POINT OF VIEW
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Why IFRS 9 LGD Cure Rate matters ?

Under the current IAS 39 "incurred loss" model, banks only recognise impairment due to objective evidence of a credit loss, principally loan arrears. This is now widely considered to be an unduly reactive approach.

Accordingly, IFRS 9 introduces a forward-looking view of credit quality, under which banks are required to recognise an impairment provision, prior to the occurrence of a loss event.

Rising impairment provisions can deplete the equity of banks.

To be compliant with IFRS 9, banks must estimate at a given moment what their losses are going to be in the future (known as Expected Credit Loss - ECL). Expected Credit loss is computed according to the formula $ECL=PD\times EAD\times LGD$, where PD stands for Probability of Default and EAD for Exposition At Default. LGD – Loss Given Default - is the estimated percentage of the exposure that will be lost by the bank following a default event.

As it is hard to know exactly when a contract will go into default, the computation of these parameters relies on quantitative or qualitative prediction methods based on expert opinion. The Regulator requires banks that have an IRBA approach, banks having sufficient depth in their historical data to build internal models, to use statistical methods when possible to estimate the LGD.

The value of the LGD can simply be calculated as the actual total losses observed only on contracts that defaulted a long time ago. In contrast with Basel rules however, which call for the use of Downturn Loss Given Default rates (LGDs),

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reflecting unfavourable economic conditions and including conservatism margin, the regulatory stress tests and the new IFRS9 standards require institutions to use Point-In-Time (PIT) projections of LGDs. By accounting for the current state of the credit cycle, PIT measures track closely the variations in default and loss rates over time. On one hand, PIT IFRS9 models historical data window will typically be shorter compared to Basel historical depth which should cover at least one economic cycle. On another hand, IFRS9 models will take into account forward looking economic conditions.

Contracts that have failed will not necessarily involve losses

Some contracts considered can be cured and return to a non-default status.

This can happen for instance at the end of the probation period for forborne contracts, or secured contracts with overdue balances that are refunded prior to a call for collateral being invoked. The regulatory definition states that a default status must be assigned to exposures at or exceeding 90 days past due. In reality, 90 days past due does not necessarily imply loss, as a significant part of past-due contracts return to a performing status, after refunding all due amounts including past-due interests and fees and after a 3-month probation status (new regulatory requirements).

The regulator requires a thorough treatment of those contracts through cure rate analysis defined as the probability for a 'non performing' (i.e. defaulted) contract to revert to a 'performing' (i.e. non-default) status. *(cf Appendix I)*. This cured account analysis can have significant impact on the modelling results.

A proper modelling of Cure Rate requires a clear definition of defaulted and cured contracts. EBA regulatory guidance states that cures should be treated with caution and returning to performing loan status must not be too soon after the default event. This will ensure comparability across institutions, shall prevent from experiencing multiple default events for the same contract and thus ease the modelling exercise.

LGD Cure Rate can have significant impact on equity

LGD Cure Rate estimation can be done through many approaches, among which the three following are the most frequent and appropriate:

Method [1]	K Impact Baseline: PIT simple approach
Simple	0% +16% min -12 % max
Time series	+27%
Econometric	-6%

Appendix I
LGD computation with Cure Rate

LGD computation can be done by splitting the cure rate component and the Cure rate can be considered per below:
- A contract can be cured with the probability CureRate, contract loss is LGD_cured
- A contract cannot be cured with the probability (1-CureRate). Contract loss is LGD_irreversible

therefore : $LGD = CureRate \times LGD\_cured + (1-CureRate) \times LGD\_irreversible$

LGD when cured can be considered as zero, ie $LGD\_cured = 0$, final LGD formula is therefore given by: $LGD = (1-CureRate) \times LGD\_irreversible$

Simple
Pros: Simple to calculate
Cons: Sensitivity to multiple defaults, Do not consider maturity in the default, It is not a modelling result that can help studying and monitoring the Cure Rate drivers.
Example[2] : PIT: 10,9% - 13060 K£, Min: 9 - 13 272 K£, Max: 13% - 12 902 K£

