IFRS9: Modelling

Development experience

November, 2018

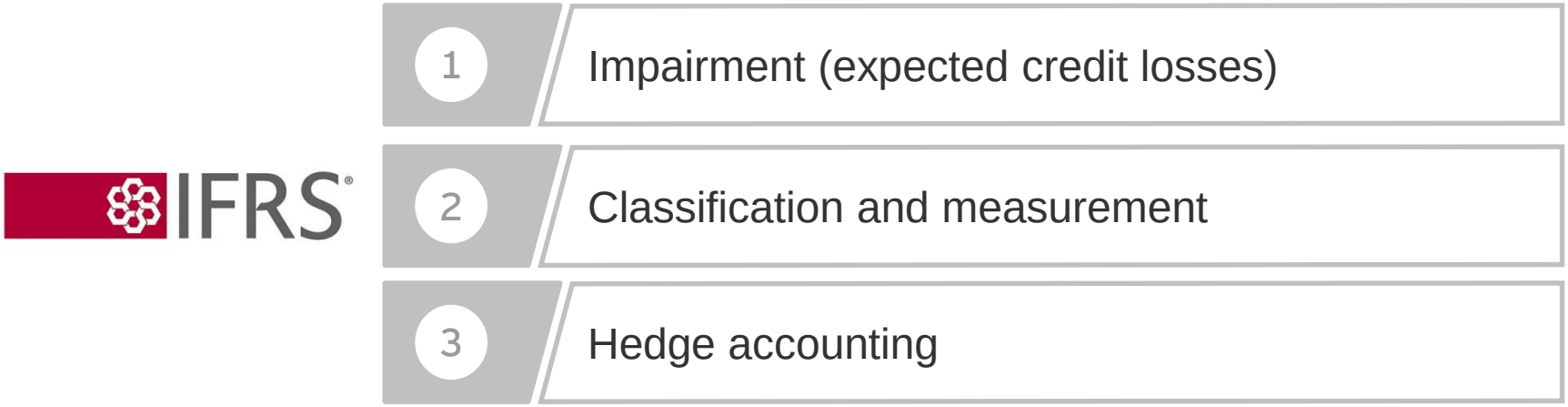
Совершенствуя бизнес,
улучшаем мир

Table of Contents

IFRS 9: General information

Three sections of IFRS 9

- The final version of the standard includes three main sections, that the Bank is obliged to implement and comply:



- The entity shall apply IFRS 9 requirements after **1 January 2018**, earlier application is permitted.
- Preliminary preparation is the key to the success of implementing the standard requirements

Basel Committee on Banking Supervision
Guidance on accounting for expected credit losses*

Main objectives

- ✓ Providing guidance on the requirements for the supervision of appropriate practices of credit risk management associated with the assessment of provisions for impairment
- ✓ Facilitating a clear and consistent application of the accounting model
- ✓ Presentation of the point of view of the Committee on the limited use of practical examples

Important Topics

Information about future events and expected losses during the lifetime of loan

- Banks should include all available information about future events and macroeconomic factors in ECL estimation
- Banks should not avoid using the available information, on the basis of its recognition excessive or too costly

Significant increase in credit risk

- Significant degree of the use of information about overdue payments will be considered as low-quality implementation of the ECL model
- Banks officially must disclose information on the definition of "significant" increase in credit risk
- Definition of default for accounting purposes should be based on the definition used by regulatory authorities

Grouping of financial instruments

- Banks must be able to demonstrate that the grouping does not complicate the perception of information
- Changing the segmentation should be conducted expeditiously and may be required frequently enough to reflect changes in the credit quality

* - according to the document «**Basel Committee on Banking Supervision Guidance on accounting for expected credit losses**»

Impairment – key changes and practical aspects

Basic principles of IFRS 39 impairment rules currently in force

IFRS 39 requirements

- Borrowers are assessed on collective and individual basis
- Financial asset or a group of financial assets are classified as impaired and losses from impairment are recognized if there is objective evidence of impairment as a result of events that happened after initial recognition
- Impairment provisions are evaluated on the basis of previous experience on assets with shared credit risk characteristics, and on the basis of current conditions.

		Portfolio	
		Big clients	Small clients
Impairment indicators	No	Incurred but not reported losses (for example, roll-rates or provisions calculated on the basis of PD, LGD, LIP)	Incurred but not reported losses (for example, roll-rates or provisions calculated on the basis of PD, LGD, LIP)
	Yes	provisions on individual basis (for example, discounted value of expected future cash flows)	provisions on collective basis (for instance, Roll-rates, LGD)

IFRS 9 – Key changes in impairment requirements

Scope and approaches

- The scope of the new impairment requirements is wider
- By IAS 39, impairment provisions were recognized only for credit-impaired assets
- IFRS 9 requires impairment provisioning for all assets under credit risk that are not measured at fair value through profit or loss.
- Simplified approach for trade receivables, contract assets and lease receivables
- Approach for purchased or originated credit-impaired financial assets

General approach

- **3 stages of provisioning** dependent on change in credit risk since the date of initial recognition
- Incurred losses model is substituted by **Expected Credit Losses** (ECL) model
- The concept of **significant increase in credit risk** is introduced. At each reporting date, a Bank shall compare the credit risk on a financial instrument with risk taken upon at initial recognition.

Required information

- Reasonable and supportable information about past events, current conditions and **forecasts of future economic conditions,** that is available without undue cost or effort at the reporting date
- Information on level of credit risk on the date of initial recognition

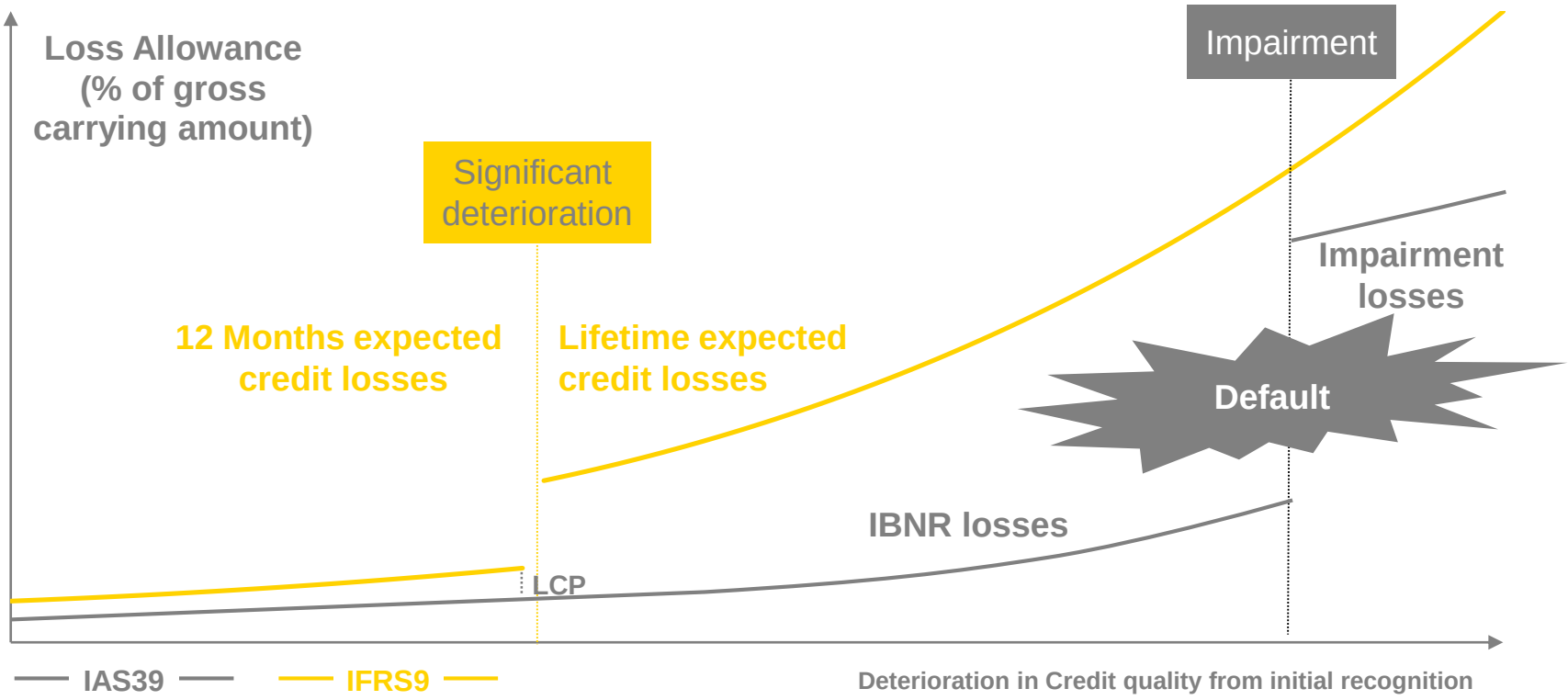
Impact

- New requirements are likely to lead to an increase in loan loss provisions and, consequently, a decrease in capital

Key changes:

- *3 stages of provisioning*
- *Calculation of expected credit losses*
- *Definition of significant increase in credit risk since date of initial recognition*
- *Estimation of significant increase in credit risk accounts for forecasts of future economic condition*
- *Simplified approach and approach for purchased or originated credit-impaired financial assets*

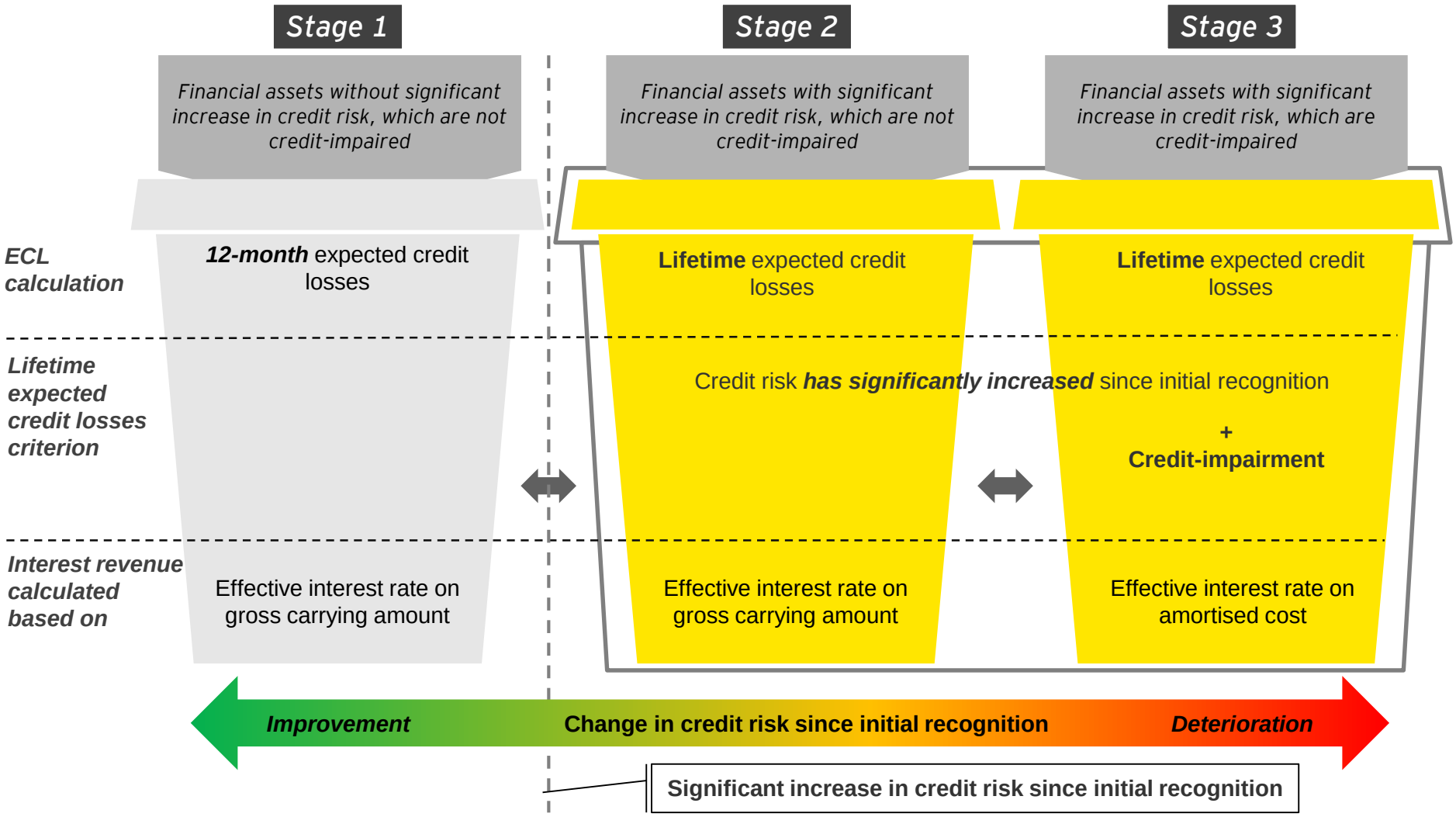
IAS 39 and IFRS9 Impairment
IFRS 9 Impairment model: impact



Timely recognition of Expected Credit Losses the base for IFRS9

The Regulatory context of **IFRS 9** ("IFRS 9 Financial Instruments" issued by IASB on July 2014) requires to measure the **impairment allowance** for an instrument at an amount equal to **Lifetime (LT) Expected Credit Losses** if, at the reporting date, the probability of a default occurring on the financial asset has increased significantly since initial recognition.

