (CRR) and the Capital Regulation Directive IV (CRD IV), where appropriate.

3.2.2. Expected loss under IFRS 9 versus expected loss under CRR

**Estimation of expected losses**

Generally, the IFRS 9 expected loss approach brings loan loss provisioning closer to the regulatory methodology of measuring expected losses. Specifically, the Stage 1 12-month expected loss is conceptually similar to the regulatory expected loss that has also a 12-month horizon. Under both frameworks, the key input parameters for the measurement of expected loss are the probability of default (PD) and the loss given default (LGD). Therefore, it is not surprising that the IASB ‘expects entities to be able to use some regulatory measures as a basis for the calculation of expected credit losses in accordance with the requirements in IFRS 9’.

However, because of the different objectives of regulation and financial reporting, the regulatory estimates of PD and LGD are not the same as those that shall be used for expected loss calculation of expected losses under IFRS 9. Hence, these estimates have to be adjusted to meet the measurement requirements of IFRS 9.

IFRS 9 expected loss and regulatory expected loss requirements differ in their scope of application. The regulatory measurement and treatment of loan loss provisions depends on whether banks use the Standardised Approach (SA) or the Internal Ratings-Based (IRB) Approach for calculating their capital requirements for credit risk. Regulatory expected loss rules are relevant only for IRB banks. In contrast, the scope of expected loss provisions of IFRS 9 includes all assets measured at amortised cost and FV-OCI, and therefore, is also relevant for SA banks.

- For SA banks, regulation generally does not prescribe the measurement of regulatory loan loss provisions. Instead, accounting provisions directly affect Tier 1 capital. However, some countries require specific regulatory provisioning rules based on a combination of supervisory loan classification (e.g. Pass, Special Mention, etc.).

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34 Article 33(1)b CRR.
37 IFRS 9 BC 5.283.
38 IFRS 9 BC 5.283.
Substandard, Doubtful) and corresponding loan loss rates that have to be applied to each category\(^{39}\).

- In contrast, **IRB banks** must calculate the expected loss using their own estimates of PD and LGD for non-defaulted (i.e., performing) exposures. The rating philosophy for PD estimates may follow a point-in-time (PiT), through-the-cycle (TTC) or a hybrid approach. PiT ratings represent an assessment of the borrower’s probability of default over a relatively short horizon (e.g., a year), and thus, can vary considerably over the business cycle. The TTC approach focuses on a longer horizon, essentially neutralising the effects of current cyclical conditions, and therefore results in more stable and less cyclical ratings. In contrast, PiT PDs vary more significantly from expansionary to recessionary periods. The hybrid approach is a combination of TTC and PiT models, which means that PD ratings are calibrated to long run default rates but adjusted to reflect current economic conditions. Figure 3 illustrates how PD estimates vary over the business cycle depending on the underlying rating philosophy.

**Figure 3:** Through-the-Cycle versus Point-in-Time PD

![Figure 3: Through-the-Cycle versus Point-in-Time PD](image)

**Source:** Adapted from Wolters Kluwer Financial Services article: *Expected Loss Accounting under IFRS 9*\(^{40}\).

The **CRR does not require a specific rating philosophy** but clarifies that **PD estimates should reflect the long run average** of one-year default rates in order to ensure that they are relatively stable over time\(^{41}\). This would suggest that only through-the-cycle approaches (i.e., TTC or hybrid) are consistent with the capital adequacy framework\(^{42}\).

For **defaulted** exposures banks must use their best estimate of expected losses given current economic conditions and exposure status taking into account the estimate of the increase of loss rate caused by possible additional losses during the recovery period\(^{43}\).

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\(^{40}\) Van Doorsselaere (2015).

\(^{41}\) Article 181(1)a) CRR, and EBA (2015a), p. 24.

\(^{42}\) According to the EBA’s report, EU banks use a variety of rating philosophies that impact the comparability and procyclicality of capital requirements for banks using the IRB approach; see EBA (2013b).

\(^{43}\) Article 181(1)h) CRR.
The IASB clarifies that TTC estimates are not consistent with IFRS 9 expected loss requirements because they ‘consider a range of possible economic outcomes instead of those that are actually expected at the reporting date. This would result in a loss allowance that does not reflect the economic characteristics of the financial instruments at the reporting date’\(^{44}\). Specifically, as shown in Figure 3., TTC estimates are likely to overstate P\(i\)T PDs during boom periods and understate P\(i\)T PDs during downturns. Therefore, regulatory PDs will need to be adjusted to reflect current and forecast economic conditions.

Further differences arise with regard to the estimation of the LGD. The CRR requires the estimation of LGD based on the long run average weighted by the number of defaults. However, downturn LGDs should be used, if those are more conservative than the long run average. Downturn LGD refers to the LGD in an economic downturn. Under IFRS 9 LGDs should incorporate actual expectations of the future at a given reporting date\(^{45}\).

In addition, under the capital adequacy framework, the less information a bank has the more conservative should its PD and LGD estimates be\(^{46}\). In addition, the regulatory parameters have floors. These conservative biases are inconsistent with the IFRS 9 expected loss approach and need to be removed\(^{47}\).

Finally, the regulatory expected loss is always calculated over a 12-month horizon for performing portfolios, while under IFRS 9 lifetime losses have to be recognised for the part of the performing portfolio, for which credit risk has significantly increased (i.e., Stage 2 assets). For defaulted assets lifetime losses have to be recognised under both frameworks.

**Loan loss provisions and regulatory capital**

The measurement of loan loss provisions is directly linked to capital ratio calculations. Similar to the measurement of expected losses, the regulatory treatment of loan loss provisions also depends on whether a bank uses the SA or the IRB approach to measure credit risk.

- Under the SA, banks are allowed to include general loan loss provisions in Tier 2 capital subject to the limit of 1.25 % of risk-weighted assets\(^{48}\). ‘Collective impairment provisions’ under IFRS 9 will only be eligible for inclusion in Tier 2 capital, if
  1. they are freely and fully available, as regards to timing and amount, to meet credit risk losses that have not yet materialised, and
  2. they reflect credit risk losses for a group of exposures for which the institution has currently no evidence that a loss event has occurred\(^{49}\).

As noted before, some jurisdictions apply supervisory loan loss provisioning rules to ensure a minimum level of provisions. In these jurisdictions, if the supervisory provisions are in excess of accounting loan loss provisions, the difference is deducted from Tier 1 capital.

- The capital treatment under the IRB approach is based on the rationale that loan loss provisions should cover expected losses, while unexpected loan loss should be

\(^{44}\) IFRS 9.BC 282. This is also acknowledged by the BCBS, see BCBS (2015a), par. 8.
\(^{45}\) IASB Staff Paper 14-16 December 2011, Reference 6A, par. 35 lit b.
\(^{46}\) Article 171(2) CRR and Article 179(1)a) CRR.
\(^{47}\) IASB Staff Paper 14-16 December 2011, Reference 6A, par. 35 lit. d.
\(^{48}\) Article 62c CRR.
absorbed by regulatory capital. Consistent with this concept, any shortfall arising from the comparison of supervisory and accounting expected loss has to be deducted from Tier 1 capital (i.e., when the supervisory expected loss is greater than the expected loss recognised in accounting through loan loss provisions)\(^{50}\). In this respect, the new Basel III regulatory framework is more stringent than Basel II, where 50% of the IRB shortfall was deducted from Tier 1 and 50% from Tier 2. The excess of eligible accounting loan loss provisions over supervisory expected losses can be included in Tier 2 capital up to 0.6% of risk weighted assets (RWA)\(^{51}\). Figure 4 illustrates the regulatory capital treatment of differences between regulatory and IFRS 9 expected losses for IRB banks.

**Figure 4: Regulatory capital treatment of IFRS 9 impairments of IRB banks**

**CRR/CRD IV treatment: Scenario 1: IFRS 9 Expected Loss < Regulatory Expected Loss**

<table>
<thead>
<tr>
<th>Regulatory 12-month Expected Loss Amount</th>
<th>Stock of relevant IFRS 9 impairment provisions</th>
<th>IRB shortfall (deducted from Tier 1)</th>
</tr>
</thead>
</table>

**CRR/CRD IV treatment: Scenario 2: IFRS 9 Expected Loss > Regulatory Expected Loss**

<table>
<thead>
<tr>
<th>Regulatory 12-month Expected Loss Amount</th>
<th>Stock of relevant IFRS 9 impairment provisions</th>
<th>Count as Tier 2 capital (up to 0.6% of RWA)</th>
</tr>
</thead>
</table>

**Source:** Adapted from Deloitte (2013), p. 4. **Note:** RWA = risk weighted assets.

Based on the discussion above it is expected that IFRS 9 impairments will particularly have an impact on regulatory capital for SA banks. The regulatory capital impact for IRB portfolios will be more moderated and will depend on the level of new impairment provisions relative to the regulatory expected loss. Because regulatory expected loss is based on TTC estimates, while IFRS 9 requires PIT estimates, accounting impairment provisions will be generally below regulatory expected loss during benign economic conditions. In a downturn, IFRS 9 impairments might be larger than regulatory expected loss, because of the PIT PDs which will be larger than TTC PDs and banks will have to increasingly recognise lifetime losses in Stage 2 and Stage 3. While these ‘excess provisions’ will reduce Tier 1 capital, they can be included as part of Tier 2 capital up to a limit of 0.6% of risk-weighted assets (RWA). An illustration of how TTC estimates versus PIT estimates of loan losses behave over the business cycle is provided in the Pillar 3 report of Barclays\(^{52}\) included in Annex 1. In contrast to IRB banks, SA banks will experience a one-to-one impact of increased loan loss allowances on their Tier 1 capital.

