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Iceland:

Practical aspects of implementing IFRS 9 requirements for expected credit losses

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Presentation by

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- Ryan has designed the IFRS 9 provision impact assessment methodology for four UK and European banks and is the risk SME as part of our IFRS 9 strategic advisor relationship with two firms, providing advice on credit risk methodology and modelling

- He has also led the technical credit risk modelling interpretation of IFRS 9, documenting and providing options on the series and timing of technical risk decisions that will have to be taken as part of implementation

- Designed the lifetime ECL methodology for KPMG's gCLAS tool and conducted deep dive IFRS 9 vs IRB model reviews at two banks

- Ryan has built and validated credit risk models for IRB purposes specialising in low default/data model calibrations

Areas of focus for implementation – KPMG's key decision list for impairment

IFRS 9 ECL key decisions

IFRS 9 is a principles based standard that requires significant interpretation and decisions to be made in order to guide implementation. We have distilled the myriad of decisions into high level themes that would have to be addressed by firms

Not covered today	**Scope**	— Analysis of the applicability of ECL requirements
	Segmentation	— Modelling segmentation — Grouping of the exposures
To be discussed later	**Management overlays**	— Management overlays: At what stage, for what purposes and to what extent? — Controls and governance
	Materiality	— Materiality considering existing internal materiality
Focus of the further slides	**Definition of default**	— Definition of default for each products and portfolio, including backstop of 90 days past due and consistency of the definition of default — Definition of impairment/cure and credit impaired
	Economic Outlook	— Source of data, single or multiple scenarios, how to incorporate into ECL models and other considerations
	Maturity/Expected life	— Instances where contractual life of an asset can be different from the expected/behavioural life
	Modelling approach	— Approach to designing, IFRS 9 PD, LGD and EAD models (Focus on lifetime PD for this session)
	Transfer criteria	— Staging criteria for each portfolio/product — Evaluation of the effectiveness

Areas of focus for implementation – Definition of default

# Different definitions of default

CRR Article 178: Current definition of default	EBA CP on default (not yet effective within Article 178): Future definition of default	IFRS 9: Default	IFRS 9: Credit-impaired
90 days past due (or 180 days for certain retained retail and SME exposures if allowed by competent authorities)	90 days past due (or 180 days for certain retained retail and SME exposures if allowed by competent authorities)	Consistent with internal credit risk management	Stage 3 (credit-impaired assets)
Unlikeliness to pay ('UTP') indicators (including a charge-off or account-specific provision)	UTP indicators (as a general rule, stage 3 exposures under IFRS 9 should be treated a defaulted)	90 days past due	(a) Financial difficulty (b) A breach of contract, such as a default or past due event (c) Concessions granted (d) Bankruptcy or other financial reorganisation (e) Disappearance of active market
	Other additional indicators of UTP based on internal and external information		**POCI**
Unlikeliness to pay in full, without recourse by the bank to actions such as realising security	Unlikeliness to pay in full, without recourse by the bank to actions such as realising security	BCBS G-CRAECL: expected to be guided by the definition used for regulatory purposes	**Technically impaired assets but minimal provision due to sufficient collateral coverages**

Discussion points:

— Is there a full alignment between EBA and IFRS 9 definition of credit impaired?

— Are the two 'defaults' the same thing? i.e. 'default' in the context of indicator of impairment and 'default, in the context of definition of default

Definition of NPE and influence on default definition
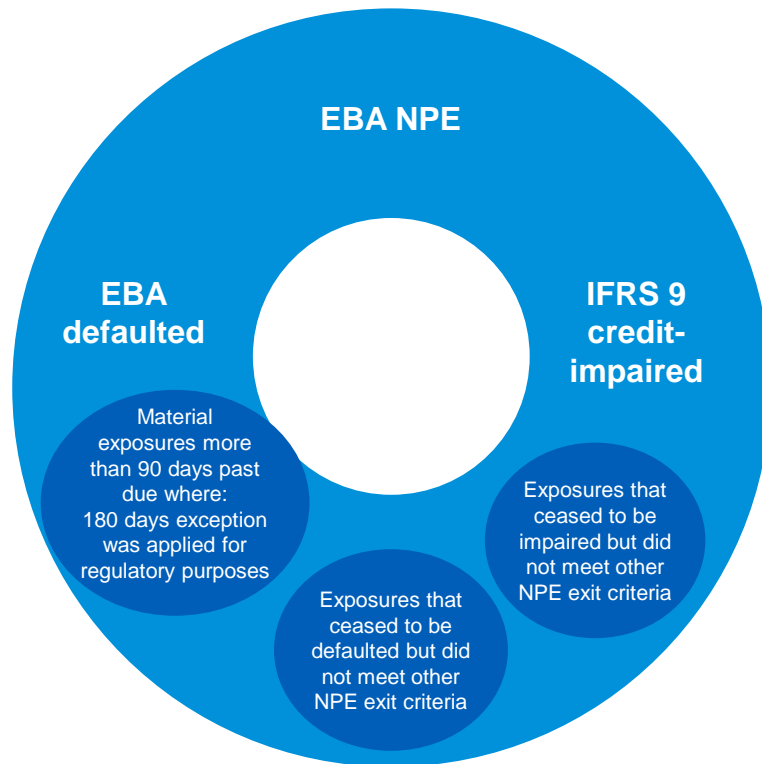
EBA NPE (paragraph 173-189 of Annex V)

1) **Material** exposures more than **90 days past due**

2) **Unlikely to pay** in full without realisation of collateral

Exit from NPE' (paragraph 183):

a) Ceased to be classified as defaulted or impaired

b) Full repayment is likely to be made

c) No past due more than 90 days

In addition to the above, two more exit criteria need to be met for forborne exposures (paragraph 184):

a) One year has passed since the latest between the moment when forbearance measures were applied and the moment when exposures have been classified as non-performing

b) No any past-due amount or concern regarding the full repayment of the exposure