Expected credit losses model
General impairment principles, 3 stages by IFRS 9



Potential challenges

Key problems in transition to IFRS 9
According to our IFRS 9 project experience, there are the following problems which Banks can face during IFRS 9 implementation:

1

Expected credit losses measurement
- Defining the lifetime period of contingent liabilities and mortgage (real maturity period)
- Defining the approach to measure losses at lifetime period, selection of the correct parameters
- Defining the approach to off-balance provisioning
- Basel models adjustment for the purpose of IFRS
- Designing proxy approach for uncovered portfolio

2

Approach to assessment of significant increase in credit risk
- The assessment has to be linked to Bank's internal processes
- Designing a pragmatic approach to the assessment of increase in credit risk
- Justification of the approach chosen

3

Accounting for future forecasts
- The level of provisions strongly depends on macroeconomic forecasts
- Individual vs. portfolio correction
- Synchronization with Bank's current stress-testing approach

4

Approach for purchased or originated credit-impaired financial assets
- Determining effective interest rate that accounts for credit risk
- Determining criteria to treat the asset as purchased or originated credit-impaired

5

Data
- Creation of data mart on the basis of Risks and Finance database
- Availability of data on risk level at loan origination date
- Collection of historical data

1 Expected credit losses measurement

Expected credit losses (ECL) measurement

IFRS 9 requirements

Example

Formula for loan loss provisions calculation

12-month ECL

- If credit risk has not increased significantly since initial recognition, loan loss provisions are created for 12-month period

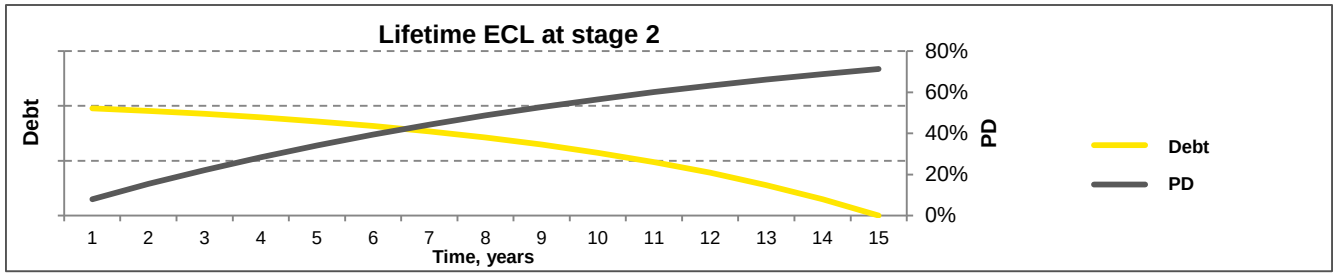
$$Reserve_{Stage\ 1} = PD_{IFRS} \cdot LGD_{IFRS} \cdot Exposure$$

Lifetime ECL

- If credit risk has increased significantly since initial recognition, lifetime loan loss provisions are created

$$Reserve_{Stage\ 2} = LGD_{IFRS} \cdot \sum_{K=1}^{N} \left(PD_{t_k}^{cmlt} \cdot \frac{CF_{t_k}}{(1+EIR)^{t_k}} \right)$$

$$Reserve_{Stage\ 3} = LGD_{in\ default} \cdot Exposure$$



Potential challenges

- Modification of measurement method of expected life of an instrument for estimate of lifetime ECL. This estimate has to account for prepayments and loan extensions
- Integration of forecast information into the estimate of credit risk
- Adjusting parameters of credit risk (PD, LGD, EAD) in order to meet the requirements of the Standard
- Designing an approach to measure lifetime ECL

ECL calculation – Formula Overview

$$LECL_t = \sum_{t=1}^{T} S_{t-1} \cdot PD_t \cdot EAD_t \cdot LGD_t \cdot D_t$$

S_{t-1}: Survival function	PD_t: Probability of Default	EAD_t: Exposure at Default	LGD_t: Loss Given Default
S_{t-1} is the probability that a customer has not defaulted or prepaid their balance in a previous period. It is calculated as: S_{t-1}= $\prod_1^{t-1}(1 - PD_{t-1} - PP_{t-1})$ where PP = prepayment	**Likelihood that a borrower will not be able to meet its debt obligations over the course of the next 12 months** ► Point in time and forward looking ► Counterparty level and refreshed on a frequent basis ► Key driver in stage allocation	**The estimated outstanding exposure at the time of a default** ► Only contractually irrevocable undrawn commitments should be considered ► Point in Time ► No embedded regulatory conservatism ► Amortisation and prepayment should be modelled	**The percentage of exposure at risk that is expected not to be recovered in the event of default** ► Not downturn and no regulatory add-ons ► Forward looking ► Time variant (static values may be acceptable for some portfolios ► EIR used for discounting purposes

Possible approaches to measurement of expected credit losses

Expected credit losses measurement

- The Standard does not specify methods for measurement of expected credit losses
- A Bank should define internal methodology
- The methods chosen have to comply with the requirements of the Standard

If IRB models are available

- Use of Basel models for measuring expected credit losses
- Use of PIT (point-in-time) PD
- It is necessary to account for forecasts of future conditions during estimation of expected credit losses. Implementation of forecast data into parameters used (PD, LGD, EAD, CCF) is possible.
- It is necessary to design a methodology to assess probability of default at the lifetime of an asset

If IRB models are not available

- When IRB models are unavailable, it is possible to use other approaches to measure expected credit losses, for example:
  - Migration matrices
  - Credit loss coefficient
- It is possible that, for compliance with the Standard, it will be necessary to carry out calculations of expected losses at a more granular level.
- It is obligatory to account for forecasts of future economic conditions in all approaches and to assess credit risk level at each reporting date.

ECL calculation – Key components

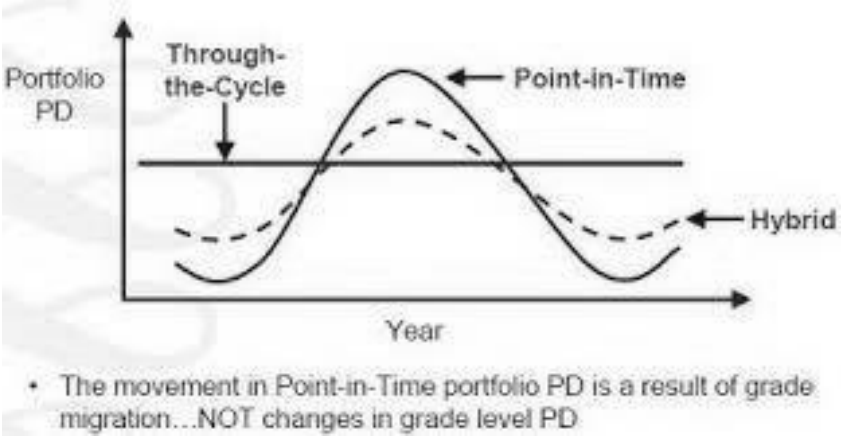
IFRS 9 EL calculation is expected to follow a PD * LGD * EAD approach, as per Basel. However, parameters are expected to be point in time and include forward looking expectations.

- Most firms are planning to leverage on existing Basel parameters and perform the required adjustments.
- In addition, there is a need for lifetime calculations for Stage 2/3, which is a relatively new challenge for banks.

Adjustments required when using Basel models as a starting point for IFRS 9

Basel Probability of a Default (PD)	► Transformation from 'through-the-cycle' to 'point-in-time'. ► Incorporation of forward-looking expectations ► Term structure (Lifetime PD) ► Remove conservatism (unbiased)
Basel Loss Given Default (LGD)	► Removal of 'downturn' calibration ► Removal of floors ► Discounting ► Recovery costs
Basel Exposure at Default (EAD)	► Application of lifetime ► Removal of 'downturn' calibration ► Assessment of committed/non-committed lines of credit ► Inclusion of pre-payment probability

PiT vs. TtC – Note on the key differences between PiT and TtC



While default rates move with the economic cycle, the behavior of PD depends on the 'rating philosophy' of the model

1. **Point-in-time**: Rating and PD estimate is based on current condition of the obligors' risk characteristics, typically including the economic environment. This should result in high rating migration frequency. Default rates within rating classes should remain stable.
2. **Through-the-cycle**: Obligor ratings are not influenced by short term risk characteristics. Ratings do not change frequently, default rates vary.
3. **Hybrid approach:** Mixture of both 'pure' philosophies. The rating system incorporates current condition elements of obligor idiosyncratic and systematic risks.

PiT rating model

- Model takes into account both **idiosyncratic** and **systematic** risk factors.
- Model output is correlated with the economic cycle.
- PDs/LGDs are representative for a short time horizon (i.e., one year)

TTC rating model

- Model takes into account only **idiosyncratic** risk factors.
- Model output is not correlated with the economic cycle.
- PDs/LGDs are representative for a long time horizon (i.e., average of full economic cycle)

Combination of Migration Matrix and PD (PIT) to assess PD (lifetime)

Calculation of PD for the period of more than one year is carried out by combining migration matrix and PD (PIT) vector

Migration matrix

- Probability of non-default is calculated for each rating class (1-PDefault)...

		Possibility of transition				
		P_A	P_B	P_C	$P_{default}$ (empirical)	1-$P_{Default}$
Рейтинг	A	87.9%	6.5%	3.3%	2.2%	97.8%
	B	8.5%	79.7%	5.3%	6.4%	93.6%
	C	2.3%	9.2%	63.1%	25.4%	74.6%
	Default	0%	0%	0%	100%	

Migration matrix between non-default ratings

- … relative probability of transitions to non-default ratings is calculated (the sum of all probabilities is equal to 100%)

89.9% = 87.9% / 97.8%

		Relative possibility of transition		
			P_B	P_C
Рейтинг	A	89.9%	6.7%	3.4%
	B	9.1%	85.2%	5.6%
	C	3.1%	12.3%	84.6%

Transformed matrix

- Part of transformed matrix –PD (PIT) column
- Final normalized transition probabilities are determined by multiplying relative transition probabilities by the probability of a non-occurrence of default.

89% = 89.9% * 99.0%

		Possibility of transition				
		P_A	P_B	P_C	$P_{default}$ (PIT)	1-$P_{Default}$
Рейтинг	A	89%	7%	3%	1.0%	99.0%
	B	9%	81%	5%	5.0%	95.0%
	C	2%	9%	59%	30.0%	70.0%
	Default	0%	0%	0%	100%	

Assessment of lifetime PD for financial instrument

Multiplying the migration matrices to get the PD curve

- The properties of Markov chains allow to calculate the probability of default over two periods (months) using the matrix M2
- In general, the probability of transition from one state to another for *k* periods is determined by the matrix Mk
- The last column in the final matrix reflects the probability of default for each rating.
- The PD curve is constructed as follows (example for the first six months):
- In the matrices M, M2, M3, M4, M5 and M6, the columns of PD are highlighted in color for the respective periods.
- These PD values for each state correspond to a point on the cumulative PD curve.

The approach to the calculation of the cumulative PD by Markov chain's properties is analogous for all segments, regardless of the selected state.

