IFRS 9 tools

Powerful enablers to accelerate your IFRS 9 implementation
Executive summary

1. Background

- The IASB has issued the final version of IFRS 9 that incorporates new regulation on the accounting for financial instruments. The main requirements are:
  - Classification and measurement of financial instruments depending on two assessments:
    - Their contractual cash flows and
    - The entity’s business models
  - Impairments, based on either 12-month or lifetime expected credit losses, depending particularly on whether there has been a significant increase in credit risk since initial recognition
  - Extensive notes disclosures (IFRS 7)
- With the EU endorsement in Q4 2016, the mandatory date of initial adoption will be 1 January 2018.
- On the basis of various project experience, EY has developed different IFRS 9 tools to facilitate a goal-oriented and quality-assured implementation of IFRS 9.

2. Overview of our IFRS 9 tools

- We have developed several IFRS 9 tools to facilitate the IFRS 9 implementation at every level dimension, such as:
  - SPPI assessment – e.g., the automated ISIN/CUSIP Analyser that provides a completely automated SPPI assessment on the basis of the provided SIN/CUSIP (EY ICE) or the manual SPPI Checklist for those financial assets without an ISIN/CUSIP ID
  - ECL measurements – e.g., EY LIC Solution®, as a modular productive system for ECL calculation
  - IFRS 9 challenge tool: challenges your IFRS 9 implementation against supervisors expectations
  - The usage of the tools allows you to check your actual IFRS 9 implementation status and to accelerate your project.

3. Why EY

- Our Financial Services (FS) are an integrated area that includes many professionals and IFRS 9 experts across many countries (UK, Germany, France, India and many more), and collaborates across competencies (Advisory, Assurance, Tax, Transaction Advisory).
- EY has been engaged by many global banks for accounting change projects on a group-wide basis. We thus understand the complexities, challenges and opportunities of implementing IFRS across multiple geographies, business units and diverse portfolios.
- Thus, we are one of the market-leading organizations for IFRS advisory services with particular focus on IFRS 9 end-to-end implementation projects.
- We have gathered extensive IFRS 9 project experience and knowledge regarding key accounting and project decisions to be taken to allow quick and robust IFRS 9 implementation.
- In addition, we have developed several IFRS 9 tools and enablers on all key challenges, such as project management, SPPI testing and impairment calculations.
- These experiences enable us to serve our smaller – or medium-sized clients on their IFRS 9 implementation projects.

EY is the market leader for IFRS 9 end-to-end execution projects
# Overview of powerful IFRS 9 tools

## EY approaches for small or medium-sized banks

<table>
<thead>
<tr>
<th>EY tool</th>
<th>Purpose</th>
<th>Use cases</th>
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</thead>
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<tr>
<td>EY LIC Solution®</td>
<td>Highly capable productive system to measure and report IFRS 9 impairments</td>
<td>Tool to be used by clients as integral part of the IT-architecture&lt;br&gt;Tool measures and reports IFRS 9 impairments</td>
</tr>
<tr>
<td>EY IFRS 9 impairment analyzer</td>
<td>Quick and flexible way to assess first-time adoption impacts on impairments</td>
<td>EY supports clients with impact assessments from IFRS 9 impairment&lt;br&gt;Scenario analysis and stress testing included</td>
</tr>
<tr>
<td>EY IFRS 9 progress analyzer</td>
<td>Standardized measure of project status (ECB supervisory priority 2016-18)</td>
<td>Client’s self assessment of IFRS 9 project status&lt;br&gt;Preparation for ECB supervisory priority&lt;br&gt;Benchmarking towards peers</td>
</tr>
<tr>
<td>EY IFRS 9 challenger tool</td>
<td>Readiness check against regulatory expectations (BIS/BCBS/EBA)</td>
<td>Client’s self assessment whether supervisor’s expectations on impairment implementation are met&lt;br&gt;Benchmarking towards peers</td>
</tr>
<tr>
<td>EY IFRS 9 SPPI checklist</td>
<td>Checklist for high-quality IFRS 9 SPPI analysis of individual instruments</td>
<td>EY supports with SPPI analysis of individual financial instruments&lt;br&gt;EY views of various SPPI features included</td>
</tr>
<tr>
<td>EY ICE</td>
<td>Fully automated SPPI assessment for all ISIN/CUSIP instruments based on market data</td>
<td>EY supports with automated SPPI analysis of large numbers of ISIN/CUSIP financial instruments&lt;br&gt;Results can be used to adapt client processes</td>
</tr>
<tr>
<td>EY IFRS 9 SPPI engine for loans</td>
<td>Semi-automated SPPI assessment for all loan contracts based on optical research technology</td>
<td>EY supports with semi-automated SPPI analysis of large numbers of loan contracts&lt;br&gt;Results can be used to adapt client processes</td>
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</table>
EY LIC Solution® – overview