Discussion points:
— Is there any difference between EBA defaulted, EBA NPE and IFRS 9 credit-impaired populations?
— Is there alignment with EBA NPE exit criteria for IFRS 9 stage 3 exit criteria? If not, there is only partial overlap

Definition of forbearance

EBA: Forbearance (Paragraph 190 – 213)
Definition
— Concessions
— Debtor facing or about to face financial difficulties
— Can be applied to both non-performing and performing exposures
Entry criteria – Key themes
— Modified non-performing exposures
— Performing exposures that would be classified as non-performing in the absence of refinancing or modification of terms
— Exposures where the modification made to a contract involves a total or partial cancellation by write-offs of the debt
— Exposures where a modification involves repayment made by taking possession of collateral when that modification constitutes a concession
— Modified exposures totally or partially past due by more than 30 days (without being non-performing) at least once during the three months prior to its modification, or exposures that would be more than 30 days past due without modification
— Other exposures not covered above where concessions have been extended when institution assesses that the debtors are facing financial difficulties. For examples exposures that do not meet specific FINREP
The above criteria apply to all exposures including modifications under IFRS 9 5.4.3. where derecognition is not achieved
Exit criteria – Key themes
— Exposure is classified as performing
— Performing forbearance: A minimum two year probation period[a] has passed from the date the forbore exposure was considered as performing
— Non-performing forbearance: A minimum three years probation period has passed, i.e. one year from the latest of either the moment when forbearance measures are applied, or when the exposure has been classified as non-performing and then two more years from when the non-performing forborne exposure is classified as performing
— Regular payments of more than an insignificant aggregate amount of principal or interest have been made during at least half of the probation period.
— None of the exposures to the debtor is more than 30 days past-due at the end of the probation period
Discussion points:
— Is definition of forbearance used for IFRS 9 assessment of significant increase in credit risk aligned to the EBA definition of forbearance

Note: (a) Please note that on 14 April 2016 Basel released a CP to standardise definitions of non-performing and forbearance for prudential treatment of problem assets which proposes a different set of definitions (including both entry and exit criteria) from FINREP's. For example, it proposed a minimum probation period of one year as an exit criteria from forborne exposures. At this stage, it is unknown whether the EBA will align the FINREP CP requirements to the BASEL CP (and if so, to what extent) given the FNREP CP is expected to be finalised earlier, by late Q2/ early Q3 this year.

So which definition of default do we use?

Most banks we are working with are exploring their internal definition of default that will be used within the IFRS 9 programme

Banks with internal models for IRB purposes are trying to align the regulatory definition of default with their IFRS 9 definition of default as the working hypothesis for implementation

Parallel to this, a study into the materiality in terms of differences between the regulatory default definition and accounting credit impaired definitions are being explored to determine the priority of aligning these definitions further

Areas of focus for implementation – Economic outlook

Overview

As an accounting standard, IFRS 9 dictates that in estimating expected credit losses, firms should consider all relevant historical and forward looking information. Banks now have to consider how to select appropriate economic forecasts from all available data and how to incorporate the selected forecasts into measurement of ECL.

The Impairment Transition Group on16 September 2015 discussed that forward looking information would have to be:

— Reasonable and supportable even if this involves a high degree of judgement

— Potentially inclusive of events with a low probability and/or where the impact on ECL is uncertain

**The evolving discussion on the subject has raised a number of concerns for banks as they tackle the challenges
of implementation:**

— Given that there is already considerable debate on the topic of inherent model misspecification, stemming from the generation of spurious correlations, banks should be mindful of how they go about obtaining appropriate data

— There has been a grudging acceptance that multiple economic scenarios would need to be considered, but how many scenarios do banks need to consider?

— How should banks link macroeconomics to staging?

Estimate of expected credit loss based on one macro-economic scenario would not achieve the objective of IFRS 9 if there is a non-linear relationship between the macroeconomic indicators in different possible scenarios and their associated credit losses

Estimates of expected credit loss depend on the impact of the scenario assumptions on staging approach and ECL calculation

How to generate scenarios

For many large institutions that are implementing IFRS 9, the generation of a globally consistent scenario is a daunting task with some institutions indicating a requirement for potentially 420 macro economic variables

Process for generating discrete economic scenarios

The main scenario is largely linked to a consensus forecast that is reflected in the business plan globally. Alternative scenarios to consider potential non-linearity in the portfolio

Some are looking to use statistical distributions or confidence intervals around external forecasts
Others expecting to rely on subjective judgement

| Scenario identification | Scenario development | Probabilities | Scenario Expansion |

Development of trajectories of core or fixing variables with reference to objective, independent information

Economic models are generally used.
Formalisation of expansion process to ensure robustness and independence
Formalisation of validation process

Cornerstones

— The process hinges on the ability to generate economic projections for a core set of "fixing" macroeconomic variables.

— The expansion into the full set of variables is then done in a more automated way through the use of econometric models that take the fixing variables as an input into the process.

— A consideration for banks is around the disclosure of the scenarios both internally and externally. Some techniques like Monte Carlo simulations do not naturally lend themselves to disclosure

Illustrative calculation example

Scenario	Scenario probability	PD staging	Staging for scenario	12m ECL	Lifetime ECL	Stage ECL
1	20%	1%	1	£2	£40	£2
2	60%	4%	1	£5	£50	£5
3	20%	8%	2	£10	£100	£100
Weighted average		**4.2%**	**-**	**£5.4**	**£58**	**£23**

What is the ECL for this scenario, is it 12 month (£5.4), lifetime (£58) or depending on each scenario stage ECL (£23)?

