

The new bank provisioning standards

IFRS9 Modeling Challenges

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Agenda

- Business Risks of IFRS9 Implementation
- Lessons Learnt
- Next Steps

Business risks of IFRS 9 Implementation

1 Volatility

- **Volatility** in earnings and provisions – e.g. macroeconomic scenarios and staging

2 Momentum

- Developing beyond the **tactical implementation** solution

3 Decision making

- **Sub-optimal** business and risk decisions.

4 Process inefficiency

- **Process inefficiency** – e.g. manual interventions required, duplication, etc.

5 Product design

- Sub-optimal **product design and pricing**

6 Stakeholder management

- Explaining to the **market, regulators and auditors**

Lessons learnt

Data limitations

The extensive data requirements of the IFRS 9 standard required significant enhancements to data systems and capabilities. Institutions with low default portfolios had to utilize alternative data sources in order to complete IFRS 9 modelling.

Low default portfolios



- Enhanced data requirements cause challenges on low default portfolios
- Scarce data lead to unreliable, biased model estimates.
- Alternative is to supplement with external data
 - Governance and monitoring required around representativeness
- For external data, auditors need to be satisfied as to:
 - Completeness
 - Precision/accuracy
 - Appropriateness

Origination PDs



- A specific example of increased data requirements resulting in challenges for banks is the requirement for origination PD information
- Older exposures frequently do not have origination PD available
- Options to populate origination PD
 - First PD available
 - Backfit PD models
 - Average PD
 - Transition into Stage 2
- Forward-looking information in origination PDs:
 - How to allow for macroeconomic information in back-fitted origination PDs?
 - How to include multiple macroeconomic scenarios?
 - If no macroeconomic information included – how are allowances made for the mismatch between current PIT PDs and back-fitted TTC PDs?

Lessons learnt

Forward-looking information: Scenario generation

IFRS 9 requires such forward-looking information to be considered for multiple macroeconomic scenarios, probability weighted according to the likelihood of their occurrence. Generating these scenarios and probabilities presents continued difficulties for the industry.

Using economic theory



Current industry practice surrounding selection of scenarios using **economic theory** include the following:

- **Expert judgement** used to set base forecast
- **Publicly available forecasts** used to guide expert judgement
- Scenarios sourced from **external providers** – e.g. Oxford economics, Moody's, with internal adjustments
- Use of 3rd party or internal **econometric models** to expand scenarios and variables
- Trade-off between **globally consistent scenarios and ensuring local risks captured**

Using loss data



Alternatively, some institutions focus more on loss data and projections to choose their scenarios:

- **Requires distribution to be set per variable and correlations/copulas** (i.e. multivariate distributions) to be modelled
- **Scenarios are generated and run through ECL models** etc.
- Alternatively **historic observed loss distributions are analysed**
- Loss distribution can then be plotted and scenarios, plus weights selected appropriately to **proxy “area under curve”**
- Some limitations with economic consistency can occur

Lessons learnt

Consistency in IFRS 9 impairment provisions

Large financial institutions faced challenges in ensuring consistency in their IFRS9 methodology incl. macroeconomic scenarios. A fine balancing act is required to ensure scenarios are aligned internally between territories, portfolios, as well as with the larger industry itself.

Internal consistency

Ensuring consistent IFRS 9 methodologies for banks internally between functions and across territories.

- Challenges to ensure internal consistency in methodology with capital calculations (IRB models) as well as stress testing and forecasting.
- Global banks set IFRS 9 provisions through either:
 - Methodology, assumptions and results set and **calculated centrally**
 - **Territories calculate** own IFRS 9 provisions based on local guidance and expertise
- Need to consider:
 - **Internal consistency** – consistency is required across all territories to ensure global reporting is aligned
 - **Use of local expertise** – ensuring local business models, markets, regulation, and expertise can be captured appropriately

Consistency with industry

Ensuring consistent IFRS 9 methodologies across the industry.

- Discrepancies exist between different financial institutions in terms of:
 - Methodologies of calculating components (i.e. LGDs, PDs, etc.)
 - Transitioning criteria, including cure rules
 - Allowances for forward looking information
 - Allowances for multiple macroeconomic scenarios.
- Differences make comparisons across peers challenging for stakeholders
- Increased disclosure requirements and regulatory scrutiny may result in convergence in methodologies & assumptions across peers
- Model changes may be required as a result