What can it do for you?
The EY LIC Solution® is a powerful technical platform that enables you to cope with key challenges from IFRS 9 impairment.

What does it need?
► Basic loan file inputs based on clear data requirements
► Credit risk parameters (probability of default, loss given default), if available
► In case of missing data, flexible solutions can be applied

How does it work?
► The EY LIC Solution® is a modular IFRS 9 solution which can be seamlessly integrated in your IT system architecture
► Based on your input data, the EY LIC Solution® provides you with granular expected credit loss data for each stage according to IFRS 9
► The EY LIC Solution® covers various functionalities, such as a data interface layer, flexible parametrizations, IFRS 9 stage allocation, expected credit loss calculations (12 month and lifetime), collective or individual assessments, effective interest rate calculations and many more

Why EY IFRS 9 EY LIC Solution® can make a difference

IFRS 9 functionality covered
► Our IFRS 9 EY LIC Solution® covers all functionalities required for LLP calculation, EIR calculation, accounting entries and customized reporting
► The solution is ready for parallel runs of IFRS 9, IAS 39 and local standards

Seamless implementation and flexible integration
► We are able to provide the core required functionality within six months from the project kick-off in line with your release plan
► We team up with integration collaborators to provide you with end-to-end integration of our solution into your existing IT environment
► The solution is ready for parallel runs of IFRS 9, IAS 39 and local standards

Established solution approach
► Delivery toolkit available offering an efficient service by means of a standardized work product
► The approach is already being used by several financial institutions and has proven its capabilities in practice
► Our solution team has international hands-on experience with IAS 39 and IFRS 9 implementation projects

Proven track record
► Our IFRS 9 EY LIC Solution® is designed to process large data volumes to calculate expected credit losses according to IFRS 9
► Our IFRS 9 EY LIC Solution® can be seamlessly integrated in your current IT architecture
► Our IFRS EY LIC Solution® has already been tested successfully at many financial institutions and passed several reviews
The LIC Solution® is a highly modular product. Functional modules can be plugged in and flexibly configured upon your exact demands on a step-by-step basis. The LIC Solution® has a separate layer for input and output data which represents interface to the bank’s system landscape. We support you during the whole implementation process, provide training to both the users and offer an on-going support services after implementation of the LIC Solution®.

Integration to a bank’s environment – illustrative logical scheme

Data flow from source systems to LIC Solution® and back from the solution to bank’s systems is described in the scheme below. Input data are extracted by the bank from source systems and stored in an input data staging area. Both data transformation, upload to LIC Solution® and extraction of output data is processed by EY. Data export and storage in bank’s target systems is carried out by the bank.
EY IFRS 9 impairment analyzer – overview

What can it do for you?
► The EY IFRS 9 Impairment Analyzer is a transparent, flexible and powerful tool developed to quickly and effectively assess options and impacts regarding IFRS 9 expected credit loss methods
► It will support clients in understanding the financial impact of IFRS 9 and its drivers
► The solution is accelerated by a standardized platform, developed specifically for IFRS 9 calculations