– **Assuming transfer PD threshold of 5%, loan in scenarios 1 and 2 is in Stage 1 and in Stage 2 for scenario 3**

– **To determine actual staging for this loan, we need to consider weighted-average lifetime PD value which is 4.2% in this example and, since it less than 5%, this particular loan is in Stage 1 and correct ECL is the weighted average 12m ECL**

ECL for this loan is £5.4 – weighted average of 12m ECL for each scenario

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Observed solutions

Less sophisticated/less effort to operate	Single scenario and overlays	Simple scaling factors into the PDS	More than three scenarios: Base plus up/down	Monte Carlo simulation	More sophisticated/ more effort to operate

Number of Scenarios	Description	Unbiased, probability weighted	Management judgement	ECL nonlinearities	Cost
1	Use one central, forward looking scenario across the business	◎ -	• -	◎ -	⊕ +
2	One central scenario which covers 'normal' times, and one stressed scenario	• -	⊕ +	• -	⊕ +
3	One upside and one downside scenario as well as a central path	⊕ +	◎ +	⊕ +	
4+	Multiple scenarios based on key risks	⊕ +	◎ +	⊕ +	• -
1000+	Monte Carlo approach	◎ +	⊕ +	◎ +	◎ -

Areas of focus for implementation – Maturity/expected life

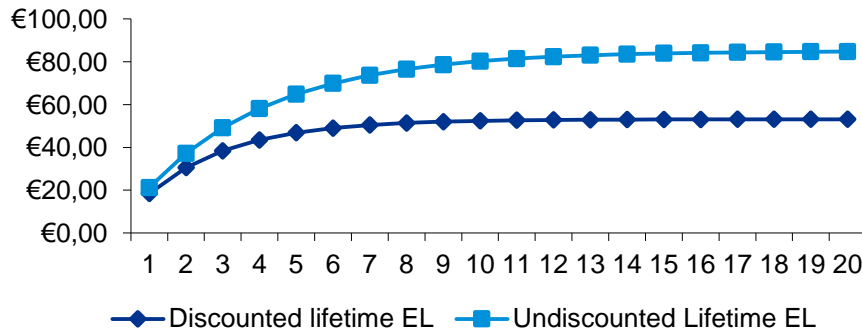# Maturity

Behavioural maturity >= Contractual maturity

— Period of exposure to credit risk for revolving credit facilities, credit cards and overdrafts can be longer that contractual maturity

— $Expected\ Loss = \sum_{i=1}^{t_{bh2}}(PD_{ti}\ EAD_{ti}\ LGD_{ti})d_{ti}$

The industry has not decided a standardised way of calculating what behavioural maturity would be but there are several approaches (or combination of approaches) that could be taken:

— As behavioural life is only required for stage 2 assets (ignoring less than I year maturities for the moment), identify the triggers into stage 2, calculate the average length of observed maturities between stage two transfer and account termination

— Base behavioural life linked to accounting definitions of de-recognition events linked to account reviews

— Make an assumption on the behavioural life based on expert judgement
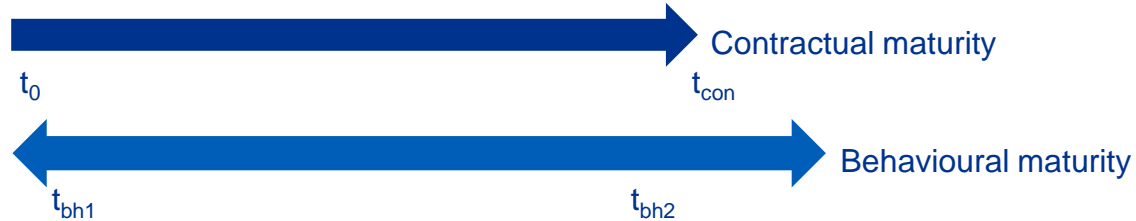
Lifetime losses

The graphs to the left shows the impact of lifetime expected loss for a given behavioural maturity (x-axis) on an EAD of €100, a one year PD of 25%, an LGD of 85%

The two graphs give an idea about the impact of discounting on lifetime expected losses (EIR of 15%)

Maturity (cont.) – Under discussion

Contractual maturity

t_0 t_{con}

Behavioural maturity

t_{bh1} t_{bh2}

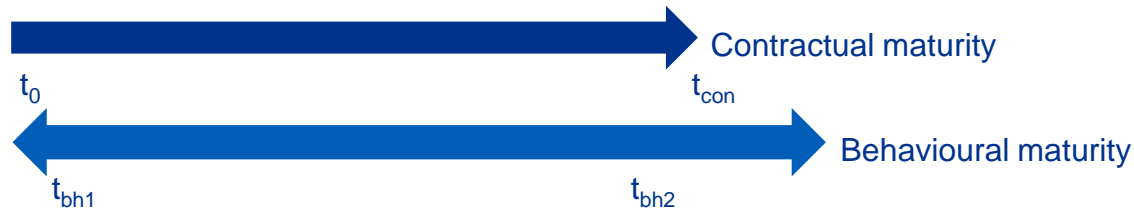Behavioural maturity >= Contractual maturity

— Question – how does IFRS9.B.5.5.40 operate to curtail the expected life of undrawn facilities subject to a substantive credit annual credit review?

(Very!) Simple Example:

Portfolio of credit cards								
Number of balances	% of book	Initial PD	Undrawn facility	Current PD	increase in CR?	Stage	Mitigation	post mitigation undrawn
1,000	2.08%	2%	1,000,000.00	20%	yes	2	remove UD	0
2,000	4.17%	2%	2,000,000.00	8%	yes	2	reduce UD by 50%	1,000,000.00
5,000	10.42%	2%	5,000,000.00	6%	yes	2	none	5,000,000.00
10,000	20.83%	2%	10,000,000.00	3%	yes	1	none	10,000,000.00
10,000	20.83%	2%	10,000,000.00	2%	no	1	none	10,000,000.00
20,000	41.67%	2%	20,000,000.00	1%	no	1	none	20,000,000.00
48,000 Total		Total	48,000,000.00				Total	46,000,000.00

Maturity (cont.)