	Securities	Financial institutions	Intergroup loans
State 1 (S1)	Rating 1	Rating 1	Rating 1
State 2 (S2)	Rating 2	Rating 2	Rating 2
State 3 (S3)	Rating 3	Rating 3	Rating 3
State 4 (S4)	Rating 4	Rating 4	Rating 4
Default	Overdue of 30+	Overdue 30+	Overdue 30+

Матрица (1 период)

Состояние	На конец периода				
На начало периода	S1	S2	S3	S4	Default
S1	93%	7%	0%	0%	0%
S2	17%	54%	29%	0%	0%
S3	0%	35%	52%	13%	0%
S4	0%	24%	17%	48%	12%
Default	0%	0%	0%	0%	100%

Матрица (2 периода)

Состояние	На конец периода				
На начало периода	S1	S2	S3	S4	Default
S1	87%	11%	2%	0%	0.0%
S2	24%	41%	31%	4%	0.0%
S3	6%	40%	40%	13%	1.5%
S4	4%	30%	24%	25%	17.6%
Default	0%	0%	0%	0%	100%

Матрица (3 периода)

Состояние	На конец периода				
На начало периода	S1	S2	S3	S4	Default
S1	83%	13%	4%	0%	0.0%
S2	29%	36%	29%	6%	0.4%
S3	12%	39%	35%	11%	3.0%
S4	9%	31%	25%	15%	20.5%
Default	0%	0%	0%	0%	100%

Матрица (4 периода)

Состояние	На конец периода				
На начало периода	S1	S2	S3	S4	Default
S1	79%	15%	6%	1%	0.0%
S2	33%	33%	26%	6%	1.1%
S3	18%	37%	31%	10%	4.3%
S4	13%	30%	25%	10%	22.3%
Default	0%	0%	0%	0%	100%

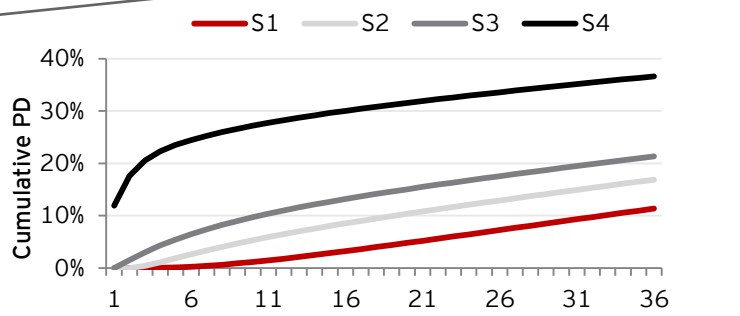
Матрица (5 периодов)

Состояние	На конец периода				
На начало периода	S1	S2	S3	S4	Default
S1	75%	16%	8%	1%	0.1%
S2	36%	31%	25%	6%	1.9%
S3	23%	35%	29%	9%	5.5%
S4	17%	28%	23%	8%	23.5%
Default	0%	0%	0%	0%	100%

Матрица (6 периодов)

Состояние	На конец периода				
На начало периода	S1	S2	S3	S4	Default
S1	73%	17%	9%	1%	0.2%
S2	39%	29%	23%	6%	2.6%
S3	27%	32%	27%	8%	6.5%
S4	21%	27%	22%	7%	24.4%
Default	0%	0%	0%	0%	100%

PD Matrix	Period					
Condition	1	2	3	4	5	6
S1	0%	0.0%	0.0%	0.0%	0.1%	0.2%
S2	0%	0.0%	0.4%	1.1%	1.9%	2.6%
S3	0%	1.5%	3.0%	4.3%	5.5%	6.5%
S4	12%	17.6%	20.5%	22.3%	23.5%	24.4%
Default	100%	100.0%	100.0%	100.0%	100.0%	100.0%



Key Modelling Aspects – ECL calculation: 12-month PD

Segmentation

- Identification of population sub-segments where different models can be developed (e.g., Modified/Non Modified exposures).

PD Estimation

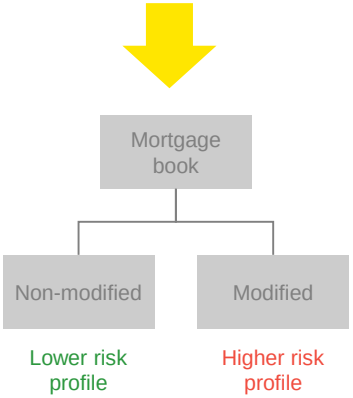
- For Retail portfolios, existing scorecards are expected to be used, with PiT calibration adjustment.
- For Corporate portfolios, rating models are expected to be used, with PiT calibration adjustment.

Macroeconomic Adjustment

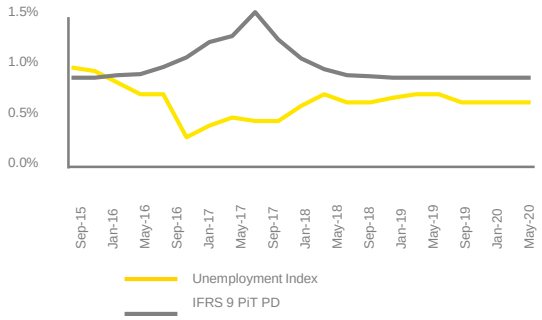
- Macroeconomic adjustments to 12-month PDs are applied.
- Adjustments should impact facility (or debtor where applicable) level PDs.

Indicative Data Needed

- Retail
  - Obligor characteristics: personal income information, socio-demographic/qualitative information
  - Transaction risk characteristics: payment behavioral information, type of product, type of collateral, seniority, LTV, etc.
- Corporate
  - Balance sheet information, firm characteristics, payment behavior, qualitative information



12m PD – Forward Estimation

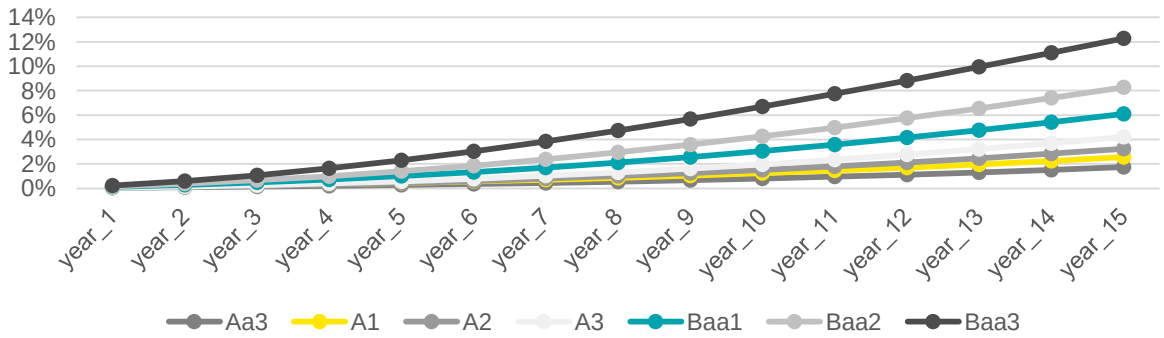


Validation Considerations

- Key model development steps:
  - Target variable definition
  - Feasibility analysis and choice on model structure
  - Variable reduction technique
  - Multivariate analysis and final model
  - Model calibration
  - Performance testing
- Initial and ongoing validation
- New modification types and ability to estimate impact on PDs

Assessment of lifetime PD (taking into account correction of first year PD on macro forecast data)

	year_1	year_2	year_3	year_4	year_5	year_6	year_7	year_8	year_9	year_10	year_11	year_12	year_13	year_14	year_15
Aaa	0.00001%	0.001%	0.004%	0.01%	0.02%	0.04%	0.06%	0.08%	0.12%	0.16%	0.20%	0.26%	0.32%	0.40%	0.48%
Aa1	0.00002%	0.01%	0.03%	0.07%	0.11%	0.17%	0.23%	0.31%	0.40%	0.50%	0.61%	0.73%	0.87%	1.02%	1.18%
Aa2	0.00003%	0.02%	0.04%	0.08%	0.14%	0.20%	0.27%	0.36%	0.46%	0.57%	0.69%	0.83%	0.98%	1.15%	1.34%
Aa3	0.04%	0.09%	0.14%	0.21%	0.27%	0.35%	0.45%	0.55%	0.67%	0.80%	0.95%	1.12%	1.31%	1.52%	1.74%
A1	0.07%	0.14%	0.23%	0.33%	0.44%	0.56%	0.70%	0.86%	1.04%	1.24%	1.46%	1.71%	1.97%	2.26%	2.57%
A2	0.04%	0.11%	0.20%	0.31%	0.45%	0.61%	0.79%	1.00%	1.24%	1.50%	1.80%	2.12%	2.46%	2.84%	3.24%
A3	0.05%	0.14%	0.26%	0.40%	0.58%	0.79%	1.03%	1.31%	1.62%	1.97%	2.35%	2.76%	3.21%	3.69%	4.20%
Baa1	0.12%	0.29%	0.49%	0.73%	1.01%	1.34%	1.70%	2.11%	2.56%	3.06%	3.59%	4.16%	4.77%	5.42%	6.09%
Baa2	0.16%	0.38%	0.66%	1.00%	1.40%	1.85%	2.37%	2.95%	3.57%	4.25%	4.98%	5.75%	6.56%	7.40%	8.27%
Baa3	0.24%	0.61%	1.08%	1.64%	2.30%	3.04%	3.86%	4.74%	5.69%	6.69%	7.74%	8.83%	9.96%	11.11%	12.29%
Ba1	0.43%	1.09%	1.91%	2.86%	3.94%	5.11%	6.38%	7.73%	9.13%	10.58%	12.08%	13.59%	15.13%	16.67%	18.21%
Ba2	0.71%	1.74%	2.97%	4.37%	5.91%	7.57%	9.33%	11.15%	13.03%	14.94%	16.86%	18.78%	20.70%	22.59%	24.45%
Ba3	1.37%	3.08%	5.00%	7.08%	9.30%	11.62%	14.01%	16.44%	18.88%	21.32%	23.72%	26.08%	28.39%	30.63%	32.80%
B1	2.00%	4.53%	7.30%	10.24%	13.30%	16.42%	19.54%	22.63%	25.67%	28.63%	31.48%	34.23%	36.86%	39.37%	41.75%
B2	2.99%	6.69%	10.64%	14.73%	18.83%	22.88%	26.82%	30.60%	34.21%	37.63%	40.84%	43.86%	46.68%	49.32%	51.77%
B3	5.07%	10.70%	16.29%	21.72%	26.92%	31.83%	36.42%	40.68%	44.61%	48.22%	51.53%	54.56%	57.33%	59.86%	62.18%
Caa1	4.78%	11.32%	18.27%	25.12%	31.58%	37.53%	42.93%	47.77%	52.10%	55.96%	59.40%	62.47%	65.20%	67.65%	69.85%
Caa2	10.41%	21.24%	30.85%	39.11%	46.13%	52.05%	57.05%	61.29%	64.91%	68.03%	70.73%	73.08%	75.14%	76.96%	78.57%
Caa3	20.17%	36.99%	49.28%	58.22%	64.79%	69.73%	73.54%	76.56%	79.01%	81.04%	82.74%	84.20%	85.47%	86.57%	87.54%
Ca-C	32.52%	52.28%	63.78%	70.90%	75.60%	78.91%	81.37%	83.30%	84.86%	86.16%	87.27%	88.22%	89.06%	89.80%	90.46%
Default	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%



Key Modelling Aspects – ECL calculation: Lifetime PD

Segmentation

- Identification of population sub-segments where different models can be developed per segment (e.g., Modified/Non Modified exposures).

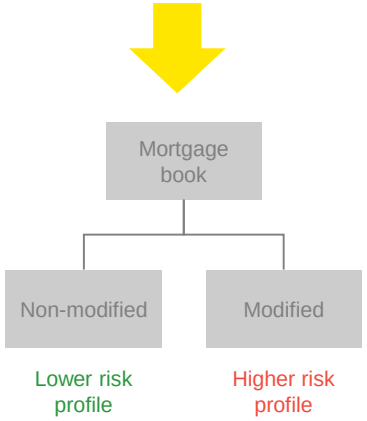
Determine Lifetime Profile incorporating macros

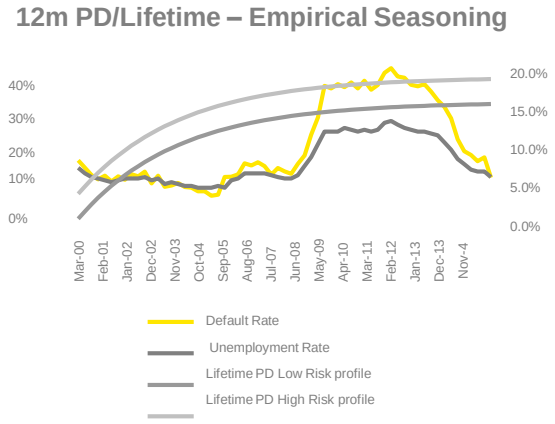
Approaches that are currently considered are:

1. **Macro-linked Migration matrix:** Migration matrices based on Rating model outputs over a recent period. The output of portfolio-level macro models are also leveraged.
2. **Empirical Seasoning curve:** Apply survival techniques to determine a full lifetime by incorporating macroeconomic factors.
3. **Vintage Analysis:** Projections of base default rates (historical average of default rates) are derived and macro-adjustments are incorporated.
4. **Segment-level Lifetime Curves:** A lifetime curve for a segment is estimated and built on by exponentiation of macro-adjusted 12m PDs.