How does it work?
► The MS Access based EY Impairment Analyzer is easy to deploy and highly adaptive to client-specific needs in the process of IFRS 9 transition, offering potent visualizations in MS Excel

What does it need?
Portfolio Data:
► Only basic portfolio data is required to run expected credit loss calculations (current exposure, contractual end date, portfolio segmentation)
► Other data can be used and added to obtain more precise results if required

Risk Parameter specific data to model the risk methodology
► PD: Master scale, transition matrix, cumulative PD curve, contract-specific PDs, and more
► LGD: Segmentation, calculation methods, LGD curves, collateral curves, and more
► EAD: Exposure profiles, repayment structure, nominal and effective interest rate (on loan level), and more
► CCF: Segmentation, drawing behavior, and more

The EY IFRS 9 impairment analyzer is used in over 25 countries by more than 80 specially trained professionals
EY IFRS 9 impairment analyzer – functionalities

Impact Study on IFRS 9 impairment
► Definition of an IFRS 9 compliant concept meeting the clients needs, data and process impact and establishment of the project structure, timeliness, tasks and dependencies
► Impact assessment of possible methodological options, model setup and calibration
► Simulation using best proxy models to get a first picture

IFRS 9 ECL modeling
► Development of risk parameters with respect to the IFRS 9 requirements (PD, LGD, EAD, CCF)
► Review of adjustment approaches for risk parameter methodologies already developed by the client
► Measurement of loss provision sensitivity with respect to risk parameters

Identification of Significant increase in Credit Risk
► Identification of available data that is suitable to identify credit risk increases
► Development of a methodology for the identification of significant credit risk increases
► Measurement of loss provision sensitivity with respect to the available methodological approaches
EY IFRS 9 impairment analyzer – process

Established five step process to assess impairment methodology impact

<table>
<thead>
<tr>
<th>Key Functionality: Portfolio Data Pre-Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1: Portfolio Data Selection and Preview</strong></td>
</tr>
<tr>
<td>▶ Portfolios are imported using .txt or .csv files</td>
</tr>
<tr>
<td>▶ Preview of portfolio data, information on format (text, numeric or date) and number of positions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Functionality: Impairment Scenario Setup and Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 2: Field Mapping and Portfolio Data Import</strong></td>
</tr>
<tr>
<td>▶ Delivered portfolio data is transferred to the database</td>
</tr>
<tr>
<td>▶ Up to 255 internal fields can be defined using the EY Field Manager to cover significant information (e.g., risk model parameters)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visualizations of Impairment Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 3: Transform Portfolio Data</strong></td>
</tr>
<tr>
<td>▶ Incomplete/false data can be adjusted using custom made rules</td>
</tr>
<tr>
<td>▶ Rules can be performed for different segments of the portfolio</td>
</tr>
<tr>
<td>▶ Audit trail to log the rules applied to the imported data</td>
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</table>

<table>
<thead>
<tr>
<th>Rule Setup and Impairment Calculations</th>
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<tbody>
<tr>
<td><strong>Step 4: Impairment Rule Setup and Impairment Calculations</strong></td>
</tr>
<tr>
<td>▶ Rule Developer Module provides functions to set up risk parameters (PD, LGD, EAD, CCF) and stage allocation ranging from simple to complex, individually for each scenario</td>
</tr>
<tr>
<td>▶ “In Tool” analysis of the impairment calculation (aggregated to individual calculation on loan level for fast assessments or in detail)</td>
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<table>
<thead>
<tr>
<th>IFRS 9 Tools</th>
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<tbody>
<tr>
<td><strong>Step 5: Impairment Result Visualizations and Data Export</strong></td>
</tr>
<tr>
<td>▶ Predefined and custom made visualizations are exported to Excel to assess the impact on the impairment numbers for each scenario</td>
</tr>
<tr>
<td>▶ Custom visualizations are available, e.g., impact assessment, overview table, average risk parameter values per portfolio segment, ...</td>
</tr>
<tr>
<td>▶ Possible visualizations: Tables, Bar charts, Pie charts, Bubble charts</td>
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</tbody>
</table>
**EY IFRS 9 progress analyzer**