Time series
Pros: Recent data can be used only, allowing Point-In-Time modelling as required by IFRS 9, Granularity is defined by Time in default duration classes
Cons: Can involve Markovian and Homogeneity assumptions that can be difficult to be met by studied population,
Assumptions can be relaxed, but at the cost of increasing the complexity of the computation and the amount of data needed, Low or no population of contracts for a given time in default class can seriously damage the modelling mechanics
Example[2]: PIT rate: 6,4% - 13 411 K£

Econometric
Pros: Uses extended information to predict cured status, Great flexibility
Cons: For LGD computation, it must be aggregated at segments level for similar contracts.
Example[2]: PIT rate: 12% - 12 980 K£

[1] Cf Appendix II: Cure rates estimations methods
[2] Car financing Personal Financial Lease portfolio

As the Cure Rate is the probability for defaulted contracts to return to sound status, all modelling strategies must schedule a deadline for a contract to move out of default. So, data window should be selected carefully. A conservative choice will be to consider that after 12 months being in default contract status is irreversible.

The numerical simulation shows that a more refined time series approach can lead to +27% Expected Credit Loss impairment which would decrease net equity for the same amount before tax. This significant increase shows the importance of properly modelling and monitoring the LGD cure rate.

Appendix II
LGD Cure Rate estimation methods

Simple
A simple approach is the historical ratio of number of cured defaults to the total number of defaults.

Time series
This approach involves state space methods and forecasting models. The main assumption here is that today's behaviour of contracts after k-months from entering default will be the same as future behaviour of contracts k-months from entering default.
Contracts can be classified under Cured state and non-Cured states every month, and grouped by their default duration. For each group, the monthly states transition probabilities are computed.
In a state space model, probability to be cured in the long run is decomposed into states transitions at intermediary dates. It is obtained by as sequential multiplication of the monthly transition matrices for different default durations.
A forecasting model approach will involve modelling historical observed Cure Rate dynamic, and use the model to predict future Cure Rates.

Econometric
A Cure rate can also be estimated using econometric type models and benefit from their great flexibility. All models used for Probability of Default estimation are well suited for adaptation to the Cure Rate. For instance, in a logistic regression, cured status can be explained by a set of contract and obligor characteristics, to produce probability to be cured for each contract. Principal Component Analysis and Discriminant factorial analysis can bring substantial added value in term of summarizing the information in complex data, and can produce simple scores that ease the decision.

LGD Cure rate method selected must fit data adequacy and collection processes to meet regulatory monitoring requirements

Impact on provisions can substantially differ depending on the model, the data and the data window.

Key issue is the requirement for the bank to justify the method selected by assessing portfolio data adequacy with the assumptions, underlying the methodology and good model monitoring results:

- the bank must have procedures for human review of models. Such procedures should focus on finding and limiting errors associated with known model weaknesses and must also include credible ongoing efforts to improve the model's performance.
- the bank must have in place a process for vetting data inputs into a statistical default or loss prediction model which includes an assessment of the accuracy, completeness and appropriateness of the data
- the bank must demonstrate that the data used to build the model are representative of the population of the bank's actual borrowers or facilities.
- the bank must have a regular cycle of model validation that includes monitoring of model performance and stability; review of model relationships; and testing of model outputs against outcomes.
- the burden is on the bank to satisfy its supervisor that a model or procedure has good predictive power.

Regulators also review the collection process for non-performing contracts and require banks to demonstrate whether defaulted contracts returning to performing status induced economic losses or not. Attention is especially paid on forborne contracts, with delayed instalments leading to an economic loss at termination or procedures such as "Vulnerable Customers" with possibly direct costs to be taken into account.

In case of cure rate, Harwell Management UK expertise in LGD modelling including cure rate shows that monitoring could be performed by documenting the following topics: key model assumptions & limitations checking, data quality, representativeness (PSI), discriminatory Power (Gini, Kolmogorov-Smirnov, Information value) testing and predictive Power (stability, backtesting).

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