**Definition of default**

As the definition of default sets the basis for the estimation for the key inputs into expected loss calculations, a consistent and comparable definition is essential\(^{53}\). For example, a too narrow definition of default would increase the identified number of defaults (i.e., higher PD). In contrast, the LGD would decrease, because a larger number of defaults would be

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\(^{50}\) Article 36d CRR.  
\(^{51}\) Article 62d CRR.  
\(^{52}\) Barclays (2014).  
considered, where the actual loss would be small or even zero\(^{54}\). Therefore, it is crucial that default is clearly defined and consistently applied through time.

The **definition of default in the capital adequacy framework** focuses on two main indicators.

- First, the qualitative indicator refers to obligor’s unlikeliness to pay its credit obligations\(^{55}\). Article 178(3) CRR lists the main elements to be taken as indications of ‘unlikeliness to pay’.

- Second, the quantitative indicator refers to the credit obligations with past due status for more than 90 days\(^{56}\).

The **IASB decided not to define default in IFRS 9** because it might result in a definition for financial reporting that is inconsistent with that applied internally for credit risk management\(^{57}\). Instead, entities should apply a definition of default that is consistent the definition of default for internal credit risk management purposes, consistently from one period to another. However, IFRS 9 introduces a rebuttable presumption that default occurs when a financial asset is more than 90 days past due\(^{58}\). This presumption serves as a ‘backstop’ to ensure that entities do not define default later than 90 days without reasonable and supportable information. In addition, Appendix A to IFRS 9 provides a list of indicators providing evidence that a financial asset is credit-impaired that entities should consider.

Both, the quantitative and qualitative indicators of default, are essentially similar in the accounting and regulatory framework. However, in practice there are **large discrepancies** in the **definition of default across Member States** that partly stem from different supervisory practices and national regulations in various EU jurisdictions\(^{59}\). To increase harmonisation in this area, the European Banking Authority (EBA) is developing technical standards and guidelines that will be relevant for banks and supervisory practices\(^{60}\).

### 3.2.3. Prudential filters in Basel III and expected losses under IFRS 9 on FV-OCI debt securities

**Under previous capital adequacy requirements**, unrealised fair value gains or losses recognised on debt instruments held in the available-for-sale (AFS) portfolio as *other comprehensive income* were **neutralised in the calculation of regulatory capital through the application of prudential filters**. The rationale behind this prudential treatment was to avoid the excessive volatility of regulatory capital stemming from (presumably temporary) changes in the fair value of banks’ securities portfolio\(^{61}\). Indeed, during the financial crisis the application of prudential filters acted as a safeguard by shielding banks from unrealised fair value losses\(^{62}\). However, because these debt securities are essentially recognised at amortised cost for prudential purposes, the regulatory capital constraint has less bite. Specifically, deteriorations in the value of these assets do not affect regulatory capital until impairment is recognised, which under incurred loss approach

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\(^{55}\) Article 178(1)b) CRR.

\(^{56}\) Article 178(1)b) CRR.

\(^{57}\) IFRS 9 BC5.251.

\(^{58}\) IFRS 9 835.5.37.

\(^{59}\) EBA (2015a), p. 18.

\(^{60}\) See EBA (2015a), p. 18 and EBA (2014).


\(^{62}\) See Laux and Leuz (2010).
can be delayed until late. This favourable prudential and accounting treatment provided ex ante incentives for risk shifting\(^{63}\).

Regulators have recognised this issue and under the new capital adequacy framework they require unrealised gains and losses on AFS assets to be included in the calculation of regulatory capital\(^{64}\). This regulatory change further aligns accounting and bank regulation. The CRR includes transitional provisions for the stepwise removal of the prudential filters applied to AFS debt securities under IAS 39\(^{65}\). Remarkably, these transitional provisions allow institutions ‘not to include in any element of own funds unrealised gains or losses on exposures to central governments classified in the “Available for Sale” category of EU-endorsed IAS 39’\(^{66}\) if permitted by the supervisor. Indeed, many EU supervisors chose to use this option particularly in those Member States whose banks built up substantial (domestic) sovereign risk in their portfolios in recent years (e.g., Belgium, Cyprus, Ireland, Italy, Portugal and Spain)\(^{67}\).

This supervisory option is a cause of concern, because it allows banks to invest in risky sovereign exposures without recognising unrealised gains and losses in regulatory capital. The issue is further exacerbated by the fact that under CRR, banks can essentially apply a zero risk weight to sovereign exposures. Specifically, under the SA, exposures to central banks and to Member States’ sovereign debt issued in the domestic currency are assigned a zero risk weight. In the euro area, this automatically applies to all banks, resulting in a favourable treatment of sovereign bonds despite significant actual differences in credit risk\(^{68}\). In addition, while in theory IRB approach banks would have to assign risk weights according to their internal ratings, the CRR allows these banks to apply the SA to sovereign exposures (‘permanent partial use’)\(^{69}\). This option has been used by many IRB banks. For example, the 2011 EBA stress test reveals that only 36 out of the 90 participating EU banks applied the IRB approach to sovereign debt, and only 20 % of the sovereign portfolio of the 90 EU banks is covered by the IRB approach\(^{70}\). As a result, most EU banks do not have to hold capital against any the sovereign exposures to EU Member States. In addition, increases in the credit risk of sovereign debt securities do not result in capital charges either, because the current IAS 39 accounting rules allow delaying impairment until too late\(^{71}\).

The combination of the preferential regulatory and accounting treatment of sovereign debt essentially provides a ‘sovereign subsidy’ to EU banks, the value of which increases with the riskiness of the underlying sovereign exposure\(^{72}\). For example, the ‘sovereign subsidy’ for a bank from an arguably ‘safe’ country such as Germany or France would increase with the amount invested in riskier sovereign debt such as that of GIIPS countries (Greece, Italy, Ireland, Portugal, and Spain). In turn, these banks would be exposed to sovereign risk in peripheral countries endangering core EU countries’ financial stability\(^{73}\). On top of

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\(^{63}\) Lu et al. (2012); Chircop and Novotny-Farkas (2015) find that banks affected by the removal of the prudential filter on unrealised gains and losses on AFS securities decreased the amount of risky investment securities in their AFS portfolio.

\(^{64}\) Article 35 CRR.

\(^{65}\) Article 467 CRR and Article 468 CRR.

\(^{66}\) Article 467(2) CRR.

\(^{67}\) See the EBA’s (2015c) Supervisory Disclosure document for the national options according to Article 467(2) CRR.


\(^{69}\) Article 150(1)d) CRR.


\(^{71}\) See Gebhardt (2015).

\(^{72}\) Korte and Steffen (2015).

\(^{73}\) For a detailed discussion and empirical evidence see Korte and Steffen (2015).
that, the current regulatory and accounting framework might also explain why particularly banks located in GIIPS countries increased primarily their domestic sovereign exposures since the beginning of the sovereign debt crisis. Consequently, bank and sovereign default risk are more closely intertwined, which represents a further threat to financial stability in the EU.

The above mentioned concerns will be mitigated to some extent by the adoption of IFRS 9 (if consistently applied). Under IFRS 9, the AFS category will not exist, and financial assets classified in the FV-OCI category under IFRS 9 will not be subject to prudential filters under the CRR. Therefore, if sovereign exposures will be classified as FV-OCI, fair value gains and losses will affect regulatory capital. Banks might classify riskier exposures in the amortised cost category and still benefit from the zero risk weight under CRR. However, because the expected loss approach of IFRS 9 will apply to all assets of the banking book, the riskiness of the sovereign debt securities will be reflected in both - income and regulatory capital - through the recognition of Stage 1 12-month expected losses at each reporting date. Further, significant increases in sovereign credit risk will be recognised and charged to regulatory capital earlier through lifetime impairments in Stage 2. The larger and earlier regulatory capital charges might reduce banks’ incentives to excessively invest in risky sovereign bonds, which in turn, would enhance financial stability.

3.2.4. Other links between IFRS 9, CRR, Capital Maintenance Directive and dividends

Under the new regulatory requirements of CRR/CRD IV Tier 1 capital, which has the highest quality in terms of loss absorption, consists of ‘Common Equity Tier 1’ (CET 1) and ‘Additional Tier 1’ capital. Common Equity Tier 1 ratio has a minimum requirement of 4.5% of risk-weighted assets and the total Tier 1 capital ratio is required to be above 6% of risk-weighted assets (RWA). The total capital ratio requirement (including Tier 2 capital) should be at 8%. In addition, banks have to maintain a capital conservation buffer of Common Equity Tier 1 capital above the minimum capital requirement that needs to be maintained at 2.5% of RWA. When a bank breaches the capital conservation buffer, automatic safe guards kick in and dividends and discretionary bonus payments are limited. Finally, banks are also subject to the countercyclical capital buffer if the regulators determine that credit growth in the economy becomes excessive. The countercyclical capital buffer ranges from 0% to 2.5% of RWA and is subject to the discretion of national supervisors. Figure 5. provides an overview.