**(ECB attention point)**

### What can it do?
- ECB has announced its priorities for supervisory plans 2016 and beyond. One priority is the implementation status of IFRS 9.
- The solution provides clients with an independent project status check and allows benchmarking its implementation status against peers.
- On the basis of this, clients may be sensitized toward the ECBs perspective regarding the clients IFRS 9 implementation status.

### What does it need?
- Standardized answers on multiple choice questions.

### How does it work?
- It works on the basis of a web-based questionnaire that allows quick handling by the client and standardized analysis by EY.
- The presentation of results (slides and graphs) will be prepared by the EY teams and provided to the clients.

### Background
- ECB supervisory priorities announced.
- IFRS 9 implementation is one priority.
- Focus on current implementation status.
- Peer group standing as benchmark.

### Challenges for clients
- What’s the status?
- How to measure across workstreams?
- How to compare with peers?
- How to comply with ECB expectations?

### EY IFRS 9 progress analyzer and methodology
- Standardized measure of project status.
- All common workstreams covered.
- Benchmarking to peer banks possible.
- EY experience on supervisors views.

### Benefits for clients
IFRS 9 challenger tool (BCBS 350/EBA CP 2016)

What can it do?

- The Basel Committee of Banking Supervisors (BCBS) released its final “Guidance on credit risk and accounting for expected credit losses” in December 2015 (BCBS 350)
- This guidance mainly covers the supervisory expectations towards the implementation of the expected credit loss-model (ECL) under IFRS 9
- This guidance has been incorporated in the EBA consultation paper EBA 2016/10 and forms an important indicator of supervisors views on ECL methods

What does it need?

- Standardized answers on multiple choice questions

How does it work?

- Based on a web-based questionnaire that allows quick handling by the client and standardized analysis by EY
- The presentation of results (slides & graphs) will be prepared by the EY teams and provided to the clients

Neglecting BCBS 350/EBA CP 2016/10 in IFRS 9 projects might be a bad idea ...

... that’s why EY developed the IFRS 9 challenger tool.

- Clear questions, simple to answer
- Focused on most relevant issues
- EY project experience included

... and serves as basis for remediation measures.

Tool exhibits GAPs against BCBS 350/EBA CP 2016/10 readiness ...

- Reduction of complexity
- GAP analysis
- Traceable to specific requirements
- Benchmarking possible
EY IFRS 9 SPPI checklist

What can it do?
► The EY IFRS 9 SPPI Checklist provides a complete and easy to understand guidance to conduct the manual classification in dependance of various contractual cash flow features (SPPI)
► The tool suggests a clear result on whether the cash flows are solely payments of principle and interest or not (SPPI)
► The tool is designed to facilitate a high quality SPPI-assessment based on a consistent approach covering all relevant IFRS 9 requirements

What does it need?
► Contracts and Termsheets
► Answers (yes/no) to predicted questions

Challenges for clients
► Not all assets can be classified automatically (e.g., Non-ISIN assets, results not conclusive)
► Those assets have to be analyzed manually
► There are plenty of features that might harm the SPPI-criterion

How does it work?
► Checklist format that allows quick handling by the client
► Clear output on SPPI result if “fail” or “pass”

What does it do?
The EY IFRS 9 SPPI Checklist provides a complete and easy to understand guidance to conduct the manual classification in dependance of various contractual cash flow features (SPPI)