Indicative Data Needed

- Macro-linked Migration matrices
  - Observed Migration Matrices over recent periods
  - Historical availability of defaults
  - Macroeconomic Variables
- Vintage modelling and Empirical Seasoning curve
  - Historical availability of defaults and key portfolio segment drivers (e.g., Time on Book, Product type, Remaining Maturity, Loan to Value)
  - Macroeconomic variables
  - 12-month PD estimates from behavioral models to be used as a starting point





Validation Considerations

- Selection of approach largely depends on the portfolio type and data availability.
- All methods allow linkage to macroeconomic drivers and forecasts.
- For portfolios with low exposure or lack of data, alternative methodologies may be applied.
- Potential incorporation of non-performing exposure targets could be examined to the extend that sufficient information is available and can be utilized

Key Modelling Aspects – ECL calculation: 12-month and Lifetime LGD

Segmentation

- Only default population for estimation
- Identification of population sub-segments where different models can be developed per segment (e.g., Secured/ Unsecured, Modified/ Non Modified exposures).

LGD Estimation

The two main parameters are:

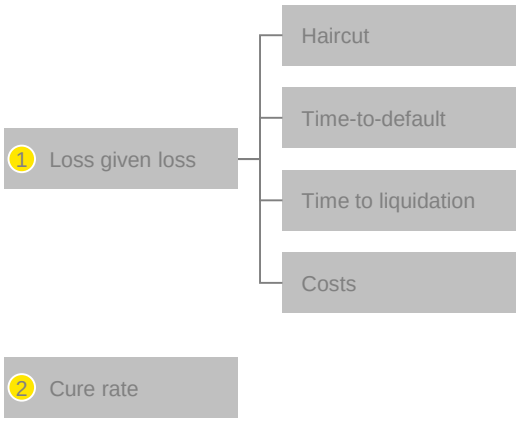
- Loss Given Loss, which for secured exposures is an estimate of collateral liquidation, while for unsecured exposures, estimation is performed via cash payments of non-cured exposures.
- Cure Rate based on an estimated workout period, where segmentation or behavioural models are typically developed.

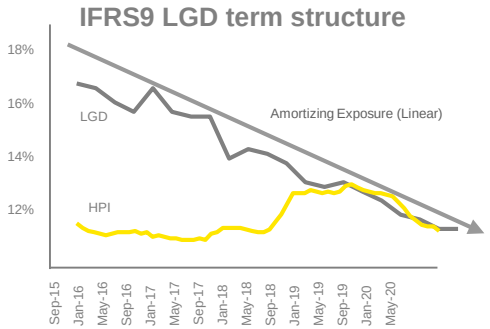
Macroeconomic Adjustment

- Factors for secured lending include house prices, CRE prices,
- Typical macro economic factors for cure rate and unsecured lending.

Indicative Data Needed

- Collateral information:
  - Forecasts of future collateral valuations
  - Expected sale discounts
  - Allocation of collateral across exposures
  - External costs of realization of collateral
  - Time to realization of collateral
- Post-default payment behaviour
- Time to recovery
- Cash recoveries





Validation Considerations

- Allocation of payments due to collateral liquidation
- Projections of collateral values & cash flow information required.
- Potential incorporation of NPE targets could be examined to the extend that sufficient information is available and can be utilized.
- IFSR 9 adjustments.

Key Modelling Aspects – ECL calculation: 12-month EAD

Segmentation

- Only default population for estimation
- Identification of revolving product types where CCF needs to be estimated

EAD Estimation

- Retail: statistical model (behavioural scorecards), based on default history and limit utilization, utilizing regression or segmentation methods.
- Corporate: same approach as Retail (segmentation methods being adopted) for CCF estimation.

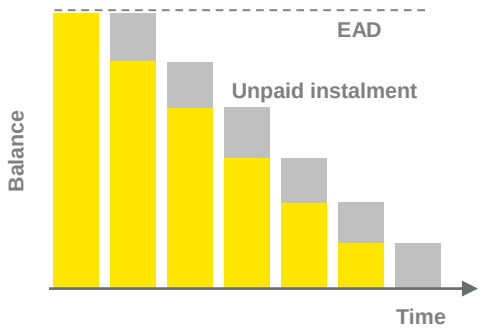
Macroeconomic Adjustment

- Pre-payments are likely to be impacted by economy

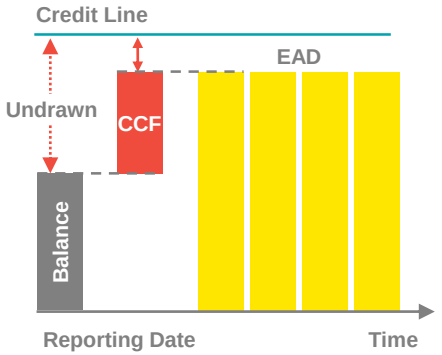
Indicative Data Needed

- Retail
  - Credit Limit, utilization information
  - Obligor and Product type characteristics
  - Transaction risk characteristics
  - Information on delinquency
  - Product type characteristics;
- Corporate
  - Same as above and in addition:
  - Balance sheet information
  - Firm characteristics

Fixed Term Product with 6 year maturity



Revolving Product with 5 year maturity



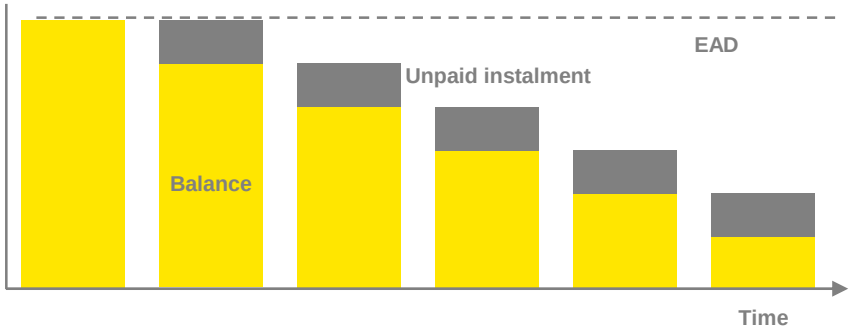
Validation Considerations

- Limit allocation for Corporate and Retail business exposures (given the complexity of the limit structure)
- Identification of committed and uncommitted limits
- Detailed amortization for fixed term loans needs to be considered as input to determine term structure EAD for the Lifetime ECL estimation

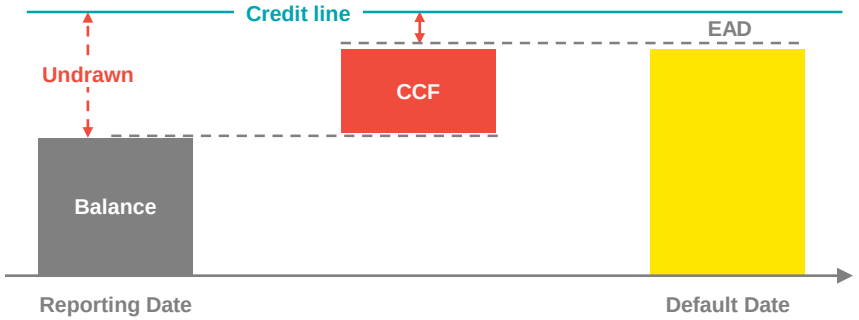
EAD Term Structure – Product specificities

EAD approaches

Instalment/Bullet Loans



Revolving



► **Repayment schedule**	► **Model for utilisation behaviour**
► **Parameters:** Maturity	► **Parameters:** ► Credit Conversion Factor
► **Segmentation:** product type	► **Segmentation:** ► Current account/credit card ► Client segment (for CAs) ► Rating
► **Requirements on historical data:** N/A	► **Requirements on historical data:** ► contract-level balance and line ► Transactions

Considerations: Macro-models for CCF, Treatment of negative observations (e.g., CCF<0), Inactive/dormant accounts, Attrition/Prepayment (e.g., use of flat rate based on historical experience, expert judgment overlay or CRM models).

Expected credit losses (ECL) measurement

Illustrative example

Credit Contract

- Reporting date: 01.09.2015
- Portfolio: Legal Entities
- Date of origination: 30.09.2014
- Repayment date: 30.07.2019
- Current liability: 200 mln. UAH.
- Past due (days): 0
- Impairment indicators: no
- Rating at the date of origination: P1
- Rating at the reporting date: P3
- PD: 5.78%
- LGD: 58.45%

Calculation of lifetime loan loss provisions

Period (month)	LGD	EIR	Payment(mln.)	PD cmlt
1	58.45%	14.20%	4.2	0.48%
2	58.45%	14.20%	4.2	0.96%
3	58.45%	14.20%	4.2	1.45%
4	58.45%	14.20%	4.2	1.93%
…	…	…	…	…
55	58.45%	14.20%	4.2	29.54%
56	58.45%	14.20%	4.2	29.86%
57	58.45%	14.20%	4.2	30.17%
58	58.45%	14.20%	4.2	30.49%

Approach to loan loss estimation

IAS 39

- No impairment indicators observed, so the liability of a borrower is not impaired
- The amount of loan loss provisions:

$$Provisions_{IAS\,39} = Exposure \cdot PD \cdot LIP \cdot LGD$$
$$= 200\ \text{mln. UAH.} \cdot 5.78\% \cdot 0.5 \cdot 58.45\%$$
$$= 200\ \text{mln. UAH.} \cdot \mathbf{1.69\%} \approx 3.4\ \text{mln. UAH.}$$

IFRS 9

- Credit risk has increased significantly – Stage 2
- The **lifetime** loan loss provision:

$$Provisions_{IFRS\,9} = LGD \cdot \sum_{K=1}^{N} \left(PD_{t_k}^{cmlt} \cdot \frac{CF_{t_k}}{(1+EIR)^{t_k}} \right)$$
$$= 200\ \text{mln. UAH.} \cdot \mathbf{9.7\%} \approx 20\ \text{mln. UAH.}$$