Contractual maturity

t_0 t_{con}
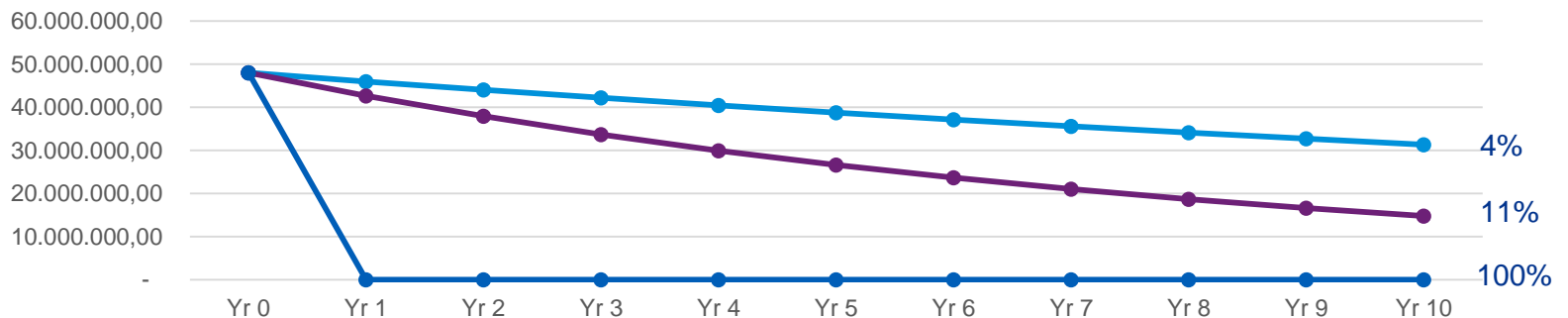
Behavioural maturity

t_{bh1} t_{bh2}

Behavioural maturity >= Contractual maturity

Views:

— Actual amount mitigated (2m) as a proportion of total amount on book (48m) – 4%
— Number of balances mitigated (3k) as a proportion of total balances (48k) – 6%
— Actual amount mitigated (2m) as a proportion of total amount with an increase in credit risk (18m) – 11%
— Number of balances mitigated (3k) as a proportion of total balances with an increase in credit risk (18k) – 17%
— All of the balances subject to a substantive credit review – 100%

Implications of different interpretations on expected life of the portfolio

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Maturity (cont.)

Behavioural maturity >= Contractual maturity

— This is also allowed for facilities with contractual extension options, on the assumption that the extension option takes you to t_{bh2}

— $Expected\ Loss = P * \sum_{i=1}^{t_{con}}(PD_{ti}\ EAD_{ti}\ LGD_{ti})d_{ti} + (1 - P)\ * \sum_{i=1}^{t_{bh2}}(PD_{ti}\ EAD_{ti}\ LGD_{ti})d_{ti}$

Where P is the probability the extension option will be exercised; in calibrating P, bank should consider if data is available for such contracts historically and if not, a bank will have to determine P using expert judgement and sensitivity analysis

Behavioural maturity >= Contractual maturity

— For all other assets not described in the previous slides, IFRS9 does not allow the modelling of expected losses beyond the contractual maturity. Some institutions feel that this is a shortcoming of the standard with regards to portfolios like income producing real estate or other asset finance exposures
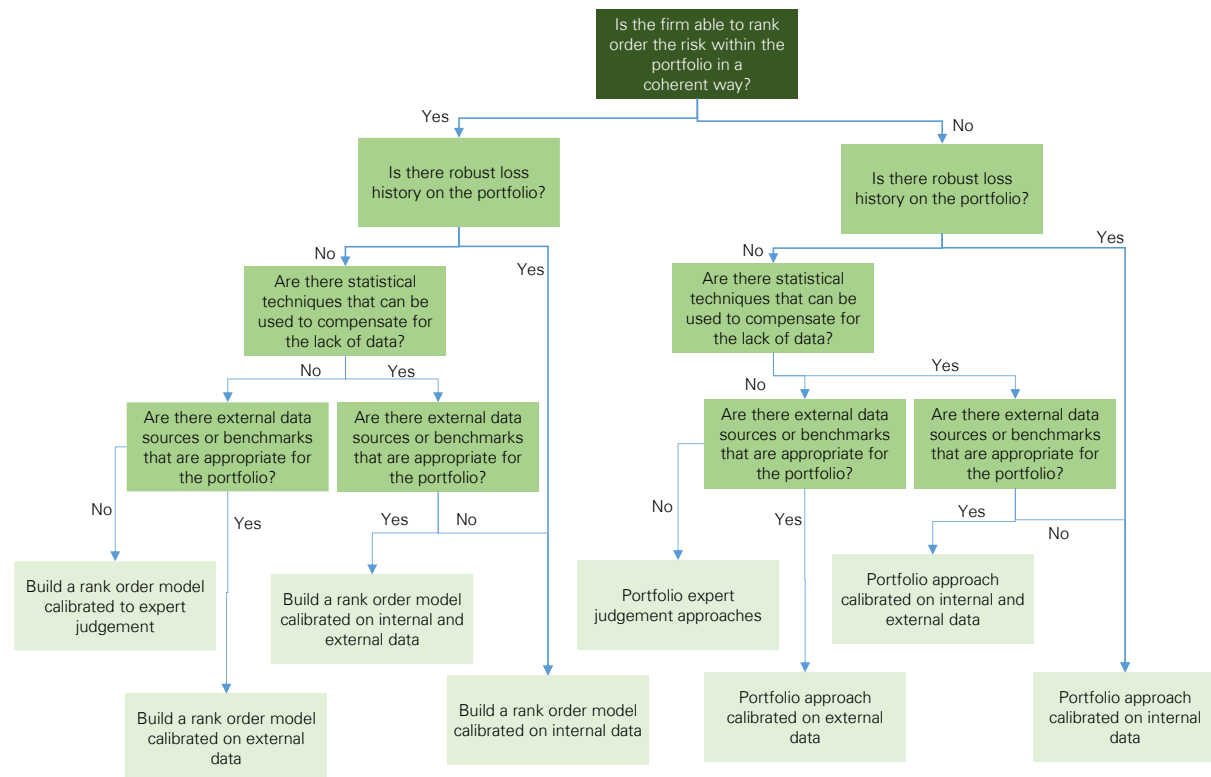
Areas of focus for implementation – Model approach

Areas of focus- modelling approach

There are generally eight classes of models that can be used for each component within the ECL calculation framework.