Next steps: Models

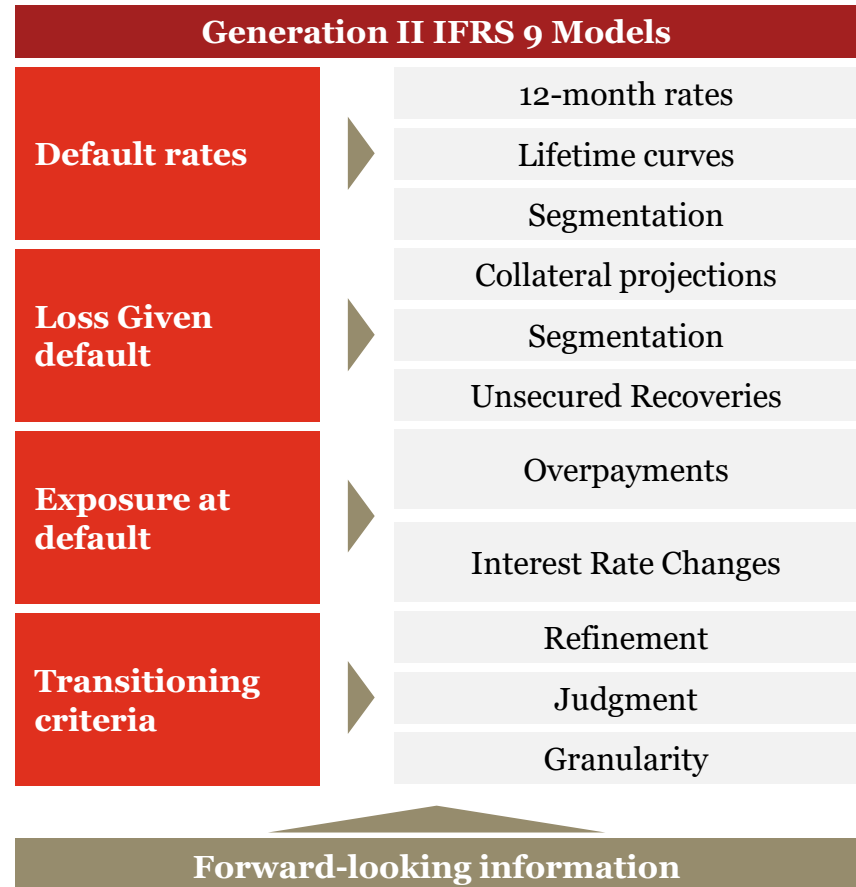
Generation II IFRS 9 models

The deadline for full IFRS 9 implementation resulted in some financial institutions adopting simplified / interim models to ensure compliance by the specified date. Subsequent to meeting this deadline, refinements and enhancements are planned to existing IFRS 9 models.

Designing Generation II IFRS 9 models

Development of enhanced models prior to implementation.

- Expanding modelling capabilities using increased resources and time available subsequent to initial implementation
- May result in significant changes to provisions – depending on the extent to which initial models were finalised
- Currently, industry focus appears to be on PDs, with a lesser focus on refining LGD and EAD models



Next steps: Models

Robust model risk management

Robust validation procedures should be put in place by firms in order to ensure management of model risk introduced by updated credit risk methodologies. This is especially important given the increased complexity of IFRS 9 modelling as well as significant judgment included in the process.

Model governance and inventory

Comprehensive model inventory required in order to manage risk across model universe.

- To this end, a definition as to what constitutes a model is required
- PDs, LGDs, EADs form the base models to be validated under IFRS 9
- However, consideration needs to be given as to whether ECL and staging also constitutes models that are to be validated
- Consideration to be given to all the foundation “models” and calculations e.g. economic models, stress testing and IRB models

Using performance thresholds

Allows for quantitative model performance monitoring.

- Thresholds using pre-defined confidence levels:
 - Statistical
 - Relative to initial model development; or
 - Linked to materiality
- Limitations of “arbitrary” – X% – thresholds should be understood
- Advantages:
 - Understanding and assessing significance of movements indicators
 - Flags requirement for re-calibration
 - Clear audit trail
 - Removes subjectivity
 - Ensures consistency across model components

Next steps: *Beyond the models*

Using results and new technology to gain insights

Apart from necessitating changes to risk appetite and credit risk management, IFRS 9 enhancements provide a valuable opportunity for banks to gain insights into their business. Leading banks will aim to leverage off these enhanced capabilities to maximise the collateral benefits of the standard. Is there a case for **machine learning techniques** or **agent-based modelling**?

Enhancing strategy

Strategy enhancements can be made off the back of increased modelling capabilities.

Credit risk pricing enhancements

- Improved insights into credit risk triggers:
- Enhancing pricing models
 - Alignment with SICR triggers

Decision making

- Improved decision making capabilities:
- Setting strategies for new business
 - Changing product terms and conditions
 - Adjusting distribution channels, etc.

Data analytics

Increased data capabilities present unique opportunities.

- Dashboards with management information
- Customer acquisition and retention
- Targeted marketing
- Improved cross-selling
- Fraud prevention/detection
- Application screening
- Collections scorecards
- Improved cash/liquidity planning

Bio CV



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Bio:

Manuele has been working in consulting and banking industry for over 18 years. He joined PwC Risk Modelling Services within FSSR in March 2017 since then he has been involved in several risk management projects including audit engagements. In his previous experience, he had lead ERS Moody's Analytics Advisory Services in EMEA for more than three years dealing with development, validation and governance solutions for Pillar 1, IFRS9, Stress Testing, and Pillar 2 related topics. Before that, he had worked in UniCredit for more than 12 years covering several roles in Risk Management among others Head of Group Wide Credit Risk Model Department and Head of Strategic Risk Management and Control Department in UniCredit Corporate Banking.

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