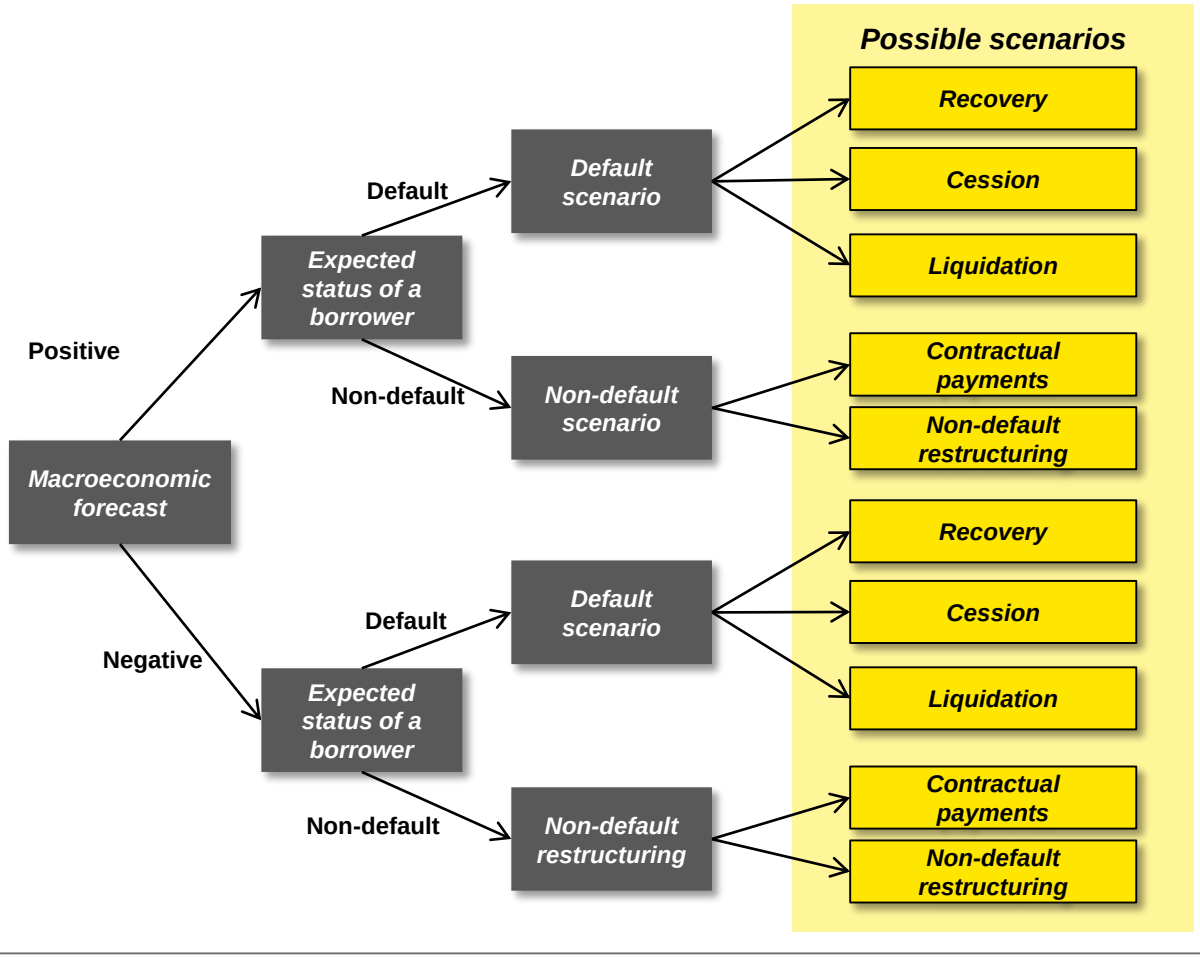
Expected credit losses (ECL) measurement based on scenario approach

Example

Approaches to modelling scenarios

Estimation of expected losses

- Loan loss allowance measurement is based on probability-weighed estimates of credit losses at possible scenarios
- Different (at least 2) outcomes have to be accounted in the estimate of expected losses on individual basis (considering predicted future events)



2 Significant increase in credit risk

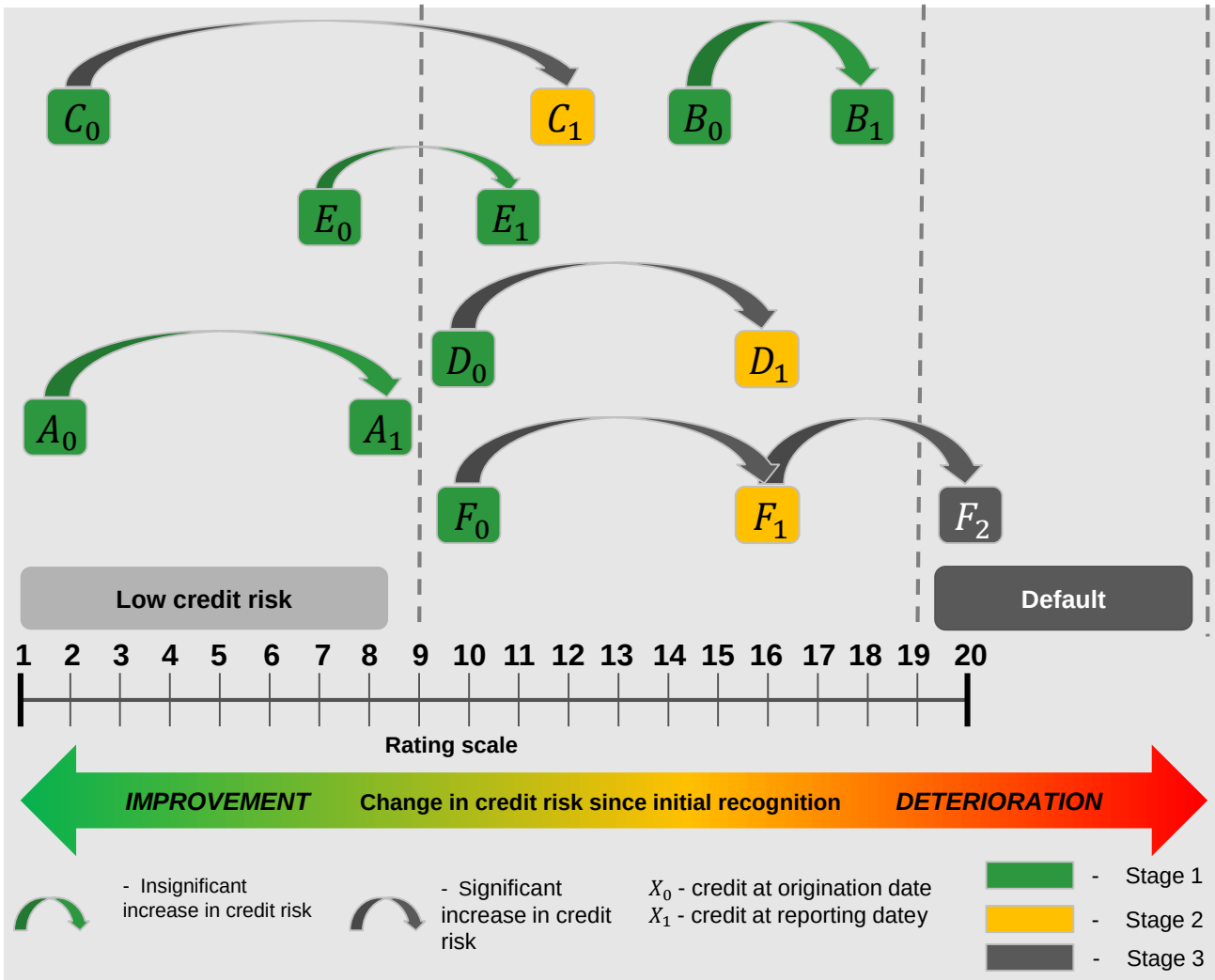
Significant increase in credit risk
Specific requirements

- The key factor triggering transition from 12-month expected credit losses to lifetime expected credit losses
- Has to be indicative of the risk of default occurring
- Not of the change in expected credit losses level (collateral is not taken into consideration)
- Has to be identified prior to occurrence of default or before the time when a financial asset becomes problematic
- The standard does not suggest any **specific or automated approach**
- Acceptable approaches may differ dependent on complexity of organizational structure, financial instruments and data availability
- Implies **multi-factor and complex analysis**
- Based on reasonable and supportable information, available without undue cost or effort and
- That is relevant to a specific financial instrument, portfolio, part of a portfolio of a group of portfolios.
- A Bank need not undertake an exhaustive search for information
- **Major disclosure requirements**
- Parameters, approaches, judgments, reasons for decrease

Non-exhaustive list of factors or indicators in assessing significant increase in credit risk

- Market indicators (credit spread, credit default swap, etc.)
- External rating (actual or expected downgrade)
- Rate and conditions on similar assets
- Internal rating/ scoring (actual or expected downgrade)
- Approach to credit risk management/ thorough monitoring
- Operating results (revenue, margin, etc.)
- Past due information
- Restructuring (actual or expected)
- Business, financial or economic conditions (interest rate, unemployment rate etc.)
- Regulatory, economic or technological environment
- Collateral, guarantee or financial support, if this impacts the risk of a default occurring
- Payment status and behavior
- Expectation of crisis events

Example of significant increase in credit risk



Example

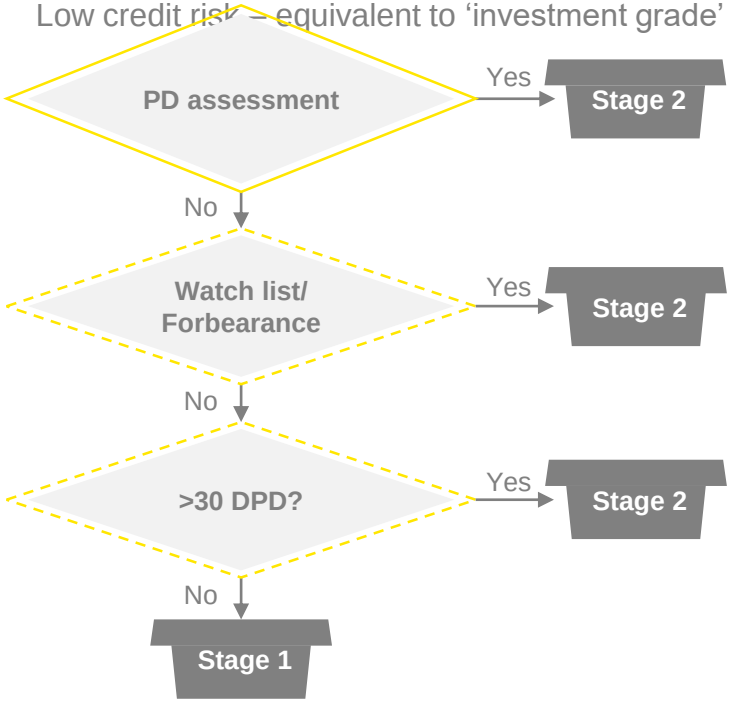
Comments

- At each reporting date, a Bank shall compare the credit risk on a financial instrument with risk taken upon at initial recognition.
- The standard allows to identify low credit risk («investment grade») at which Bank does not have to assess changes in credit risk (until grade 9 in the example)
- The potential challenge for a Bank is the use of approach to measure level of credit risk at each reporting date
- In the example, significant increase in credit risk will happen after deterioration by 6 grades

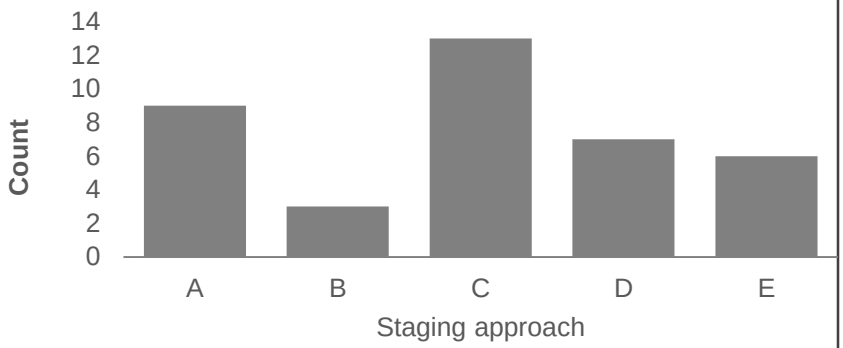
Staging – Approach simplification

Simplifications

- Use change in 12-month risk as approximation for change in lifetime risk
- Set transfer threshold by determining maximum initial credit risk
- Low credit risk – equivalent to 'investment grade'