The class of model is generally determined by two dimensions:

- Ordinal risk discrimination: The way obligors within a portfolio are differentiated according to risk. This may be done via existing credit management processes or through the creation and use of a model.
- Calibration: The way risk is quantified. Risks can be quantified through a combination of either using historical internal data, proxies based on external data, or expert judgement.

Overview of selected multi-year PD approaches (1/2)

Approach	Description

Assumptions	▪ For the sake of clarity all illustrations of approaches presented here, make the assumption that a rating scale is available. ▪ More granular lifetime PD estimates can be obtained for example through the Group methodology based on the exposure PD's position in the rating class PD interval.

A Markov chain based approaches

A1: Homogeneous Discrete-time Markov Chain Method (HDTMC)
▪ Estimate cumulative PD profiles by means of a migration matrix.
▪ The cumulative migration probabilities of the migration matrix are estimated by means of the cohort method and therefore only for discrete time slices.

A2: Homogeneous Continuous-time Markov Chain Method (HCTMC)
▪ Estimate cumulative PD profiles by means of a generator (for multi-year migration matrices).
▪ The cumulative migration probabilities of the migration matrix are estimated by means of the cohort method. The discrete-time matrices are transformed to generators.

A3: Non-Homogeneous Continuous-time Markov Chain Method (NHCTMC)
▪ Estimate cumulative PD profile by means of different migration matrices for different time periods.
▪ The method is also based on generators but the time component will be modelled so that the default rates are approximated.

B Survival analysis approaches

B1/B2: Survival Probability Method / Fitting on Historical Default Rates
▪ Estimate cumulative PD profiles based on internal or external default histories.
▪ Estimates the Weibull fitting parameters k and λ by means of a maximum likelihood estimation (MLE) or a linear regression on the double logarithm of the survival function.

C Dual time approach

C: EMV modelling
▪ Decompose default rates into effects from months on book, application factors and external factors

Overview of selected multi-year PD approaches (2/2)

Approach	Description
Assumptions	▪ For the sake of clarity all illustrations of approaches presented here, make the assumption that a rating scale is available. ▪ More granular lifetime PD estimates can be obtained for example through the Group methodology based on the exposure PD's position in the rating class PD interval.
D **Expert based frame parameters approach**	**Estimation through definition of frame parameters** ▪ Estimate forward PD profiles based on the frame parameters "level of convergence", "convergence speed" or, if applicable, long-run spread (estimation dependent on the initial rating).
E **Simple rating convergence**	**Linear regression of PD(t+1) on PD(t)** ▪ Achieves a rotation of the calibration curve (PD versus score) and thus convergence to long-term default level ▪ Requires current and previous year's ratings
F **Direct empirical estimation**	**Direct empirical term structure** ▪ Portfolio- or rating grade level term structure measurement on internal data ▪ In case of portfolio level term structure: Use value in year t as calibration target for PD(t)
G **Other approaches (not further investigated)**	▪ New **rating models with longer forecast horizon** than 12 months ▪ Keep conditional PD constant

– Further slides present details on the common industry approaches for Commercial (A – Markov chain based approaches) and Retail portfolios (B – Survival analysis approaches, C – Dual time approach)

– In the end of this section presented comparison between all approaches

Dimensions for deciding on multi-year PD approach

No.	Approach	Data requi-rements	Relevant lifetime	Term structure fit	Transparency	Efforts	Portfolios
A1	Homogeneous discrete-time MC	Medium [1]	Few years	Low	Medium	Medium	Commercial
A2	Homogeneous continuous MC [2]	Medium	Few years	Low	Low	Medium	
A3	Non-homog. continuous MC	Medium	No restrictions	Good [3]	Low	High	
B1	Survival MLE	Medium-High	No restrictions	Medium [4]	Medium	Medium	Commercial and Retail
B2	Survival historical linear regression	Medium-High	No restrictions	Medium [4]	Medium	Medium	
C	Dual time approach	Medium-High	Few years	Good	Low	Medium	Retail
D	Expert-based (level / speed)	Very low	No restrictions	Very low	High	Low	Commercial and Retail
E	Linear regression PD(t+1) on PD(t)	Very low	No restrictions	Very low	High	Low	
F	Direct empirical term structure	High	No restrictions	Good	High	Medium [5]	

1) Most common approach since sufficient number of defaults often not available
2) As intermediate step for A3
3) Good fit but risk of overfitting
4) B1/B2: Weibull fit cannot be used for non-monotonous term structure
5) Assuming that only portfolio-level term structure is available