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74 E.g., Acharya and Steffen (2015).
75 EBA (2015b).
76 For a more detailed discussion, see Gebhardt (2015).
The earlier and larger loan loss allowances under IFRS 9 are likely to increase the likelihood that a bank breaches the capital conservation buffer, which will limit its ability to pay dividends.

I believe that the Capital Maintenance Directive will be less relevant than the CRR/CRD IV requirements in regard to prohibiting dividend payments. Article 17 Capital Maintenance Directive states that ‘distribution to shareholders may be made when on the closing date of the last financial year the net assets as set out in the company’s annual accounts are, or following such a distribution would become, lower than the amount of the subscribed capital plus those reserves which may not be distributed under the law or the statutes’. The net assets are calculated as the difference between total assets and liabilities reported in the financial accounts. The net assets under the Capital Maintenance Directive will generally be higher than the ‘net assets’ (or regulatory capital) under CRR/CRD IV, since, as mentioned above, regulatory capital calculations exclude certain assets such as goodwill or some deferred tax assets. Thus, the CRR/CRD IV requirements are likely to become binding before the rules of Capital Maintenance Directive kick in.

3.3. **IFRS 9 and the supervisory review process (Pillar 2)**

3.3.1. **Supervisory evaluation of loan loss provisioning**

The supervisory review process (Pillar 2 of the Basel framework) is relevant for loan loss provisioning on primarily two levels, which are emphasised in the Basel Committee’s Core Principles for Effective Banking Supervision.

- First, supervisors are responsible for assessing whether banks have appropriate credit risk management practices in place. Given that the IFRS 9 expected loss

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78 Deloitte (2014).
79 Directive 2012/30/EU.
80 Pillar 2 is implemented in the EU in the CRD IV Directive 2013/36/EU.
81 BCBS (2012).
82 Core Principle 17 in BCBC (2012).
approach specifically relies on data generated by banks’ internal credit risk models, the supervisory evaluation and validation of these models will become even more important in ensuring a high-quality and consistent application of IFRS 9 requirements.

• Second, they need to evaluate whether adequate policies are in place for the early identification of problem assets and whether reported loan loss allowances are adequate\(^{83}\). If the supervisors detect material deficiencies in banks’ risk management processes or in the level of loan loss allowances they have the power to impose capital add-ons (‘Pillar 2 add-ons’)\(^{84}\).

The above mentioned roles of supervisors are further reinforced by the Basel Committee’s recently issued (draft) Guidelines on accounting for expected credit losses\(^{85}\). The Guidelines also stress the role of supervisors in ensuring that the methods used by banks to determine loan loss allowances produce a robust measurement of expected losses under the applicable accounting framework. Although compliance with accounting standards lies primarily in the responsibility of management, auditors and enforcement bodies, the BCBS Guidelines implicitly suggest that supervisors should support enforcement of consistent implementation of IFRS\(^{86}\). In doing so, they may cooperate with internal and external auditors in reviewing a bank’s credit risk assessment and ECL measurement functions\(^{87}\).

3.3.2. Consistency in supervisory practices

The Basel Committee ‘emphasizes the importance of a high quality, robust and consistent implementation of ECL accounting frameworks across all jurisdictions’ and it aims ‘to drive consistent interpretation and practices, where there are commonalities and when the same accounting framework is applied’\(^{88}\). This emphasis on consistency in the current guidance stems from the experience with the IAS 39 incurred loss model that has been implemented with significant differences across and even within jurisdictions because of different national, regional and entity specific practices and interpretations\(^{89}\). In addition, differences in loan loss provisioning practice also arise, because supervisors vary in their willingness, ability and power to act and to intervene in loan loss provisioning\(^{90}\). The potential for diverging interpretation of loan loss accounting rules is even greater under the expected losses approach of IFRS 9, since it widens the scope for judgement. Therefore, while the Basel Committee’s Guidelines represent an important step towards a common supervisory understanding, consistency in the implementation and application of the IFRS 9 requirements will largely depend on the harmonisation of supervisory practices within the European Union. In this regard, the EBA has issued a number of Technical Standards and Guidelines to fulfil its legally binding role in promoting supervisory consistency and convergence of supervisory practices in the European Union\(^{91}\).

It should be noted, that consistent supervisory practices can only achieve consistency in inputs used in the recognition and measurement of ECLs, but not

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\(^{83}\) Core Principle 18 in BCBS (2012).
\(^{84}\) Core Principle 18 Essential Criteria 7 in BCBS (2012).
\(^{85}\) BCBS (2015a).
\(^{86}\) See also Gaston and Song (2014).
\(^{87}\) BCBS (2015a) par. 85.
\(^{88}\) BCBS (2015a) par. 3.
\(^{89}\) BCBS (2015a), par. 3 and IFRS 9 BCE139.
\(^{90}\) See e.g. Gaston and Song (2014).
\(^{91}\) See Article 1(2) and Article 8(1)a and b) of EBA Regulation (Regulation (EU) No 1093/2010); Article 107 CRD IV (Directive 2013/36/EU).
**consistent outputs** because of inherently different business and risk management models across banks. Relatedly, supervisors should not strive to intervene into loan loss provisioning in order to obtain a specific outcome that meets supervisory goals, which would compromise the objective of financial reporting to provide useful information to a broad range of financial statement users.

While the Basel Committee’s Guidelines acknowledge the different objectives of financial reporting and bank supervision, it sets out certain supervisory expectations with respect to the measurement of 12-month ECL and the determination of ‘significant increases’ in credit risk. In addition, it limits the use of practical expedients provided in IFRS 9. The Guidance in these three areas reflects the Basel Committee’s preference for more conservative loan loss provisioning. For example, the Guidelines emphasise that nil 12-month ECL allowances should be rare and that the methodology used to estimate 12-month ECL should allow for the more timely build-up of allowances. Further, the BCBS expects that the definition of default is guided by the definition used for regulatory purposes (see Section above), emphasising that the regulatory qualitative criterion ‘unlikeliness to pay’ should be the primary indicator while the 90-day-past due status should only serve as a ‘backstop’.

However, as noted above, differences in regulatory definitions of default across jurisdictions were one reason for the observed differences in loan loss provisioning practices under IAS 39. With regard to practical expedients, the Guidelines strongly emphasise that the past due status is only a lagging indicator of ‘significant increases’ in credit risk, because determinants of credit risk deteriorate a considerable time before any objective evidence of delinquency. This is also recognised in IFRS 9, which therefore requires banks to use all reasonable and supportable information that is more forward looking than past due information, if available at undue cost or effort. However, the Guidelines expects that banks will incur significant upfront costs to establish systems and processes that produce all reasonable and supportable information, but does not consider these costs to be undue because they are likely to be outweighed by the long-term benefit of a high-quality implementation. Also, the Guidance states that using the low credit risk exemption in IFRS 9 would reflect a low-quality implementation of the ECL model. Therefore, it expects that this exemption will be used only in rare and appropriate circumstances.

The inclusion of practical expedients in IFRS 9 was meant to alleviate the operational difficulties without being detrimental to the ECL model’s integrity. In contrast to the IFRS 9 requirements, the BCBS’s Guidance does not seem to consider the concept of materiality. The Guidelines will be used not only by those national supervisory authorities, but also by auditors. Depending on the interpretation by these parties, it bears the risk of being implemented too restrictively and thereby not only imposing significant costs on banks, but also biasing the measurement of ECL towards a more conservative estimation. Furthermore, the interpretation of the Guidelines might vary across jurisdictions. Finally, although the Guidelines are addressed at large internationally active banks, there is a risk that the requirements will be adopted by national supervisors to a wider range of banks.

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92 However, as discussed above, this is similar to the requirements under IFRS 9.
94 IFRS 9 B5.5.2.
95 BCBS (2015a), par. A49.
96 BCBS (2015a), par. A50.
An example of how a specific supervisory interpretation of loan loss accounting rules might endanger the integrity of financial reporting is provided by the Spanish case. In Spain the Banco de España has the authority to set accounting standards for banks and it introduced a so called 'dynamic provisioning' approach in the year 2000. Under this approach, in addition to the ‘normal’ loan loss provisions, banks had to set aside statistical provisions based on either their own internal ratings or predetermined loss rates assigned to different classes of risk exposures. The rationale behind this statistical provision is to build up a reserve during good times, when loan growth is high, that can be depleted during bad times. Upon transition to IFRS, these reserves should have been reversed, because they were inconsistent with the IAS 39 incurred loss approach. However, the Banco de España actually forced its banks to continue the dynamic provisioning regime under IFRS. At transition, instead of reversing statistical reserves that had been separately disclosed under Spanish accounting rules, Spanish banks actually merged them with general loan loss provisions, and labelled the resulting amount as ‘collective impairments’ under IFRS. Not only was this procedure incompatible with IAS 39 requirements, but it also made loan loss provisioning in Spain less transparent\(^{99}\). In addition, the reserves built up during good times could be used by banks to hide losses until these reserves were depleted. This allowed banks to look healthy (sometimes for several years), when they were actually in financial distress. Ultimately, several Spanish banks crashed and had to be bailed out after their reserves had been depleted and hidden losses materialised\(^{100}\).