Market insight



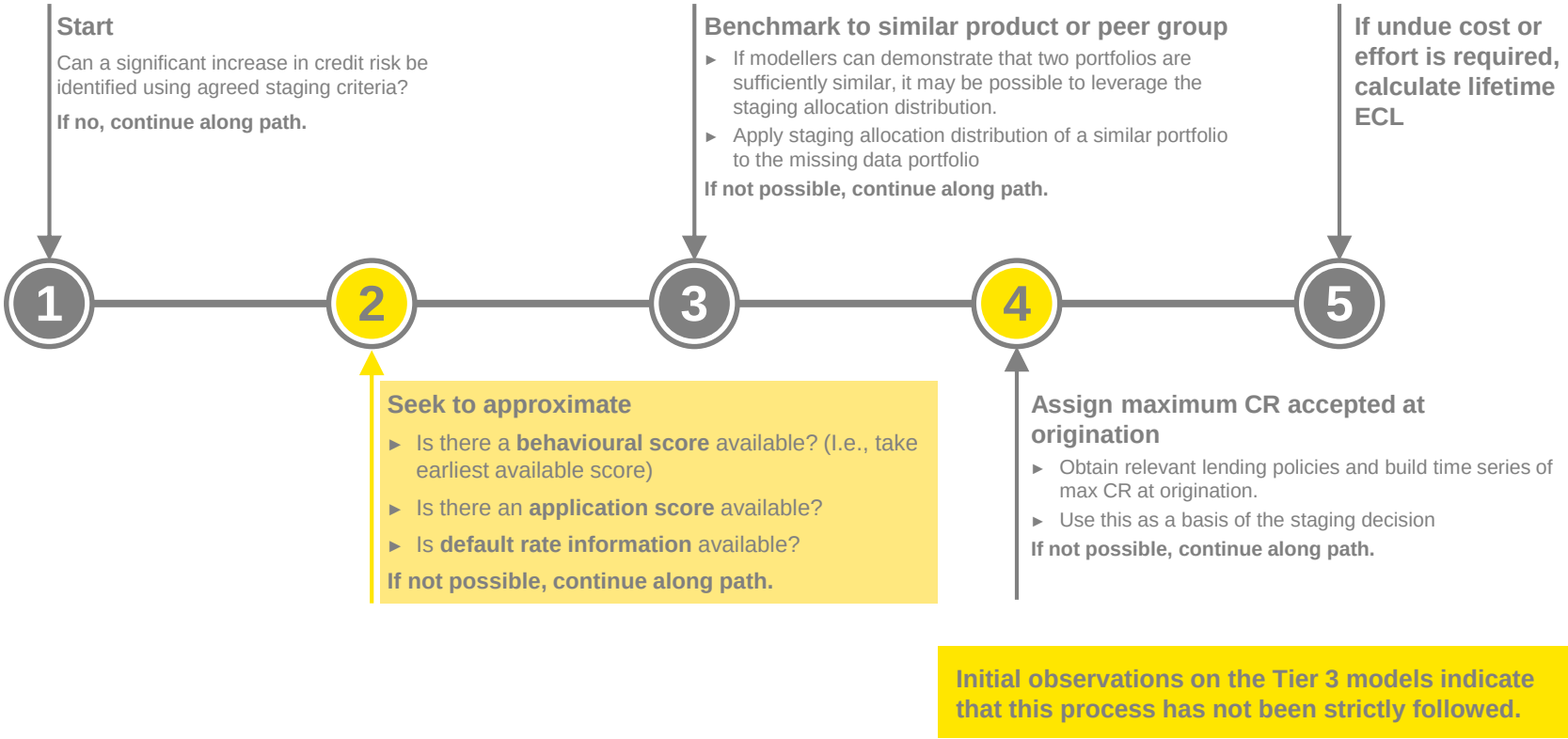
Source: EY IFRS 9 impairment banking Survey – 2016

- A: PD delta (e.g., + xx bps)
- B: PD multiple (e.g., PD*xx), or a number of notches for scores or rating (e.g., x notches out of a XX scale)
- C: A combination of 'delta' and 'multiple' approaches – with both criteria to be met to trigger a transfer to stage 2
- D: A combination of 'delta' or 'multiple' approaches, with at least one criteria to be met to trigger a transfer to stage 2
- E: Other

Transitional Arrangements: Missing PD at origination

Dealing with missing origination data

When it is not possible to determine the PD at origination, modellers should consider the following options:



Initial observations on the Tier 3 models indicate that this process has not been strictly followed.

Possible approaches to estimate significant increase in credit risk

Significant increase in credit risk

- The existence of significant increase in credit risk on a financial instrument since date of origination requires recognition of lifetime loan loss provisions

If IRB models are available

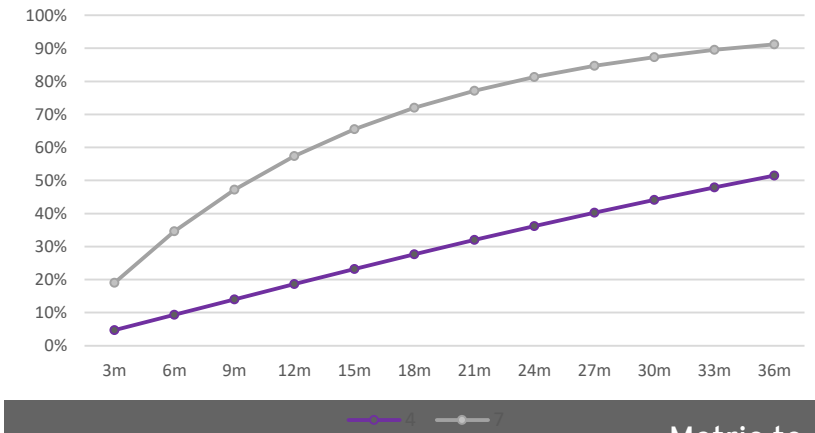
- Fixed difference in ratings that imply significant increase in credit risk
- Statistical determination of significant increase in credit risk for each rating based of migration matrix
- Setting maximum allowed increase in PD for each rating
- Determining ratings with high credit risk level (for which credit origination is prohibited)

If IRB models are not available

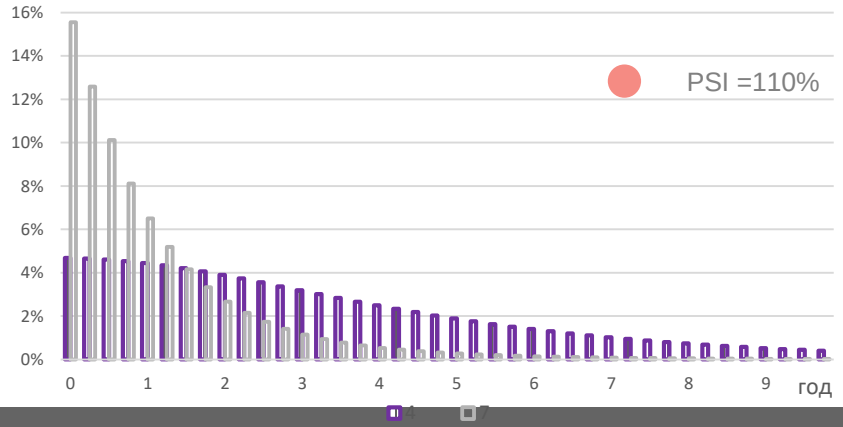
- Approach which does not include an explicit PD can be consistent with the requirements of the Standard, provided that a Bank is able to separate the changes in the risk of a default occurring from changes in other drivers of expected credit losses, and considers the following:
  - the change in the risk of a default occurring since initial recognition
  - the expected life of the financial instrument
  - reasonable and supportable information that is available without undue cost or effort
- When IRB models are unavailable, transition of an asset to problematic category or early warning signals may be triggers of significant increase in credit risk

Assessment of significance in Credit risk

Cumulative PD curves



Distribution function



Metric to assess significance

- Population Stability Index (PSI) was chosen as the comparison metric of the two distribution functions of the cumulative probability of default
- This metric evaluates the "similarity" of two density functions.
- This metric can also be used to evaluate jumps in ratings for a significant increase in credit risk.

$$PSI_{rating\ i,rating\ j} = \sum_n \left(Marginal\ PD_n^i - Marginal\ PD_n^j\right) * ln\left(\frac{Marginal\ PD_n^i}{Marginal\ PD_n^j}\right)$$

Whrere n – number of time steps

Выбор порогового значения и результаты

- PSI is higher in a pair of ratings, the greater the difference in the growth rate of the cumulative probability of default and the greater the difference in the level of credit risk
- The following threshold values used in market practice for model validation were used for analysis:

PSI <=10%	low credit risk differences
10% < PSI <= 15%	
15% < PSI <= 20%	moderate credit risk differences
20% < PSI <= 25%	
PSI >25%	High credit risk differences

Assessment of significance in Credit risk

External ratings SICR matrix

Изменение рейтинга с/ до :	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Caa3	Ca-C
Aaa	0%	1%	1%	2%	5%	6%	9%	17%	26%	45%	75%	111%	165%	226%	302%	400%	456%	597%	783%	916%
Aa1	1%	0%	0%	1%	2%	3%	5%	10%	16%	30%	54%	82%	125%	174%	236%	318%	361%	486%	657%	791%
Aa2	1%	0%	0%	0%	1%	2%	4%	9%	15%	28%	50%	77%	119%	167%	227%	306%	348%	468%	634%	765%
Aa3	2%	1%	0%	0%	0%	1%	2%	6%	11%	22%	41%	64%	98%	137%	185%	242%	282%	348%	432%	480%
A1	5%	2%	1%	0%	0%	0%	1%	3%	7%	16%	33%	52%	82%	117%	160%	212%	249%	310%	390%	438%
A2	6%	3%	2%	1%	0%	0%	0%	2%	5%	13%	28%	46%	74%	108%	150%	202%	238%	304%	392%	447%
A3	9%	5%	4%	2%	1%	0%	0%	1%	3%	9%	22%	38%	64%	95%	135%	184%	217%	282%	369%	425%
Baa1	17%	10%	9%	6%	3%	2%	1%	0%	1%	5%	14%	27%	48%	75%	108%	151%	180%	237%	314%	365%
Baa2	26%	16%	15%	11%	7%	5%	3%	1%	0%	2%	8%	19%	37%	60%	90%	129%	156%	211%	286%	337%
Baa3	45%	30%	28%	22%	16%	13%	9%	5%	2%	0%	3%	9%	22%	40%	65%	99%	122%	172%	245%	296%
Ba1	75%	54%	50%	41%	33%	28%	22%	14%	8%	3%	0%	2%	10%	22%	41%	68%	87%	132%	199%	249%
Ba2	111%	82%	77%	64%	52%	46%	38%	27%	19%	9%	2%	0%	3%	11%	25%	47%	62%	102%	165%	214%
Ba3	165%	125%	119%	98%	82%	74%	64%	48%	37%	22%	10%	3%	0%	3%	11%	26%	38%	71%	126%	172%
B1	226%	174%	167%	137%	117%	108%	95%	75%	60%	40%	22%	11%	3%	0%	3%	13%	21%	49%	100%	146%
B2	302%	236%	227%	185%	160%	150%	135%	108%	90%	65%	41%	25%	11%	3%	0%	4%	9%	30%	76%	120%
B3	400%	318%	306%	242%	212%	202%	184%	151%	129%	99%	68%	47%	26%	13%	4%	0%	1%	13%	49%	88%
Caa1	456%	361%	348%	282%	249%	238%	217%	180%	156%	122%	87%	62%	38%	21%	9%	1%	0%	10%	45%	88%
Caa2	597%	486%	468%	348%	310%	304%	282%	237%	211%	172%	132%	102%	71%	49%	30%	13%	10%	0%	13%	40%
Caa3	783%	657%	634%	432%	390%	392%	369%	314%	286%	245%	199%	165%	126%	100%	76%	49%	45%	13%	0%	9%
Ca-C	916%	791%	765%	480%	438%	447%	425%	365%	337%	296%	249%	214%	172%	146%	120%	88%	88%	40%	9%	0%

PSI <=10%
10% < PSI <= 15%
15% < PSI <= 20%
20% < PSI <= 25%
PSI >25%

3 Accounting for forecast information

Accounting for forecast information to assess expected credit losses and estimate credit rating of a borrower

Necessary information

IFRS 9

IAS 39

Information about past events

Information about current conditions

- According to IAS 39, a Bank shall account only for incurred losses. Losses that are expected to be the result of future events are not recognized regardless of their probability
- All calculations were based on past and current data and did not include possible future changes of a debtor's credibility or changes of economic conditions
- According to IFRS 9, a Bank shall also use historic data during assessment of expected credit losses. Data on past events shall only be a starting point for borrower's credibility assessment

Reasonable and supportable forecasts

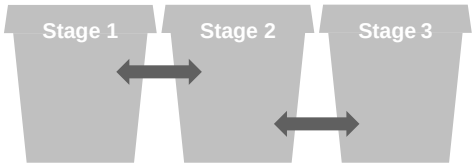
- According to IFRS 9, a Bank shall account for all **expected** credit losses
- All reasonable and supportable information about **forecasts of future economic conditions** shall be considered during assessment of expected credit losses and assessment of change in probability of default occurring
- Possible options to **accounting for forecast information** may be:
  - Analysis of economic data used for budgeting and capital management
  - Calculation of capital adequacy ratio, stress-testing and information used for Basel II

Approaches to accounting for forecast information for IFRS 9

		Main concept	*Necessary steps*
Process	Borrower's level	• Rating review allows to take into account the changes in the current and projected state of the borrower (off-schedule monitoring) • Rating update on the basis of: a. Deviations of the rating forecast from current value due to change of macroeconomic factors and financial performance in the context of the industry b. Expected changes in the financial condition of a borrower	• Ensuring the relevance and correctness of PD ratings • Ensuring timely account for influence of industry and macroeconomic trends on financial condition of the borrower
Regression	Borrower's level/portfolio level	• Adjusting the allowance amounts / individual parameters, used for the calculation of provisions (individual or average of the portfolio), based on the results of regression analysis	• Determining significant macroeconomic factors and the approach to defining adjusting indicators for provision purposes
Expert	Borrower's level/portfolio level	• Adjusting the provisions/ individual parameters used to calculate the provisions on the basis of expert opinion	• Determining the minimum criteria that show the need for adjustments • Ensuring consistent use of adjustments • Organizing the approval process of adjustments (decision-making levels and authorities)

Probability Weight of Scenarios

- The ECL calculation should be automated and iteratively performed under alternative macroeconomic scenarios. Basic and stress scenarios could be then be applied following market and local regulatory practices.
- Probability weights could be applied to the different scenarios for the calculation of the total Expected Loss.
- Depending on the type of the models to be used for IFRS9 purposes, different methodologies can be used for the calculation of the total Expected Loss.