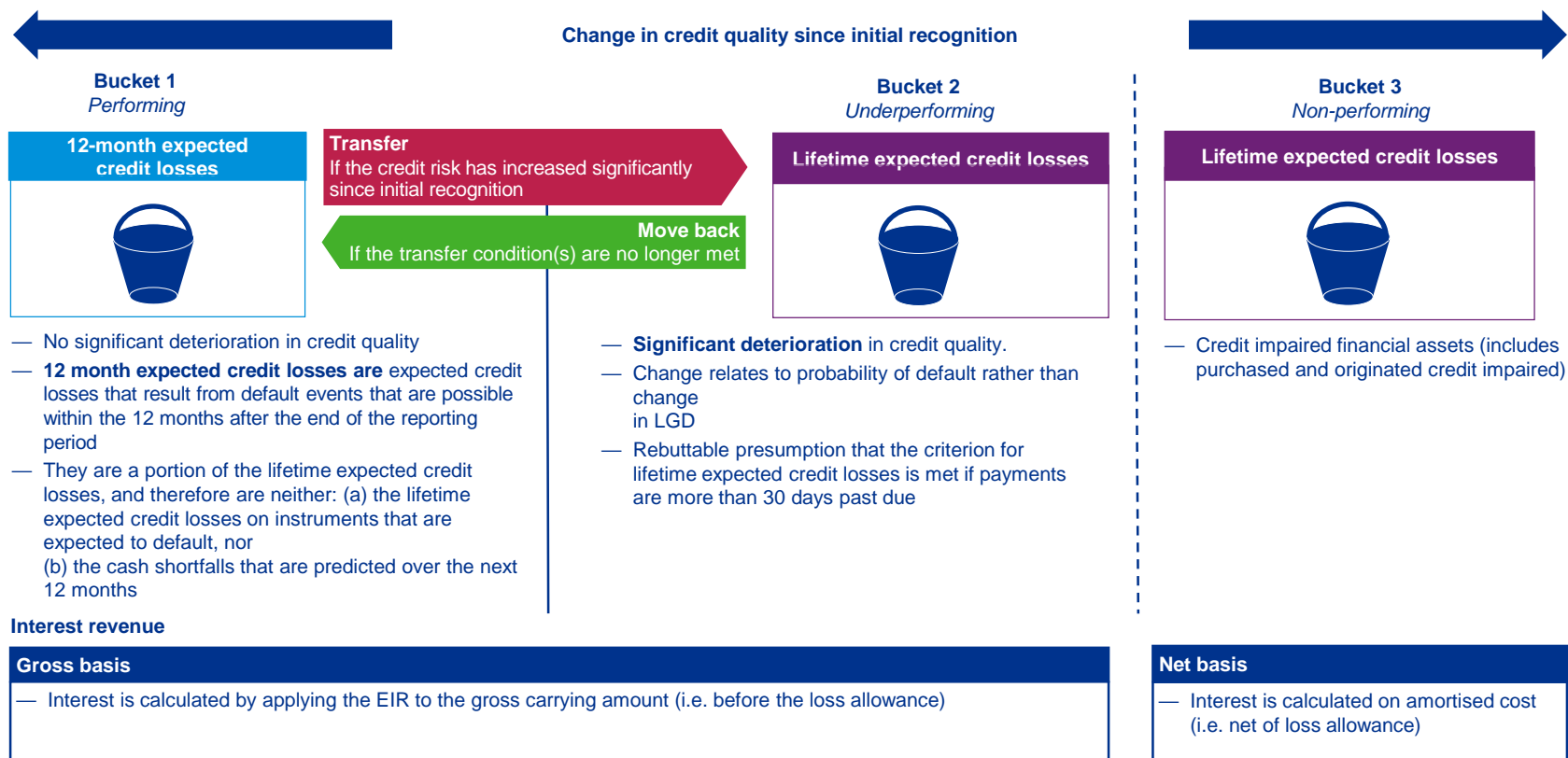# Staging KPIs

Expected credit loss allocation between stages

The proposed generalised ECL model uses a dual measurement approach depending on the extent of credit deterioration since initial recognition:

— **Bucket 1: '12 months' expected credit losses'** if the credit risk has NOT increased significantly since initial recognition; and

— **Bucket 2/3: 'Lifetime expected credit losses'** if the credit risk has increased significantly since initial recognition

Change in credit quality since initial recognition

Bucket 1
Performing

Bucket 2
Underperforming

Bucket 3
Non-performing

12-month expected credit losses

Transfer
If the credit risk has increased significantly since initial recognition

Lifetime expected credit losses

Lifetime expected credit losses

Move back
If the transfer condition(s) are no longer met

— No significant deterioration in credit quality
— **12 month expected credit losses are** expected credit losses that result from default events that are possible within the 12 months after the end of the reporting period
— They are a portion of the lifetime expected credit losses, and therefore are neither: (a) the lifetime expected credit losses on instruments that are expected to default, nor (b) the cash shortfalls that are predicted over the next 12 months

— **Significant deterioration** in credit quality.
— Change relates to probability of default rather than change in LGD
— Rebuttable presumption that the criterion for lifetime expected credit losses is met if payments are more than 30 days past due

— Credit impaired financial assets (includes purchased and originated credit impaired)

Interest revenue

Gross basis
— Interest is calculated by applying the EIR to the gross carrying amount (i.e. before the loss allowance)

Net basis
— Interest is calculated on amortised cost (i.e. net of loss allowance)

Typical staging criteria tests

Type of test		Retail	Wholesale
Quantitative	**Numerical basis of determining significant deterioration**	— Lifetime PD comparison — 12 month PD comparison	— Lifetime PD comparison — 12 month PD comparison — Credit rating downgrade by 'x' notches — CDS credit spread movements (financial institution counterparties)
Qualitative	**If one of these features occurs the loan is automatically moved to Stage 2 (a simplification of IFRS 9 B5.5.17)**	— Forbearance occurring — High risk attributes of client (payday lending occurring) — Cross product defaults — Adverse credit bureau data — Refinancing risk (LTV/Maturity test)	— Forbearance occurring — High risk attributes of client (covenant breach) — Cross obligor defaults — Adverse credit rating movement (below a certain credit grade) — Refinancing risk (LTV/Maturity test) — Credit monitoring lists — Judgmental overlays
Backstops	**Latest point a loan can move to Stage 2**	— 30 days past due	— Designation on watchlist — Specific 'high risk' credit rating

Effectiveness criteria

IFRS 9 interpret-ation	- For the assessment whether credit risk has increased significantly entities have to compare the risk of a default occurring over the remaining lifetime with the assessment at initial recognition 1yr PDs may be used as an approximation unless circumstances indicate that a lifetime assessment would lead to a deviating stage allocation - The LtPD (or 1yr PD) comparison has to be done between actual value at the reporting date and the expectation for this parameter estimated at initial recognition for this reporting date (i.e. the initial term structure)

...hance the performance of the PD thresholds, ...cles

...eshold = 0.85% and equals the average of the median PD... and ... PD...