3.4. **IFRS 9 and market discipline (Pillar 3)**

3.4.1. **Loan loss provisioning and market discipline**

A large theoretical literature in banking posits that informational transparency of banks plays a fundamental role in promoting market discipline as a complementary force in bank supervision\(^{101}\). The increased emphasis on market discipline as a prudential tool is exemplified by its codification in Pillar 3 of the Basel II/III capital adequacy framework and in Part 8 of the CRR. While there is no uniform definition, market discipline can be conceptualised as a mechanism by which market participants monitor and discipline excessive risk-taking of banks\(^{102}\). Market discipline can operate through different channels:

- First, it can operate through the direct influence that market participants exert on a bank’s risk taking behaviour, for example, by penalising banks for greater risk-taking by demanding higher returns on their investment\(^{103}\). Anticipating investors’ behaviour bank managers will have reduced *ex ante* risk taking incentives.

- Second, indirect market discipline can also operate through supervisory intervention triggered by market signals (e.g., price movements of bank securities)\(^{104}\).

- Third, market discipline can also limit the scope of regulatory forbearance by incentivising bank supervisors to promptly intervene in troubled banks\(^{105}\).

One of the main building blocks of market discipline is the public availability of adequate, timely, consistent and reliable information on the bank’s financial performance and risk.

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\(^{100}\) Bloomberg (2012).

\(^{101}\) See for an overview Bushman (2015).

\(^{102}\) E.g. Stephanou (2010); Bushman and Williams (2012).

\(^{103}\) However, it should be noted that expected bail-outs, too-big-to-fail status etc. can severely undermine market participants incentives to discipline banks. See e.g. Rochet (2005); Stephanou (2010).

\(^{104}\) Stephanou (2010), p. 5.

exposures. In other words, the extent to which bank supervisors can rely on market discipline as a complementary tool in bank supervision depends on the quality of information available to capital market participants. For banks loan loss provisioning is a key accounting item that has a significant impact on banks’ earnings and regulatory capital, and it directly influences the information properties of financial reports with respect to reflecting loan portfolios’ risk attributes.

3.4.2. IFRS 9 and expected loss related disclosures

Since the ECL approach under IFRS 9 significantly widens the scope for managerial judgement, the extended disclosure requirements (implemented in IFRS 7, which will be applicable when IFRS 9 will apply, presumably from 1 January 2018) will play a crucial role in supporting market participants and bank supervisors in their assessment of the adequacy of ECL measurement. The newly required disclosures particularly address the aspects of the ECL approach that involve most managerial discretion including how the entity has determined ‘significant increases’ in credit risk, the definition of default, the basis of inputs and assumptions and the estimation techniques used to measure 12-month expected losses etc.

In addition to expected loss related disclosures, banks’ Pillar 3 reports provide another set of relevant disclosures that are useful to investors and bank supervisors to evaluate credit risk inherent in banks’ portfolios. For example, for IRB banks Pillar 3 requires disclosures of the main expected loss parameters such as exposure at default (EAD), exposure-weighted PDs and LGDs for each exposure class and each relevant geographical location. Furthermore, banks must disclose estimated losses against actual losses in each exposure class for a sufficient period to help assess the performance of banks’ internal rating system. Where appropriate, disclosures should also include a comparison of estimated and actual PDs and LGDs. An example of detailed Pillar 3 disclosures of risk parameters is provided in the Annex 2. Such disclosures are essential for evaluating the validity and adequacy of banks ECL estimates. For example, an interesting study shows how market participants might use the disclosure of the standard parameter estimates just mentioned and even basic, textbook credit risk models to estimate banks’ exposure to credit risk and their capital position. In two case studies, the author is able to exploit disclosures prompted by either a government investigation or private litigation to estimate credit losses that were very close to the actual credit losses incurred by the two banks under study.

However, while some banks already provide information in their Pillar 3 that would allow a similar analysis, the extent of disclosure and compliance with Pillar 3 varies across banks in the EU as reflected in the EBA’s periodic assessment of Pillar 3 disclosures. In this regard, the efforts of the EBA in this area will be crucial in order to improve the adequacy, relevance and comparability of disclosures and in identifying best practices.

In addition to banks’ specific disclosures, market participants can also use aggregate disclosures such as those provided during the EBA’s stress tests. For example, the 2011 EBA stress test disclosed the distribution of PDs and LGDs for the main credit risk exposure classes

108 For an overview of the relevant disclosure requirements see ERNST & YOUNG (2014), p. 79f.
109 Article 452 CRR.
110 Article 452(i) CRR.
111 Bartlett (2012).
112 EBA (2013a).
for the 90 participating EU banks (see Annex 3). Such aggregate disclosures can be used as yardsticks against which bank specific parameter estimates can be benchmarked.
4. IMPLICATIONS OF THE IFRS 9 IMPAIRMENT MODEL FOR FINANCIAL STABILITY

4.1. The relation between loan loss accounting and financial stability

In and of itself, the underlying loan loss provisioning approach is unlikely to play a major role from a financial stability perspective. Specifically, how a bank recognises expected credit losses does not change the cash flow it receives from loans, which are determined by borrower payments. Loan loss provisioning will have an effect on financial stability only to the extent it has an influence on banks’ real decisions in terms of investment, funding, and dividend policies. For example, earlier and higher reported loan losses will reduce a bank’s reported earnings and equity capital, which in turn, may induce a bank to undertake some combination of issuing new equity capital, reducing its dividends, and reducing its risky investments, conservative actions that it otherwise might not undertake. It is these actions that reduce the risk of bank failure and not the change in reported loan losses.

Relatedly, it is important to bear in mind that financial reporting ‘is just one piece of the larger regulatory configuration’. Financial reporting in general and loan loss provisioning in particular will only have an impact on financial stability through its interactions with other pieces of the regulatory configuration, specifically with the three Pillars of bank supervision and regulation. In this regard, it should be also noted that even market discipline does not work in a vacuum. As emphasised by Stephanou (2010), market discipline has less to do with the market per se and is more about the institutional framework that provides relevant information, the right incentives, and control used to reduce the problems of moral hazard and asymmetric information that are endemic in banking. For example, a more timely and transparent loan loss provisioning system is unlikely to improve market discipline, if market participants do not have proper incentives to exert discipline on banks. Regulatory measures that could raise incentives for monitoring by market participants include increasing the cost of private bank failure by redesigning safety nets and credibly committing not to bail out failing banks. Furthermore, incentives for bank management to respond to market signals could be increased by strengthening corporate governance mechanisms.

4.2. Will provisioning under IFRS 9 be less procyclical than IAS 39?

Every loan loss accounting model that aims to reflect economic conditions is naturally procyclical. From a financial stability perspective the concern is whether loan loss accounting amplifies the upward and downward swings of the business cycle as illustrated in Figure 6. below. This has been potentially the case under the incurred loss approach of IAS 39. During boom periods, banks can recognise risk premia included in the interest rates charged on loans but not the matching expenses for expected credit risk. Under benign economic conditions, the probability of specific loss events that would trigger impairment under IAS 39 is low. This leads to overstated earnings and regulatory capital, which in turn, allows banks greater loan growth within the regulatory capital standards and dividend payments. In a downturn, however, previously accumulated unrealised loan losses materialise and hit regulatory capital, which compromises its ability of regulatory to cover

114 Benston and Wall (2005), p. 94.
115 Benston and Wall (2005), p. 95.
unexpected losses. The drop in regulatory capital and the increased riskiness of loans will induce banks to either raise new equity capital or to cut lending, in order to meet the minimum regulatory capital requirements. However, as financing frictions might limit banks’ ability to raise new capital, banks might be forced to cut back their lending, which can result in a credit crunch\textsuperscript{119}. In addition, market disciplining mechanisms are hampered, because markets are informed about losses only with a delay, which can further exacerbate financing frictions in a downturn\textsuperscript{120}.

**Figure 6: Loan loss provisioning and procyclicality**

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure6.png}
\caption{Loan loss provisioning and procyclicality}
\end{figure}

\textbf{Source:} Author’s own illustration.

The expected loss approach under IFRS 9 can mitigate the above mentioned concerns:

- First, the recognition of 12-month ECL in Stage 1 in a sense serves as an adjustment to the credit spread that is recognised through the yield, and thus, results in less overstated profits. This will reduce the possibility of distributing overstated profits in the form of dividends and bonuses during boom periods and will result in more capital to withstand losses during a downturn\textsuperscript{121}. In addition, the earlier recognition of losses in regulatory capital could mitigate excessive loan growth during boom times. In fact, as noted in Chapter 2. and illustrated in Figure 2., the Stage 1 ECL will overstate the loan loss allowances in the beginning of the life of a loan, and thus, has a ‘buffer effect’ on regulatory capital that increases with the riskiness of newly extended loans. However, this buffer effect on regulatory capital will primarily be relevant for \textbf{SA banks}. For \textbf{IRB banks}, the regulatory expected loss buffer is likely to exceed the IFRS 12-month ECLs during upswings, because the former is based on through-the-cycle PDs and downturn LGDs, while the latter is calculated using point-in-time estimates. However, during economic downturns accounting expected losses will exceed the regulatory expected losses not only because PIT estimates will be larger than TTC estimates, but because accounting impairments will increasingly recognise lifetime losses in Stage 2 and Stage 3. As noted before, these ‘excess’ provisions might be included as part of Tier 2 capital up to a limit of 0.6 % of RWAs.