Stage Allocation

- Stage Allocation is based on the **weighted average LT PD** to reflect potential future outcomes
- Weighted Average LT PD is compared against the threshold defined by the Transfer Criteria
- The account is **clearly allocated to a unique Stage**

ECL calculation

- 12m or LT ECL is calculated separately for each scenario considered

Transfer Criteria= LT PD Threshold 20%/W = Probability Weighted Value

Scenario	Probability	12m PD	LT PD	LGD	EAD	12m ECL	LT ECL	Stage
A	30%	4%	5%	60%	1000	24	30	1
B	45%	13%	17%	60%	1000	78	102	1
C	25%	17%	22%	60%	800	82	106	2

W 12m PD	W LT PD	W LGD	W EAD
11 %	15%	60%	950

The account is allocated at stage 1 as the W LT PD is 15%

The 12m ECL is used based on the Stage:

ECL = 30% x 24 + 45% x 78 +25% x 82 = 62.8, or LT ECL

ECL = 30% x 30 + 45% x 102 +25% x 106 = 81.4

Alternatively, the 12m ECL is

ECL = 11% x 60% x 950 = 62.7, or LT ECL is

ECL = 15% x 60% x 950 = 85.5

Mathematical model approaches to accounting for forecast information for IFRS 9

Possible approaches

Areas for improvement

- During PD estimation, a Bank shall consider all reasonable and supportable forecast information about future events that is available without undue cost or effort

1 Single-factor model

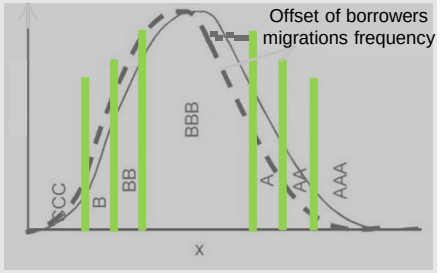
- Probability of default estimate based on Merton model
- An assets correlation coefficient and a factor reflecting the state of the economy are used for the forecast
- Factor reflecting the state of the economy may be a function of several macroeconomic indicators

$$p_i = \phi\left[\frac{\phi^{-1}(p_\mu) - \sqrt{\rho}Z}{\sqrt{1-\rho}}\right]$$

$p_\mu - PD\_TTC$
ρ – assets correlation coefficient
Z –a factor reflecting the state of the economy

2 Approach with the use of credit index

- Use of adjusted migration matrix for assessment of a forecast value of default probability
- Forecast PD value is calculated as probability-weighed PD of a portfolio of borrowers, received from adjusted migration matrix
- Adjustment coefficient of migration matrix may be assessed by regression analysis

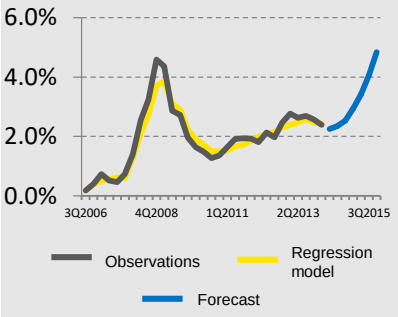


3 Linear regression

- Finding a direct dependence of the probability of default on macroeconomic factors

$$PD = a + b_1 * GDP_t + b_2 * Unp_t + \cdots$$

- A variety of mathematical transformations of PD values and regression factors may be used for the best modelling results



4 Simplified approach and approach for purchased or originated credit-impaired financial assets

5 Expected credit losses model Exceptions from general approach

Simplified approach

- Obligatory use for trade receivables or contract assets (under IFRS 15)
- In accounting policy, a Bank may choose to use simplified or general approach for trade receivables containing a significant financing component and lease receivables (under IAS 17)
- No need for organizing tracking changes of credit risk level, but
- Loss provisions have to be recognized at a lifetime of an instrument

Approach for purchased or originated credit-impaired financial assets

- Objective evidence of impairment at a recognition date
- Effective interest rate, adjusted for credit risk level
- Loan loss provision is created based on the amortised cost of the financial asset from initial recognition (not 12-month ECL)

Example: Approach for originated credit-impaired financial assets – calculation of EIR, adjusted for credit risk

Illustrative example

Input data

A Bank acquired a 5-year loan, which is impaired, at price CU4300, while the loan was originally issued at CU5000 at 20% interest rate, according to contractual terms. Transaction costs totaled CU100.

Expected cash flow, CU	*Time to maturity, years*
1 000	1
1 000	2
1 000	3
1 000	4
6 000	5

In case if the loan was not impaired, the EIR would be calculated on the basis of the contractual cash flows and the book value before provisions deduction: CU5100 (Including transaction costs CU100.):

$$5100 = \sum_{i=1}^{5} \frac{1000}{(1 + ЭПС)^i} + \frac{5000}{(1 + ЭПС)^5}$$

and would amount to ***19,34%***

However, due to the fact that the loan is subjected to credit impairment at initial recognition, it is necessary to determine the **adjusted effective interest rate on the basis of expected cash flows**

Expected cash flow, CU	*Time to maturity, years*
800	1
800	2
800	3
800	4
4 800	5

EIR adjusted to credit risk is calculated **on the basis of expected cash flows** and the carrying amount less impairment losses recognized on the acquisition of the loan (5100-700 = 4400 CU)

$$4400 = \sum_{i=1}^{5} \frac{800}{(1 + ЭПС)^i} + \frac{4000}{(1 + ЭПС)^5}$$

and equals ***17,62%***

5 Data Requirements

Review of data required for IFRS 9

1 Historical data

- Data for the entire lifetime of the financial instrument, such as: ratings at each reporting date and the date of issuance, the credit quality of the borrower, the number of days post due, the availability and value of collateral, and other information about the borrower and the loan servicing

2 Forecasting information

- Predictions of macroeconomic parameters, that affect the state of the portfolio, such as: GDP, unemployment rate, the cost of oil and other information that may affect the state of the portfolio or borrower in the future

3 Risk parameters

- Data on the probability of default (PD), loss given default (LGD), and other parameters that are used in the calculation of provisions
- Risk parameters must be calibrated in accordance with the IFRS 9 requirements

4 Data about collateral

- Data about collateral for all loans, type of collateral, value of collateral and statistics about selling the collateral
- It is necessary to take into account the possible changes in the value of collateral over time

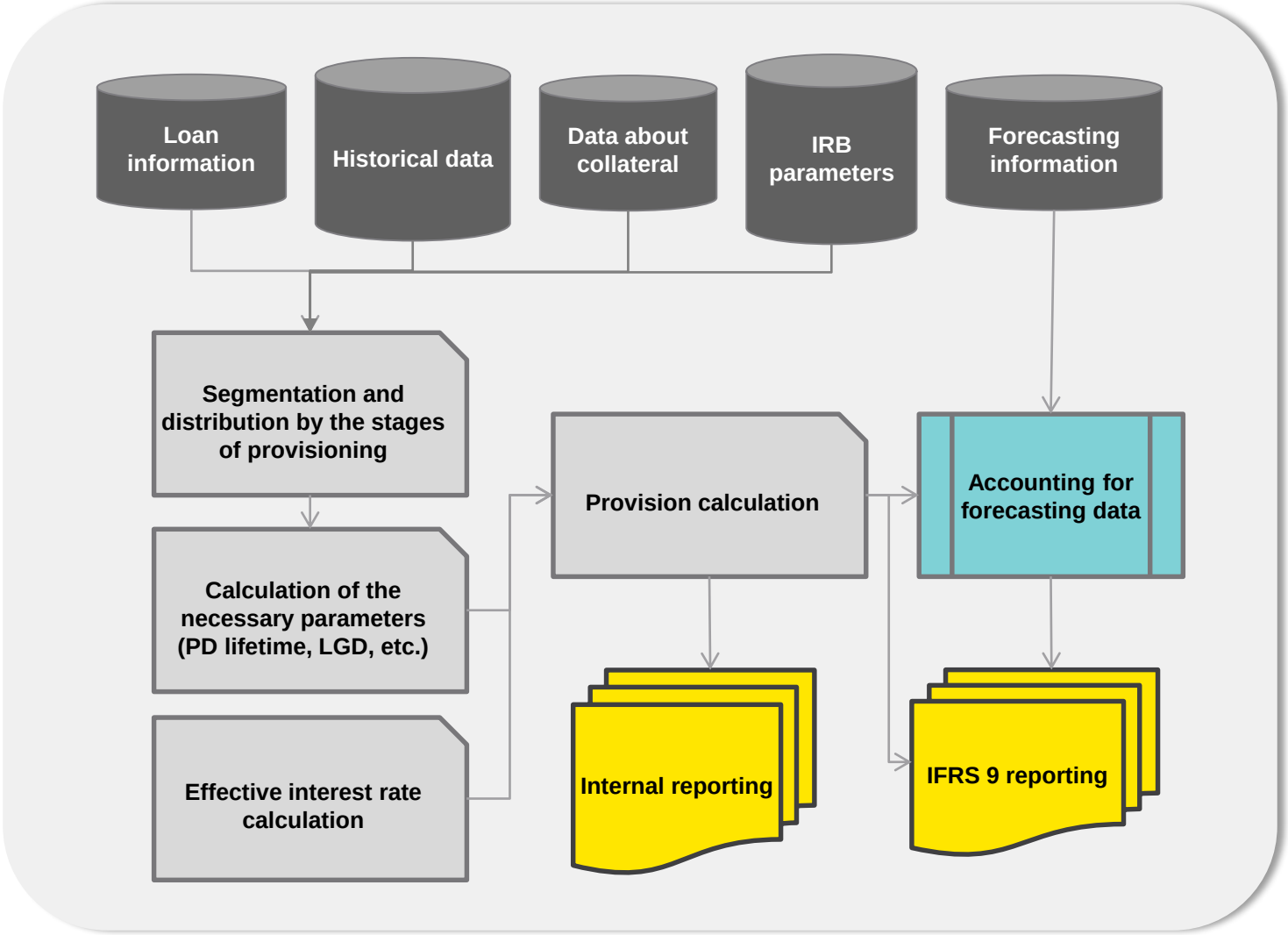
5 Information about financial instruments

- In addition to general information about the loans and borrowers, we need more information: cash flow statistics, effective interest rate, segment of the client, average lifetime of the instrument (taking into account early repayment)

6 Other information

- Information about the state of the borrower, such as: triggering of warning signals, getting into the watch list, restructuring of the loan and other relevant information

Simplified scheme of provision calculation under IFRS 9



Potential impact of the transition to IFRS 9

Operating model as part of impairment model
Allocation of functions

Function	Risks	Reporting	Business	Collection	Econ. Dep-t	IT
Developing methodology	✓	✓				
Creating a data mart for the calculation	✓					✓
Developing a calculation module	✓					✓
Providing forecasting economic information					✓	
Defining forecasting cash flows			✓	✓		
Calculating provisions	✓	✓				
Forecasting provisions	✓					
Expert evaluation	✓					

Example

Key findings

- *IFRS 9 approach to loan loss provisioning assumes measurement of expected losses, as well as the use of credit risk parameters.*
- *Thus, in practice, development of provisioning models and calculation of provisions is carried out using the resource base of Risks unit.*
- *Moreover, due to requirements for accounting forecasting information, IFRS 9 assumes bigger involvement of business units and Economic Department*

Preliminary assessment of changes in provisions after transition to IFRS 9

Executive summary

1

IASB survey ** (2013)

- Study was conducted by the IASB, based on 15 respondents from different geographical areas and with different levels of complexity of risk-management systems. The study involved financial and leasing companies, regulated and not regulated by Basel international and regional organizations.
- Analysis was performed on the basis of loan portfolio and investments in debt securities.