Nature of the financial instrument

<table>
<thead>
<tr>
<th></th>
<th>Is it a financial asset as defined in IAS 32?</th>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>No</td>
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<table>
<thead>
<tr>
<th></th>
<th>Is it an equity instrument as defined in IAS 32?</th>
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<tbody>
<tr>
<td>2</td>
<td>Yes</td>
<td>No</td>
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<tr>
<th></th>
<th>Is it a derivative as defined in IFRS 9?</th>
<th></th>
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<tr>
<td>3</td>
<td>Yes</td>
<td>No</td>
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<tr>
<th></th>
<th>Is it an investment of one or more units of an investment fund?</th>
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<tr>
<td>4</td>
<td>Is it cash as defined in IAS 7 (not cash equivalents)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
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<tr>
<th></th>
<th>Is it a contractually linked instrument (IFRS 9.B4.120-26)?</th>
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<tbody>
<tr>
<td>6</td>
<td>Is it a contractually linked instrument (IFRS 9.B4.120-26)?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Analysis of interest elements

<table>
<thead>
<tr>
<th></th>
<th>Is the instrument exposed to changes in equity prices, commodity prices or other risks or volatility unrelated to principal and/or interest (IFRS 9.B4.1.7A)?</th>
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<tr>
<td>7</td>
<td>Yes</td>
<td>No</td>
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<tr>
<th></th>
<th>Is the instrument leveraged (IFRS 9.B4.1.9)?</th>
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<tr>
<td>8</td>
<td>Yes</td>
<td>No</td>
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<thead>
<tr>
<th></th>
<th>Does the interest element provide consideration for other risks or costs, i.e., not only for the time value of money (IFRS 9.B4.1.9A)?</th>
<th></th>
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<tbody>
<tr>
<td>9</td>
<td>Yes</td>
<td>No</td>
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<tr>
<th></th>
<th>Is the time value of money element modified (imperfect, e.g., tenor frequency mismatch, (IFRS 9.B4.1.9B)?</th>
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<tr>
<td>10</td>
<td>Yes</td>
<td>No</td>
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<thead>
<tr>
<th></th>
<th>Have you concluded that the Benchmark cash flow test has been passed?</th>
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<tbody>
<tr>
<td>10.1</td>
<td>Have you concluded that the Benchmark cash flow test has been passed?</td>
<td>Yes</td>
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<thead>
<tr>
<th></th>
<th>Did a government or a regulatory authority set the interest rate(s) (IFRS 9.B4.1.9E)?</th>
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<tbody>
<tr>
<td>11</td>
<td>Yes</td>
<td>No</td>
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<table>
<thead>
<tr>
<th></th>
<th>Is the regulated interest rate “broadly consistent” with the passage of time and does not provide exposure to inconsistent risks or volatility (IFRS 9.B4.1.9E)?</th>
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</thead>
<tbody>
<tr>
<td>11.1</td>
<td>Is the regulated interest rate “broadly consistent” with the passage of time and does not provide exposure to inconsistent risks or volatility (IFRS 9.B4.1.9E)?</td>
<td>Yes</td>
</tr>
</tbody>
</table>
EY ICE – EY IFRS 9 classification engine

What can it do for you?
► EY ICE is an automated IFRS 9 SPPI classification engine that is capable of producing SPPI pass/fail-results for large numbers of ISIN/CUSIP instruments

What does it need?
► Retrieves market data from data provided based on the identifier

How does it work?
► Decision tree based algorithms according to IFRS 9 criteria
► Provide a summary of the results, with breakdown between securities where the tool was conclusive (e.g., plain vanilla) and where the tool was not conclusive (i.e., requires further look through analysis)
► Detailed output with visuals/Detailed audit trail with rationale for IFRS 9 classification
EY IFRS 9 SPPI engine for loans

What can it do for you?
► Automated analysis of large numbers of loan contracts based on optical research technology to assess SPPI pass-/fail-risk based on predefined keywords

What does it need?
► Contracts or termsheets
► SPPI relevant keywords (EY suggestions available)

How does it work?
► Loan contracts need to be available in electronic format
► Fully automated keyword search based on optical recognition technology to identify patterns of words with high SPPI pass-/fail-relevance

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