\textsuperscript{119} Gebhardt and Novotny-Farkas (2011), p. 302.

\textsuperscript{120} Bushman and Williams (2014).

\textsuperscript{121} See also Gaston and Song (2014), p. 16.
Second, the more timely recognition of loan losses and extended disclosures will promote market discipline. In particular, providing earlier information about (increases in) credit risk to market participants may reduce financing frictions in times of financial stress.

Taken together, the **IFRS expected loss model is likely to mitigate the effect of the features of IAS 39 that potentially amplified procyclicality**. That being said, I believe that the **expected loss approach will by construction reflect natural procyclicality in the economy**. Specifically, because the parameter inputs used in estimating ECLs are Pit estimates they will oscillate with the business cycle (see Figure 3). This means that ECLs will be lower during upswings and significantly larger during downswings. Indirect evidence on this is provided by empirical studies that examine the procyclicality of regulatory capital. This literature suggests that that IRB banks that compute Pit PDs produce highly significant variations in regulatory capital from expansionary to recessionary periods, as opposed to IRB banks that compute TTC PDs.122

To what **extent the ECL model will be procyclical will largely depend on how it is implemented**. For example, in a simulation study Grünberger (2014) shows that the 2013 ED model is procyclical, but this procyclicality is mitigated if forward PDs are considered. However, the estimation of forward looking PDs is challenging and many banks will not have yet the systems and the relevant information to estimate them reliably.123 Similarly, participants in the fieldwork carried out by the IASB noted that the better an entity is able to incorporate forward-looking and macroeconomic data into its credit risk management models, the more responsive the loss allowance would be to changes in credit risk.124 Relatedly, if banks are not able to identify ‘significant increases’ in credit risk on a timely basis, significant ‘cliff effects’ are possible, when banks’ loans switch from Stage 1 to Stage 2, i.e., when they transition to lifetime losses recognition.125 This can significantly increase the volatility of regulatory capital. The IASB’s fieldwork indicates that participants found it difficult to incorporate more forward-looking data (for example, macroeconomic data) at a level that enabled them to identify specific financial assets for which there have been significant increases in credit risk since initial recognition.126

**4.3. Discretionary loan loss provisioning**

The IFRS 9 expected loss model introduces a **significant amount of managerial discretion** over the timing and measurement of expected losses. With regard to timing, there is substantial scope for judgment in determining significant increases in credit risk that trigger the switch from 12-month ECL to the recognition of lifetime losses. To avoid the above mentioned ‘cliff effects’ management might be inclined to delay the movement of assets from Stage 1 to Stage 2. In this case, recognised impairments would also be ‘too little too late’. In a downturn, when problems unfold quickly, the initial delay of the recognition of Stage 2 losses can exacerbate the ‘cliff effect’ with a sudden and substantial increase in loan loss allowances and a hit to regulatory capital creating the same problems as observed with IAS 39’s incurred loss model. In addition, the longer the forecast horizon that has to be considered in the measurement of expected losses the greater the valuation uncertainty and subjectivity.

122 For an overview of this literature see EBA (2013b).
123 Grünberger (2014).
124 IFRS 9BCE.136.
125 The ‘cliff effect’ refers to an abrupt and significant increase in loan loss allowances and is illustrated in Figure 2. by the step at the Stage 1/Stage 2 threshold.
126 IFRS 9 BCE134.
As widely acknowledged in the accounting literature, discretion is a double edged sword\textsuperscript{127}. On the one hand, discretion allows bank managers to incorporate private information about future credit losses. On the other hand, discretion might be used opportunistically to prop up reported earnings and regulatory capital\textsuperscript{128}. Managerial incentives for opportunistic accounting choices are primarily provided by executive compensation, capital market pressures and capital inadequacy concerns. The closer alignment between accounting and the new bank regulation under CRR will further reinforce these incentives. The combination of higher minimum regulatory capital requirements under CRR and larger loan loss allowances will increase the likelihood that certain regulatory thresholds, e.g., the capital conservation buffer, are breached, which automatically will limit dividends and bonus payments. Therefore, management will probably have even stronger incentives and greater opportunity under the expected loss approach to delay the recognition of losses and to smooth income.

The recent literature examining discretionary loan loss accounting choices highlights that managerial discretion can detrimentally affect financial stability through two distinct accounting channels\textsuperscript{129}:

- First, it can exacerbate capital inadequacy concerns during economic downturns by compromising the ability of loan loss allowances to cover both unexpected recessionary loan losses and loss overhangs from previously unrecognised losses.
- Second, discretionary loan loss provisions degrade transparency which can exacerbate financing frictions and hamper market discipline of bank risk taking. Capital inadequacy concerns in combination with high financing frictions can increase bank fragility, while capital inadequacy combined with weak market discipline can provide strong incentives for banks to engage in risk-shifting behaviour\textsuperscript{130}.

Therefore, particularly in the context of expected loss accounting extensive disclosure of information related to the inputs, assumptions and techniques used to identify significant increases in credit risk and to estimate ECLs will be crucial. \textbf{Unfortunately, the disclosure requirements do not include a comparison of previous estimates of expected credit losses with actual outcomes (‘back-testing’).} This information would help users of financial statements to assess the ability of management to predict future losses and the extent to which prior loan loss provisions were over- or understated which in turn could mitigate discretionary behaviour. Such disclosure was proposed in the Supplementary Document (SD) in 2011\textsuperscript{131}, but the IASB removed this provision following opposition from respondents to the SD. Respondents argued that ‘back-testing on expected credit loss amounts would not provide useful information, and could be misleading because estimates of expected credit losses necessarily require judgement’\textsuperscript{132}. However, precisely because of the judgemental nature of ECL estimates, back-testing disclosures would be necessary and useful. Moreover, banks also provide such disclosures for regulatory expected loss estimates in their Pillar 3 reports. In the absence of back-testing disclosures, bank supervisors and auditors, who already gained significant experience with the implementation of credit risk models for regulatory purposes, will play an even more important role in validating methods applied by banks to estimate expected losses.

\textsuperscript{127} E.g., Bushman and Landsman (2010); (Bushman) 2015.
\textsuperscript{128} Bushman (2015), p. 11.
\textsuperscript{129} E.g., Beatty and Liao (2011); Bushman and Williams (2012); Bushman (2015).
\textsuperscript{130} Bushman (2015), p. 31.
\textsuperscript{131} IASB (2011) Z12.
\textsuperscript{132} IASB (2013b) BC109.
4.4. Complexity

Critics of IAS 39 lamented that the use of different impairment models for different asset categories was complex. The IASB argues that the use of one impairment model under IFRS 9 for all financial assets measured at amortised cost and FV-OCI reduces complexity\(^{133}\).

While the earlier recognition of ECLs on FV-OCI financial assets is desirable, the complexity of the measurement of FV-OCI increases under IFRS 9. Specifically, 12-month or lifetime ECLs are recognised through profit or loss and presented as ‘accumulated impairment amount’ in other comprehensive income (OCI)\(^{134}\). Credit related changes in fair value due to changes in market credit spreads that exceed the ECL recognised in profit or loss will be recognised in OCI without affecting net income. Other non-credit related changes in fair value also continue to be recognised in OCI\(^{135}\). Besides complicating the measurement of the separate components of fair value changes, the resulting numbers will be difficult to understand. The interpretation might be further complicated in cases when credit related changes and non-credit related changes move in opposite directions, e.g., when credit risk increases and at the same time market interest rates decrease.

A more subtle complexity and inconsistency arises from the interaction with supervisory rules. Specifically, increases in credit risk on the asset side will impact regulatory capital through larger ECL impairment charges. Increases in credit risk on the asset side will also increase the own credit risk of banks, which, under IFRS 9, in the case of liabilities for which a bank uses the fair value option would result in fair value gains recognised in OCI (unless it creates an ‘accounting mismatch’)\(^{136}\). However, for supervisory purposes, unrealised fair value gains and losses on liabilities due to changes in own credit risk have to be excluded from the calculation of regulatory capital\(^{137}\). The supervisory exclusion of gains and losses due to own credit risk, that have an offsetting effect on the deterioration and improvement of credit quality on the asset side, can lead to artificial volatility of regulatory capital, particularly for banks that extensively use the fair value option on the liability side.

Generally, the accounting expected loss model is more closely aligned with regulatory expected loss, particularly in Stage 1. Nevertheless, the new impairment model and the use of forward looking information will pose significant operational challenges to banks. To implement a forward looking approach, historical data will not be sufficient and banks will need to build information systems that gather the necessary information. Internal models will have to be developed that translate the relevant information into ECL estimates. IRB banks are likely to be able to leverage existing risk management systems and databases built up in compliance with Basel II for the calculation of IFRS 9 expected losses. However, adjustments will be necessary to transform through-the-cycle PDs and downturn LGDs into point-in-time forward looking estimates, which is a complex procedure\(^{138}\).