2

EY assessment for British banks (2013)

- Four major British banks were involved in the analysis
- Analyzed loan portfolios under included loans and advances to customers and loans and advances to banks (portfolio size from 460 to 1100 billion £ by the end of 2012)
- The share of NPL (overdue 90+ days or the availability of other signs of impairment) in the total loan portfolio ranged from 3.4 to 9.4%, provisioning rate ranged from 1.5 to 4%

3

The survey of banks concerning introduction of IFRS 9* (2014)**

- The study involved 54 large banking groups of EMEA, Asia Pacific and the Americas, 14 of them are among the global backbone financial institutions (25 of the 50 largest banks in the world in terms of assets as of 2013, participated in the analysis)

*Analysis results**

The majority of study participants experienced **a significant increase in provisions** during the transition to IFRS 9 relatively current IAS 39 provisions

Portfolio	*Change in provisions*
All portfolios (excluding mortgages)	**25-60%**
Mortgage	**30-250%**

Expected increase in the amount of provisions for some banks totaled **19-49%**, **consolidated effect** for all banks - about **30%**.

Main factors affecting the growth of the provisions:

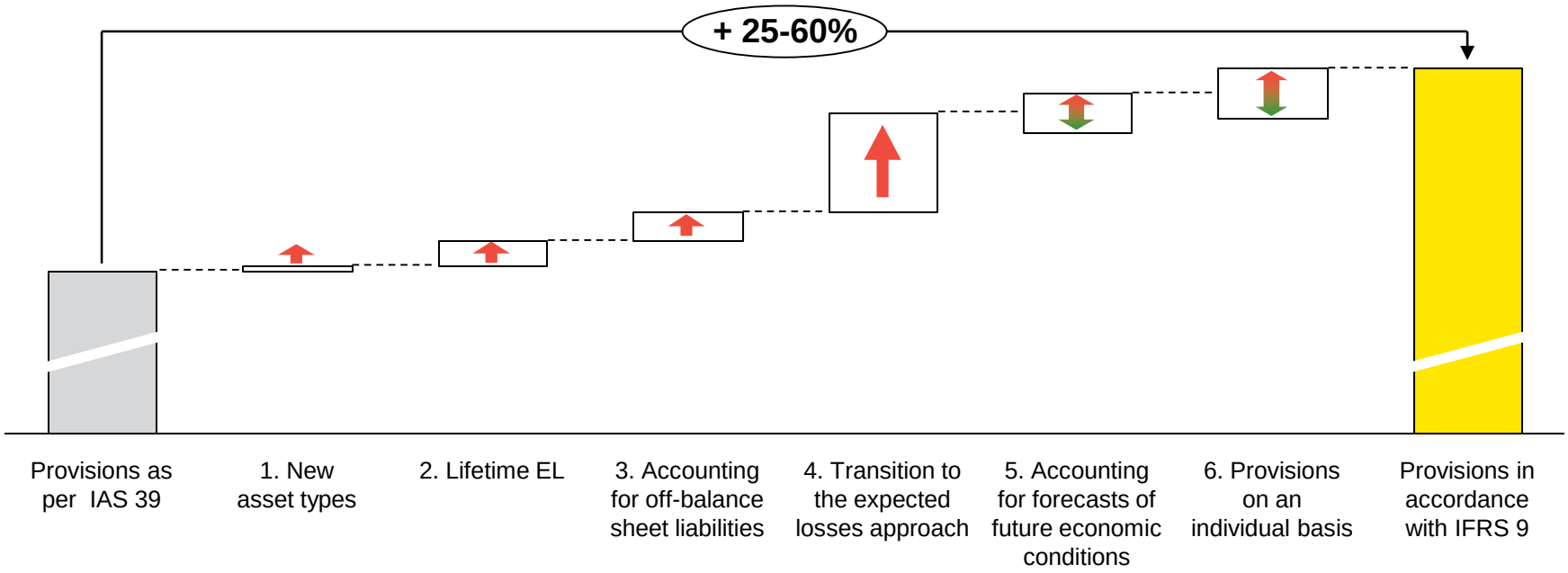
- **The level of conservatism**, used in IAS 39 models (e.g., the LIP value)
- **The credit quality of the considered portfolio.** The worse the credit quality of the portfolio, the more provisions is created in accordance with IFRS 39, and the larger relative share of provisions for "bad" loans in the total amount of provisions. Therefore, the lower the credit quality of the portfolio, the smaller the increase in the amount of provisions in relative terms
- **Macroeconomic assumptions** used have a significant influence on the effect

- Majority of the banks believe that transition to the expected losses approach **will increase the provisions by up to 50%** on all types of credit instruments
- A small share of banks expect an increase of over 50%

** Analysis of impact is based on a prerelease version of IFRS 9 "Exposure Draft: Financial Instruments: Expected Credit Losses" (2013)*
***IASB publication "Outreach Feedback Summary – Fieldwork", 22-26 July 2013 : http://www.ifrs.org/Meetings/MeetingDocs/IASB/2013/July/05B-Impairment.pdf*
****Deloitte survey "Fourth Global IFRS Banking Survey", June 2014: http://www2.deloitte.com/content/dam/Deloitte/tr/Documents/financial-services/fourth-global-ifrs-banking-survey.pdf*

Impact on the amount of provisions

Factors of impact



Factors of impact

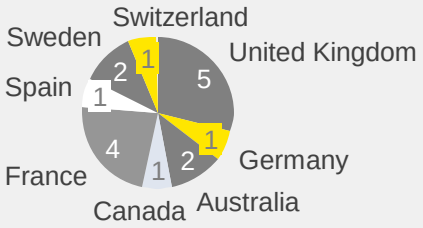
1. **New asset types –** portfolios that were beyond the scope of provisioning before
2. **Lifetime EL** - expected losses for the asset life period is calculated on the second stage of provisioning
3. **Obligatory accounting for off-balance sheet liabilities** – creation of provisions for off-balance sheet positions (CCF usage)
4. **Transition to the expected losses approach -** the reductive factor of loss identification period is excluded
5. **Accounting for forecasts of future economic conditions -** adjustment of provisions for expected events
6. **Provisions on an individual basis –** the need to consider a few scenarios in the calculation of provisions

EY Survey on readiness of banks for the transition to IFRS 9

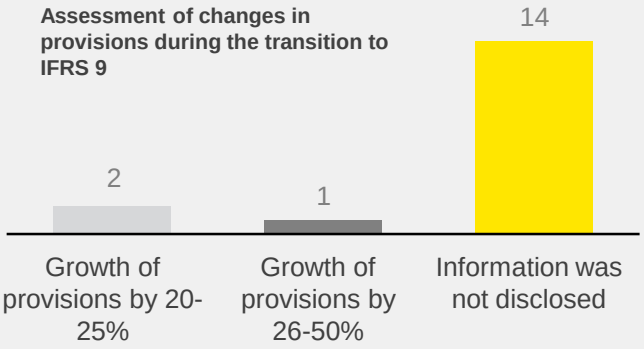
Market practices under IFRS 9 are not formed at this stage

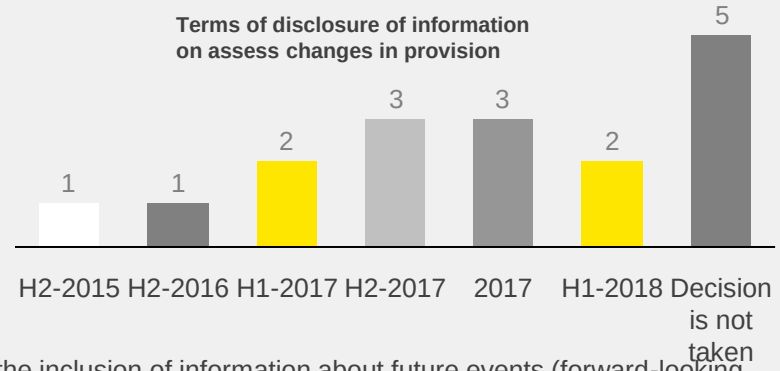
Executive summary

- EY conducted a survey on implementation of IFRS 9 among the major banks in June 2015
- 17 largest banks reporting under IFRS were involved in the survey
- Banks reported about the implementation phase of IFRS 9, the planned approach and methodology to the definition of risk parameters, assessing the impact on provisions and capital, as well as problems encountered in implementing IFRS 9



Survey results





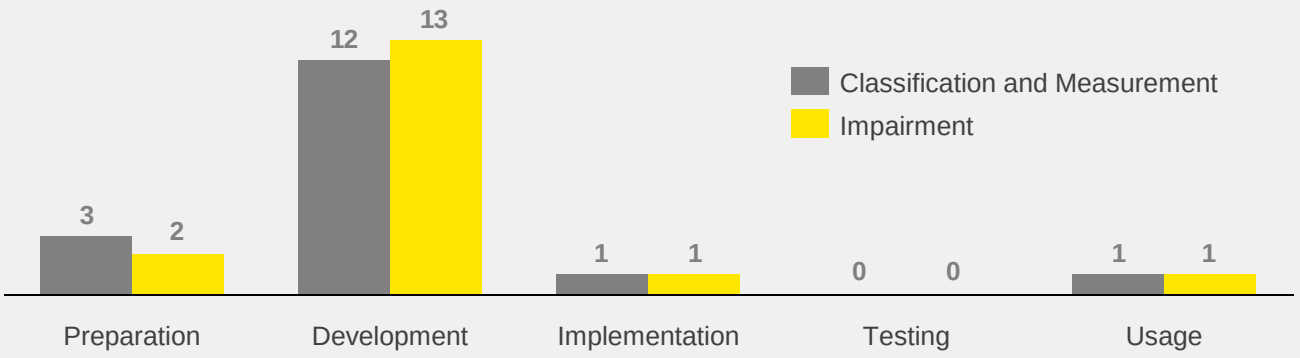
- Banks are still discussing key issues of modeling, such as the inclusion of information about future events (forward-looking expectation), calculation of the basic risk parameters, different approaches to the definition of a significant deterioration in credit risk
- Banks expect further guidance from local / international regulators. Involvement of the Regulator will have a key role in the final implementation of IFRS 9

Key findings

- The impact of the introduction of IFRS 9 on the amount of provisions currently are not disclosed by the majority of respondents due to inaccuracy of the results. Banks are going to adjust new parameters and then disclose information. Most banks expect to complete these tasks in 2017
- Market practices under IFRS 9 are not formed at this stage, since Banks have not disclosed information on both the impact and the usage of the approaches and methods of evaluation of expected credit losses

Current status of the IFRS 9 implementation

Status of implementation



- Most banks are in the development stage, and all banks of Britain and France, that participated in the survey, at the stage of development or implementation of IFRS 9
- In general, banks launched the implementation of the impairment earlier than part of the classification and measurement, as they believe that it is more difficult problem

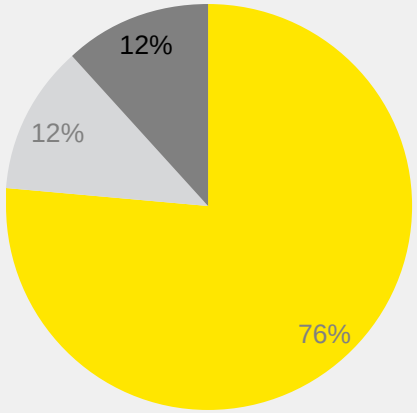
Implementation management

Management:

Finance:
-classification and measurement,
- hedge accounting, impairment
- support
Risks:
- impairment

Finance:
- classification and measurement,
- hedge accounting
Risks:
- impairment

Total Finance management



- In most banks, implementation of impairment takes place under the joint leadership of the Department of Finance and Risk Department, while the classification and measurement and reporting is under the supervision of the Department of Finance
- Implementation of IFRS 9 will have a strong impact on the management structure, and banks will require a significant improvement in the processes of interaction between the Risks Department and the Finance Department

EY | Assurance | Tax | Transactions | Advisory

About EY
EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com.

EYG no. 02463-164Gbl
ED None

ey.com