Alternative A: Expected PD

Comparison of forward PD at initial recognition with current 1yr PD

Alternative B: Expect. Lifetime PD

The "Threshold at origination" is effectively a ceiling for the account's PD, under which it is expected to operate as per origination underwriting/pricing assumptions for its cohort. If an account exceeds this Threshold, it transfers to Stage 2.

We have seen many firms explore different approaches to determine the quantitative and qualitative ways in which they would approach significant credit deterioration. What seems to be lost in the sometimes complex mathematics is the 'spirit' or 'principle' behind
the standard

We have set out some examples of tests that could be used to evaluate if a transfer criterion is encapsulating the essence of the standard

Test 1: Timing of transfers
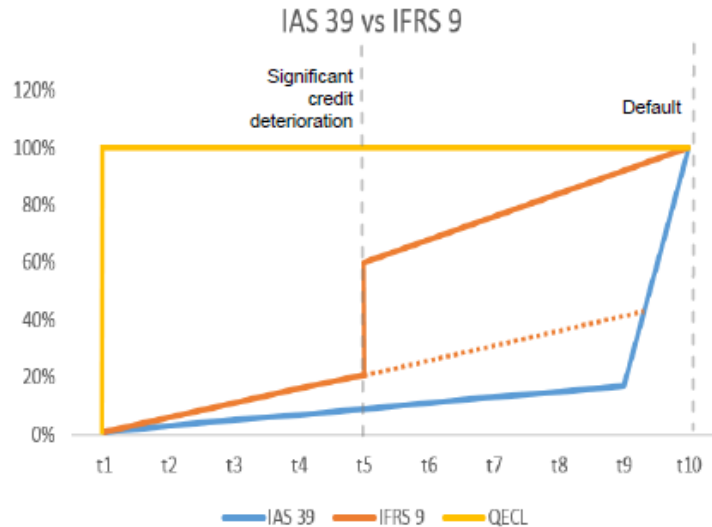
IAS 39 vs IFRS 9

Problem statement:

One of the main criticisms of IAS 39 was 'too little, too late'

Under IFRS9, if significant credit deterioration occurs too late, the provision under IFRS9 in the instance (dotted orange lines) may not have the impact the standard setters had intended

How does one tell that a given transfer criterion identified stage 2 assets
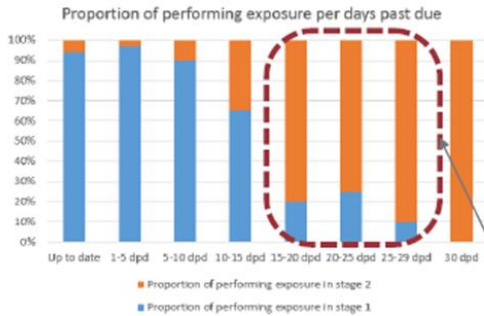early enough?

At the same time, recognising a provision upfront would not be a viable alternative – The provision, as an expense, would not be appropriately matched against the interest income being earned from the relevant financial instrument over the years.

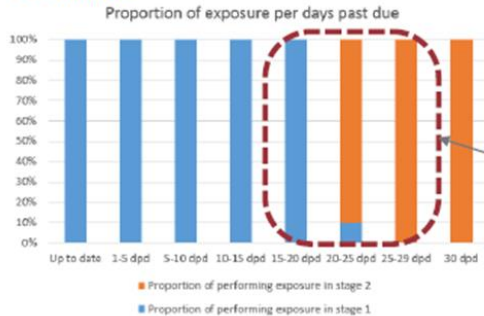**Potential lenses to view the problem:**

1. In testing a given transfer criterion, for all exposures in stage 2 that subsequently default, what is the average time between identification and default?

2. Is this time sufficient for the users of the financial statements to understand the evolution of credit risk in the portfolio significantly better than under IAS39?

Test 2: The use of delinquency in transfer

Possibility 1

Proportion of performing exposure per days past due

■ Proportion of performing exposure in stage 2
■ Proportion of performing exposure in stage 1

Possibility 2

Proportion of exposure per days past due

■ Proportion of performing exposure in stage 2
■ Proportion of performing exposure in stage 1

There seems to be some discrimination in the criteria that transcends delinquency

There seems to be less discrimination in the criteria that goes beyond delinquency

Problem statement:

The standard setters and regulatory bodies view delinquency to be backwards looking. In designing our transfer criteria, have we inadvertently created a complex process that could be replaced by a delinquency measure?

Potential lenses to view the problem:

For a given transfer criterion, if one were to plot a distribution of delinquency, is there evidence that there is discrimination in the criterion beyond delinquency?

Test 3: Reliance on the 30dpd backstop
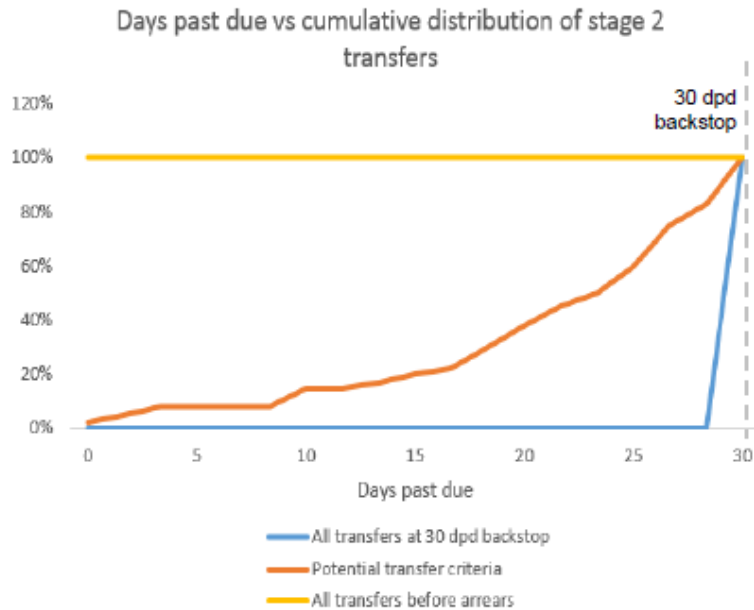
Days past due vs cumulative distribution of stage 2 transfers