SA banks are likely to face greater operational challenges due to the lack of sophisticated IRB systems. To some extent they will be able to use external ratings in order to estimate ECLs. It is not clear whether SA banks will (should) be allowed to use the

\(^{133}\) IFRS 9 BCE105.
\(^{134}\) EY (2014), p. 64.
\(^{135}\) See also Grünberger (2013), p. 40.
\(^{136}\) IFRS 9 5.7.7. and 5.7.8.
\(^{137}\) Article 33(1)\(b\) CRR.
practical expedients provided under IFRS 9. These were introduced to reduce the operational burden and implementation costs for entities with less sophisticated credit risk management systems. However, too much reliance on practical expedients, e.g., using past due information or the ‘low credit risk simplification’, bears the risk of delaying the recognition of ECLs that would be inconsistent with the objective of IFRS 9.

139 IFRS 9 BCE163.
5. INSIGHTS FROM THE ACADEMIC LITERATURE

In the accounting literature there is ample empirical evidence that loan loss provisions have been used for earnings, tax and capital management\textsuperscript{140}. In this Chapter, I will focus on the discussion of studies that provide some insights on the specific issues discussed in Chapters 3. and 4. The following Section describes the impact of the adoption of IAS 39 on loan loss provisions of European banks. Then, I discuss recent studies that examine the economic consequences of discretionary loan loss provisioning, particularly in the context of financial stability\textsuperscript{141}.

5.1. The impact of IAS 39 on loan loss provisioning in Europe and the interaction with bank supervision

Before the mandatory introduction of IFRS in the EU in 2005, local GAAP rules for loan loss provisioning were based on the EC Bank Accounts Directive\textsuperscript{142}, which allowed banks, at least in part, to anticipate the losses expected to occur due to future events. The largely principles-based rules left considerable leeway in how they were applied, which resulted in different loan loss provisioning practices across EU Member States. This diversity stemmed partly from different tax and regulatory treatment of loan loss allowances, and, in particular, from the extent of supervisory intervention into loan loss provisioning. For example, as mentioned above, the Spanish supervisor, the Banco de España introduced a dynamic loan loss provisioning regime. The Danish Financial Services Authority required banks to recognise all potential future losses in their loan loss provisions in order to approximate the market value of loans\textsuperscript{143}. However, in practice, this probably just meant a very conservative way of loan loss provisioning as reflected in the following statement of Denmark's Nationalbank: 'Under 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'\textsuperscript{144}.

Loan loss accounting under IAS 39 differs from local GAAPs with regard to two main features.

- First, under IAS 39 banks can recognise only incurred losses; the recognition of losses expected as a result of future events is not permitted.
- Second, to determine the impairment loss, the expected future cash flows have to be discounted using the original effective interest rate.

In contrast, local GAAP rules allowed or even required to consider future losses and the prevailing practice was to use the sum of undiscounted future cash flows to measure the amount of impairment loss\textsuperscript{145}. This means that upon transition to IFRS/IAS 39, one would expect to see two countervailing effects on the level of loan loss allowances. On the one hand, we should observe a decrease in loan loss allowances due to the reversal of provisions that go beyond incurred losses. On the other hand, the measurement of impairment losses based on discounted cash flows should result in an increase in loan loss

\textsuperscript{140} These studies are extensively reviewed in Beatty and Liao (2014).
\textsuperscript{141} For a more comprehensive review of the literature on the interplay of accounting standards and bank regulation see BCBS (2015b).
\textsuperscript{143} Bernard et al. (1995); Gebhardt and Novotny-Farkas (2011), p. 298f.
\textsuperscript{144} Danmarks Nationalbank (2006), p. 27.
\textsuperscript{145} Gebhardt and Novotny-Farkas (2011), p. 297.
allowances.\textsuperscript{146} Figure 7. presents the median net impact of changes in loan loss allowances upon transition to IFRS on shareholders’ equity for 87 banks from twelve EU countries.

**Figure 7:** The median net impact of changes in loan loss allowances on shareholders’ equity

![Figure 7](image.png)

**Source:** Novotny-Farkas (2011), p. 62.

In terms of the transitional impact of changes in loan loss allowances three major country clusters can be identified in Figure 7. There is a group of countries that experienced a \textbf{significant decrease} (increase) in loan loss allowances (in shareholders’ equity) reflecting previous ‘over-reserving’ (e.g., Italy and Denmark). Another group of countries show only a minimal change in their median level of loan loss allowances (e.g., Finland, Netherlands, United Kingdom, Sweden). These countries had local GAAP provisioning rules that were similar to those in IAS 39. Finally, there is a cluster of countries that experienced a \textbf{significant increase} (decrease) in loan loss allowances (shareholders’ equity) which is primarily attributable to the effect of \textit{discounting}.

Interestingly, the median impact of IAS 39 on loan loss allowances is zero for Spanish banks. One would have expected to observe significant reversals of statistical provisions built up under the dynamic provisioning regime, which are inconsistent with IAS 39’s incurred loss approach. However, as discussed in Section 3.3.2., the Spanish supervisor required its banks to maintain the dynamic provisioning model even under IFRS. The transition effects of Spanish banks provide empirical evidence of the \textbf{Spanish supervisors’ resistance to comply with IAS 39}.

In contrast, as expected, Danish banks reversed significant portions of their excess reserves built up due to the application of the Danish ‘mark-to-market’ accounting rules. Thus, unlike in Spain, the \textbf{Danish supervisor accepted the primacy of IFRS} as the accounting framework for Danish banks. Consistent with this argument, Danmarks Nationalbank notes that the ‘new accounting rules’ for banks (i.e., IFRS) ‘entail that provisions for future losses must no longer be based on a prudential principle, but on a neutrality principle’\textsuperscript{147}.

\textsuperscript{146} Novotny-Farkas (2011), 30f.

\textsuperscript{147} Danmarks Nationalbank (2007), p. 71.
The rationale behind the restrictive incurred loss model of IAS 39 was to limit the scope for opportunistic discretion and to converge with the similarly restrictive US GAAP impairment model\textsuperscript{148}. Recent studies find that the adoption of IAS 39 in the EU has indeed led to a significant decrease in income smoothing\textsuperscript{149}. However, the reduction in income smoothing is less pronounced in countries with strict bank supervision (e.g., Spain), which is consistent with supervisors preference for prudent provisioning.

Taken together, the findings above suggest that supervisors play a key role in the application of accounting standards and that the intervention of supervisors leads to variation loan loss provisioning even after the adoption of the restrictive incurred loss model of IAS 39. This raises the concern that due to the wider scope of judgement under the IFRS 9 model and different supervisory practices the divergence in loan loss provisioning practice might become larger. As noted in Section 3.3., while supervisors can and should be involved in the enforcement of accounting standards, they should not use their power to tailor loan loss provisioning to meet specific prudential objectives. Too much supervisory intervention introduces a prudential bias into loan loss provisioning that compromises the integrity of financial reporting. In this regard, the evidence from the transition from arguably ‘forward-looking’ regimes to IAS 39 suggests that the discretion afforded in these regimes was not necessarily used to incorporate information about future expected losses, but to build up reserves. This practice clearly undermines the objective of financial reporting to provide useful information to a wide range of financial statement users. In addition, as evidenced in Spain, it ultimately might impair financial stability.

### 5.2. Discretion in loan loss provisioning and its consequences for financial stability

Recent studies in accounting research capture variation in accounting policy choices by exploiting differences in the discretionary application of loan loss accounting rules across banks and across countries to estimate the extent to which banks delay expected loan loss recognition in loan loss provisions\textsuperscript{150}. They use this estimate of delayed expected loss recognition (DELR) to examine whether and how it affects the procyclicality of banks’ lending behaviour and bank fragility.

A recent study finds for a sample of U.S. banks that banks that delay expected loss provisioning reduce lending more than those with smaller delays in provisioning because of greater capital inadequacy concerns and the resulting difficulty to replenish capital during the crisis\textsuperscript{151}. This finding is consistent with DELR magnifying the effect of procyclicality. Another study hypothesises that DELR increases vulnerability of banks to downside risk by creating expected loss overhangs that threaten future capital adequacy and by degrading bank transparency which increases financing frictions\textsuperscript{152}. Using also a U.S. sample, the study finds that DELR is associated with higher stock market illiquidity and a higher correlation between bank-level liquidity and aggregate banking sector illiquidity, which is consistent with DELR banks as a group simultaneously facing elevated financing frictions. Furthermore, DELR banks are more likely to suffer severe drops in their equity values during a recession. Finally, DELR is associated with significantly higher co-dependence between downside risk of individual banks and downside risk of the banking sector suggesting that DELR contributes to systemic risk.

\begin{itemize}
\item \textsuperscript{148} E.g., Gebhardt and Novotny-Farkas (2011), p. 290.
\item \textsuperscript{149} Gebhardt and Novotny-Farkas (2011); Leventis et al. (2011).
\item \textsuperscript{150} Beatty and Liao (2011); Bushman and Williams (2012); Bushman and Williams (2015); Bushman (2015).  
\item \textsuperscript{151} Beatty and Liao (2011).
\item \textsuperscript{152} Bushman and Williams (2015).
\end{itemize}
Moreover, another recent study examines the implications of discretionary loan loss provisions for risk discipline using an international sample of banks. Exploiting cross-country variation of discretion afforded in the measurement of loan loss provisions the authors construct two measures of two distinct manifestations of forward looking provisioning. The first captures the extent to which explicit forward-looking information is reflected in loan loss provisions. The second measure captures the extent banks use loan loss provisions to smooth earnings. The study finds that forward-looking provisioning designed to smooth income dampens market discipline over risk taking, consistent with diminished transparency inhibiting outside monitoring. In contrast, forward-looking provisioning that reflects timely recognition of expected loan losses is associated with improved risk-taking discipline.

The above mentioned studies provide (at least) three important insights:

- First, as discussed at several point in this paper, DELR is detrimental for financial stability.
- Second, since the studies using a U.S. sample exploit variation in the timeliness of loan loss recognition under the US GAAP incurred loss model, the findings suggest that even under an incurred loss approach there is sufficient discretion to provide for loan losses on a timely basis.
- Third, the international study suggests that providing the discretion afforded to banks in a more forward-looking provisioning regime is not necessarily used to inform users of financial statements about future expected losses.

Therefore, introducing a more forward looking expected loss approach such as the one under IFRS 9 is unlikely to bring the desired benefits, if it is not implemented and applied properly.

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153 Bushman and Williams (2012).
6. CONCLUSIONS

Based on the comparison of the IAS 39 and IFRS 9 impairment models, I can conclude that:

- the expected loss model of IFRS 9 incorporates a significantly larger set of information relevant for identifying future ECLs and lead to an earlier recognition of ECLs.

- As a result, it better reflects the credit quality of financial assets, and therefore, addresses the G20 (and others’) call for strengthening the accounting recognition of loan losses by incorporating a broader range of credit information.

- In addition, IFRS 9 addresses some supervisory concerns, because it will require larger loan loss allowances, which will reduce the build-ups of loss overhangs and the overstatement of regulatory capital in boom periods.

- Furthermore, earlier and larger loan loss allowances limit the possibility of distributing overstated profits in the form of dividends and bonuses.

- Through these channels IFRS 9 can mitigate the amplifying effect of the incurred loss approach on procyclicality and reduce capital inadequacy concerns during a crisis.

- In addition, the earlier reporting of ECLs and extended disclosures requirements will improve transparency and contribute to more effective market discipline.

- Reduced capital inadequacy concerns combined with improved market discipline are likely to enhance financial stability.

However, several issues have been raised in the paper:

- First, the initial recognition of 12-month ECL is somewhat arbitrary and lacks conceptual justification.

- The stepwise recognition of loan losses in Stage 1 and Stage 2 will often lead to an over- or understatement of loan loss allowances. The magnitude of these will depend on how banks apply the IFRS 9 requirements, how timely they incorporate relevant information and update loan loss allowances. This is particularly an issue with regard to financial assets moving from Stage 1 and Stage 2 and the corresponding switch from 12-month ECL to the recognition of lifetime ECL.

- If management is not able or not willing to identify ‘significant increases’ in credit risk on a timely basis, the switch from Stage 1 to Stage 2 would result in significant ‘cliff effects’ creating the same problems as IAS 39.

- In this regard, the paper notes that the scope for judgement and managerial discretion is substantially wider than under IAS 39.

- Finally, similarly as IAS 39, IFRS 9 requires the expected cash flows to be discounted using the original effective interest rate, which results in net loan amounts that merely represent an accounting artefact.

The IFRS 9 expected loss model is more aligned with the regulatory expected loss under the IRB approach. However, differences pertain to the scope, the applicable parameter estimates and to the relevant time horizon. The IFRS 9 expected loss approach applies to all financial assets measured at amortised cost and FV-OCI assets, while the regulatory expected loss only applies to IRB portfolios. Due to the reliance of IFRS 9 on PiT parameter estimates accounting ECLs will be more cyclical than TTC regulatory expected loss. However, the impact of IFRS 9 on regulatory capital will be moderate for IRB banks. During
boom times TTC expected loss will generally exceed accounting PiT ECLs. In a downturn, ECLs under IFRS 9 are likely to exceed regulatory expected loss due to the increased recognition of lifetime losses, which impact Tier 1 capital, but ‘excess’ provisions can be included as part of Tier 2 capital. In contrast, the larger ECLs under IFRS 9 relative to IAS 39 will have a direct impact on Tier 1 capital of Standardised Approach banks, but ‘collective impairment provisions’ might be eligible for inclusion in Tier 2.

The paper also illustrates that IFRS 9 can to some extent mitigate a design flaw in the European implementation of Basel III in CRR, where effectively banks do not have to hold regulatory capital to cover the risks inherent in European sovereign exposures. If consistently applied, IFRS 9 will require the recognition of ECLs that is commensurate with the riskiness of the underlying sovereign exposures, and thus, result in a regulatory capital charge. Given the significant systemic risks stemming from the tremendous sovereign exposures of European banks, IFRS 9 can contribute to improving financial stability in this area.

I also highlight the role supervisors can play in the enforcement of IFRS 9, but also point to threats posed by too conservative supervisory interpretation of the accounting rules and by too much supervisory intervention into loan loss provisioning for the consistency and integrity of financial reporting. In this regard, the EBA’s efforts are crucial in harmonising supervisory practices, and as consequence, in achieving the consistent application of the expected loss approach.

Whether the introduction of the expected loss approach will yield the desired benefits will ultimately depend on whether the rules will be applied properly and consistently. This, in turn, will require the joint effort of preparers, auditors, supervisors and enforcement bodies. Overall, I believe that the IFRS 9 expected loss approach represents a reasonable compromise between providing relevant information and catering the needs of supervisors to enhance financial stability.
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• European Systemic Risk Board (ESRB), ESRB report on the regulatory treatment of sovereign exposures, 2015;

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• G20, London Summit – Leader’s Statement 2 April 2009;


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• Hoogervorst, H., ‘Closing the Accounting Chapter of the Financial Crisis’, Speech delivered at the Asia-Oceania Regional Policy Forum (New Dehli), 2014;


• IASB Staff-Paper (2011), Financial Instruments: Impairment – Bucket 1 Allowance, Reference 6A for the IASB Meeting on 14-16 December 2011,


**Legal Texts**


ANNEX 1: COMPARISON OF THROUGH-THE-CYCLE ESTIMATES VERSUS ACTUAL LOSS RATE

Loan loss rate (bps) – Longer term trends

ANNEX 2: EXAMPLE OF PILLAR 3 DISCLOSURES

Table 27: Wholesale IRB credit risk models

<table>
<thead>
<tr>
<th>Basel asset classes measured</th>
<th>RWAs for associated asset class US$b</th>
<th>Component</th>
<th>Number of significant models</th>
<th>Model description and methodology</th>
<th>Number of years loss data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central governments and central banks</td>
<td>54.1</td>
<td>PD</td>
<td>1</td>
<td>A constrained expert judgement model using a combination of expert judgement and quantitative analysis. The model inputs include macro-economic and political factors.</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LGD</td>
<td>1</td>
<td>An unsecured model built on assessment of structural factors that influence country’s long term economic performance. Floor of 45%, applied as required by the PRA.</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EAD</td>
<td>1</td>
<td>Because of limited internal default experience and sparse historical data on utilisations and limits, the model was developed based on a combination of expert judgement and similar exposure types.</td>
<td>7</td>
</tr>
<tr>
<td>Institutions</td>
<td>38.7</td>
<td>PD</td>
<td>1</td>
<td>The model is a combination of expert judgement and statistical analysis. The model inputs include balance sheet information, country risk factors and qualitative data.</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LGD</td>
<td>1</td>
<td>Regression model that produces a downturn LGD and expected LGD. Inputs include collateral and country risk data. Floor of 45%, applied as required by the PRA.</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EAD</td>
<td>1</td>
<td>Regression based model that predicts Credit Conversion Factors taking into account current utilisation, available headroom, product type, and committed/uncommitted indicator.</td>
<td>9</td>
</tr>
<tr>
<td>Corporates¹</td>
<td>322.3</td>
<td>PD</td>
<td>1</td>
<td>Even though the portfolio is low-default, the model is statistically built and calibrated on 15 years of data. The inputs include balance sheet information, market data, macroeconomic and country risk indicators and qualitative factors.</td>
<td>&gt;10</td>
</tr>
<tr>
<td>Global large corporates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other corporates</td>
<td>PD</td>
<td>5</td>
<td>Corporates that fall below the global large corporate threshold are rated through local PD models, which reflect regional circumstances. These models use balance sheet data, behavioural data and qualitative information to derive a statistically built PD.</td>
<td>&gt;10</td>
<td></td>
</tr>
<tr>
<td>All corporates</td>
<td>LGD</td>
<td>3</td>
<td>Local statistical models covering all corporates including Global large corporates developed using various data inputs, including collateral information, recoveries and geography.</td>
<td>&gt;7</td>
<td></td>
</tr>
</tbody>
</table>