- All transfers at 30 dpd backstop
- Potential transfer criteria
- All transfers before arrears

Problem statement:

The standard setters and regulatory bodies view delinquency to be backwards looking. What proportion of our transfer criterion shifts exposure into stage 2 ahead of arrears?

Potential lenses to view the problem:

For a given transfer criterion, if one were to plot a distribution of delinquency, how much of the stage 2 population moves ahead of delinquency right up to the backstop in standard?

Test 4: Are there any surprises?

Problem statement:

One of the main criticisms of IAS 39 was 'too little, too late'

Under IFRS 9, if the transfer criterion does not transit exposures into
stage 2 ahead of default then the objective of the standard is not met

Potential lenses to view the problem:

1. Are there any historical jumps to default from what would be considered stage 1? Such jumps indicate that staging is not effective in identifying future defaults before they actually occur

2. Are these cases idiosyncratic (sudden bankruptcy, sudden loss of operating licence, mortality etc.)?

3. Is the proportion of these 'jumpers' to total stage 3 significant?
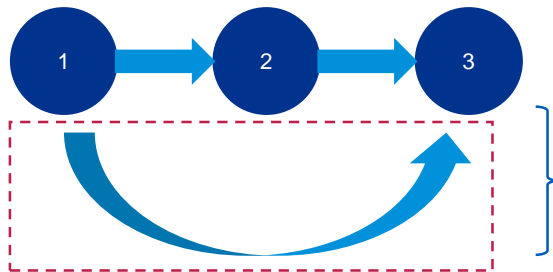
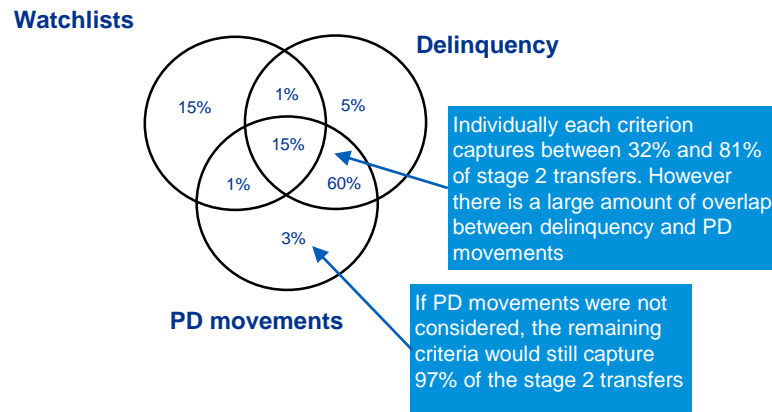# Test 5: Signal to noise ratio

Problem statement:

One way to ensure full capture of all significant credit deterioration is to hold everything at lifetime expected losses. However that is not the intention of IFRS9

Similarly if the transfer criterion was too sensitive, exposures would transfer in and out stage 1 and 2 frequently, driving volatility in impairments that is not meaningful to the users of financial statements

One month	Stage 1	Stage 2	Stage 3
Stage 1	80%	19%	1%
Stage 2	20%	70%	10%
Stage 3	1%	9%	90%

Six month	Stage 1	Stage 2	Stage 3
Stage 1	48.1%	36.0%	15.9%
Stage 2	38.0%	35.4%	26.7%
Stage 3	15.2%	24.1%	60.7%

Area of interest in considering stability of the transfer criterion

Potential lenses to view the problem:

1. Is the preparer of the financial statements able to generate a monthly transition matrix between the three stages?

2. If the transition matrix was 'rolled' by the number of months to the next reporting date, what proportion of assets stated in stage 2 would 'cure' back into stage 1?

Test 6: What triggers transfer?

Watchlists

Delinquency

15%   1%   5%

15%

1%   60%

3%

PD movements

Individually each criterion captures between 32% and 81% of stage 2 transfers. However there is a large amount of overlap between delinquency and PD movements

If PD movements were not considered, the remaining criteria would still capture 97% of the stage 2 transfers

Problem statement:

Many institutions are looking to incorporate multiple criteria as part of their overall transfer mechanism (e.g. delinquency, watch lists, PD movements etc). In many instances when an exposure is transferred into stage 2 multiple criteria may simultaneously "trigger", making it difficult to understand what they key transfer criterion might be for a given portfolio

Potential lenses to view the problem:

1. For new transfers into stage 2, a Venn diagram could be used to graphically illustrate which criteria are primary and which criteria could be superfluous.

Transfer criteria
Illustrative effectiveness framework

1	**Criteria effectiveness**	— Stage 2 default rate at 36 months — Stage 2 outflow to stage 1 as a percentage of stage 2 — Percentage of new stage 3 defaults in stage 2 in months prior to default — Stage 1 residual six months default rate and value — Stage 3 default time in stage 2 prior to default — Percentage of population that has been in stage 2 for longer than 24 months — Percentage of stage 3 loans not being in stage 2 for a period of at least 12 months
2	**Stage 2 stability**	— Inflows and outflows to stage 2 and stage 3
3	**Portfolio analysis**	— Stage 2 percentage of good book — Percentage of transfer resulted by PD movements, other qualitative back stops and 30 days past due backstop — Backtesting of defaulted accounts

KPMG

Thank you