Table 28: Wholesale IRB portfolio analysis

<table>
<thead>
<tr>
<th></th>
<th>Europe</th>
<th>Asia</th>
<th>MENA</th>
<th>North America</th>
<th>Latin America</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>At 31 December 2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure weighted average PD</td>
<td>IRB advanced approach</td>
<td>Central governments and central banks</td>
<td>0.09</td>
<td>0.09</td>
<td>1.23</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Institutions</td>
<td>0.66</td>
<td>0.22</td>
<td>0.55</td>
<td>0.13</td>
<td>0.76</td>
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<tr>
<td></td>
<td>Corporates¹</td>
<td>2.62</td>
<td>1.44</td>
<td>0.09</td>
<td>1.26</td>
<td>–</td>
</tr>
<tr>
<td>IRB foundation approach</td>
<td>Central governments and central banks</td>
<td>–</td>
<td>–</td>
<td>0.04</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Institutions</td>
<td>0.13</td>
<td>–</td>
<td>0.03</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Corporates¹</td>
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<td>–</td>
<td>2.86</td>
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<tr>
<td>Exposure weighted average LGD</td>
<td>IRB advanced approach</td>
<td>Central governments and central banks</td>
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<td>45.0</td>
<td>45.4</td>
</tr>
<tr>
<td></td>
<td>Institutions</td>
<td>35.3</td>
<td>45.3</td>
<td>59.8</td>
<td>40.6</td>
<td>45.4</td>
</tr>
<tr>
<td></td>
<td>Corporates¹</td>
<td>25.8</td>
<td>44.3</td>
<td>13.7</td>
<td>36.6</td>
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</tr>
</tbody>
</table>
**Table 30a: Wholesale IRB exposure – by obligor grade\(^a\) – Central governments and central banks**

<table>
<thead>
<tr>
<th>CRR</th>
<th>PD range</th>
<th>Exposure value(^a) US$bn</th>
<th>Average PD(^a) %</th>
<th>Average LGD(^a) %</th>
<th>RWA density(^a) %</th>
<th>Mapped external rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>0.1</td>
<td>0.000 to 0.010</td>
<td>122.8</td>
<td>0.01</td>
<td>45.2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>1.1</td>
<td>0.011 to 0.028</td>
<td>60.3</td>
<td>0.02</td>
<td>45.0</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>0.029 to 0.053</td>
<td>59.2</td>
<td>0.04</td>
<td>45.4</td>
<td>13</td>
</tr>
<tr>
<td>Low</td>
<td>2.1</td>
<td>0.054 to 0.095</td>
<td>51.6</td>
<td>0.07</td>
<td>45.0</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>2.2</td>
<td>0.094 to 0.169</td>
<td>6.0</td>
<td>0.13</td>
<td>45.2</td>
<td>25</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>3.1</td>
<td>0.170 to 0.285</td>
<td>11.3</td>
<td>0.22</td>
<td>45.0</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>3.2</td>
<td>0.286 to 0.483</td>
<td>3.6</td>
<td>0.37</td>
<td>45.0</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>3.3</td>
<td>0.484 to 0.740</td>
<td>1.6</td>
<td>0.63</td>
<td>45.0</td>
<td>63</td>
</tr>
<tr>
<td>Fair</td>
<td>4.1</td>
<td>0.741 to 1.022</td>
<td>1.7</td>
<td>0.87</td>
<td>45.0</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>4.2</td>
<td>1.023 to 1.407</td>
<td>0.4</td>
<td>1.16</td>
<td>45.0</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>1.408 to 1.927</td>
<td>0.2</td>
<td>1.65</td>
<td>43.3</td>
<td>100</td>
</tr>
<tr>
<td>Moderate</td>
<td>5.1</td>
<td>1.928 to 2.620</td>
<td>0.9</td>
<td>2.25</td>
<td>45.0</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>5.2</td>
<td>2.621 to 3.579</td>
<td>0.7</td>
<td>3.05</td>
<td>45.0</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>5.3</td>
<td>3.580 to 4.914</td>
<td>5.6</td>
<td>4.20</td>
<td>45.0</td>
<td>130</td>
</tr>
<tr>
<td>Significant</td>
<td>6.1</td>
<td>4.915 to 6.718</td>
<td>0.7</td>
<td>5.75</td>
<td>45.2</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>6.2</td>
<td>6.718 to 8.860</td>
<td>0.1</td>
<td>7.85</td>
<td>45.0</td>
<td>200</td>
</tr>
<tr>
<td>High</td>
<td>7.1</td>
<td>8.861 to 11.402</td>
<td>0.7</td>
<td>10.00</td>
<td>45.0</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td>7.2</td>
<td>11.403 to 15.000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Special management</td>
<td>8.1</td>
<td>15.001 to 22.000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>8.2</td>
<td>22.001 to 50.000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>8.3</td>
<td>50.001 to 99.999</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Default(^a)</td>
<td>9/10</td>
<td>100.000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>At 31 December 2014</td>
<td></td>
<td>327.4</td>
<td>0.17</td>
<td>45.1</td>
<td>17</td>
<td>54.1</td>
</tr>
</tbody>
</table>

**Source:** HSBC 2014 Pillar 3 Report, p. 47-50.

---

**Table 30c: Wholesale IRB exposure – by obligor grade\(^a\) – Corporates\(^b\) (continued)**

<table>
<thead>
<tr>
<th>CRR</th>
<th>PD range</th>
<th>Exposure value(^a) US$bn</th>
<th>Average PD(^a) %</th>
<th>Average LGD(^a) %</th>
<th>RWA density(^a) %</th>
<th>Mapped external rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>0.1</td>
<td>0.000 to 0.010</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>1.1</td>
<td>0.011 to 0.028</td>
<td>11.5</td>
<td>0.03</td>
<td>43.6</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>0.029 to 0.053</td>
<td>43.0</td>
<td>0.04</td>
<td>30.4</td>
<td>13</td>
</tr>
<tr>
<td>Low</td>
<td>2.1</td>
<td>0.054 to 0.095</td>
<td>70.7</td>
<td>0.07</td>
<td>32.8</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>2.2</td>
<td>0.096 to 0.169</td>
<td>91.3</td>
<td>0.13</td>
<td>32.8</td>
<td>25</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>3.1</td>
<td>0.170 to 0.285</td>
<td>82.9</td>
<td>0.22</td>
<td>37.0</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>3.2</td>
<td>0.286 to 0.483</td>
<td>71.0</td>
<td>0.37</td>
<td>36.7</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>3.3</td>
<td>0.484 to 0.740</td>
<td>71.1</td>
<td>0.63</td>
<td>35.0</td>
<td>60</td>
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<tr>
<td>Fair</td>
<td>4.1</td>
<td>0.741 to 1.022</td>
<td>47.4</td>
<td>0.87</td>
<td>36.1</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>4.2</td>
<td>1.023 to 1.407</td>
<td>33.0</td>
<td>1.20</td>
<td>37.9</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>1.408 to 1.927</td>
<td>32.6</td>
<td>1.65</td>
<td>40.3</td>
<td>101</td>
</tr>
<tr>
<td>Moderate</td>
<td>5.1</td>
<td>1.928 to 2.620</td>
<td>22.6</td>
<td>2.24</td>
<td>38.0</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>5.2</td>
<td>2.621 to 3.579</td>
<td>12.8</td>
<td>3.07</td>
<td>40.8</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>5.3</td>
<td>3.580 to 4.914</td>
<td>11.6</td>
<td>4.16</td>
<td>38.7</td>
<td>121</td>
</tr>
<tr>
<td>Significant</td>
<td>6.1</td>
<td>4.915 to 6.718</td>
<td>4.7</td>
<td>5.74</td>
<td>36.9</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>6.2</td>
<td>6.719 to 8.860</td>
<td>3.6</td>
<td>7.85</td>
<td>39.7</td>
<td>158</td>
</tr>
<tr>
<td>High</td>
<td>7.1</td>
<td>8.861 to 11.402</td>
<td>1.7</td>
<td>10.03</td>
<td>32.9</td>
<td>139</td>
</tr>
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<td></td>
<td>7.2</td>
<td>11.403 to 15.000</td>
<td>0.9</td>
<td>13.00</td>
<td>38.0</td>
<td>178</td>
</tr>
<tr>
<td>Special management</td>
<td>8.1</td>
<td>15.001 to 22.000</td>
<td>0.7</td>
<td>19.01</td>
<td>34.5</td>
<td>175</td>
</tr>
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<td>36.00</td>
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</tr>
<tr>
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<td>0.3</td>
<td>75.00</td>
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<td>133</td>
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<tr>
<td>Default(^a)</td>
<td>9/10</td>
<td>100.000</td>
<td>6.3</td>
<td>100.00</td>
<td>40.8</td>
<td>81</td>
</tr>
</tbody>
</table>

**Source:** HSBC 2014 Pillar 3 Report, p. 47-50.
ANNEX 3: ONE-YEAR PDS AND LGDS OF EU BANKS

Note: Dispersion of one-year PDs for 90 EU banks in 2010 (Median, Interquartile range, 5th and 95th percentile).

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