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Key considerations for incorporating Forward-Looking Information (FLI) and credit overlay adjustments in an IFRS 9 ECL model using a hybrid approach



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Background on the macro-economic environment

The COVID-19 pandemic affected financial markets, and virtually all industries are facing challenges associated with the economic conditions resulting from efforts to address it. As the pandemic increased in both magnitude and duration, entities experienced conditions often associated with a general economic downturn. This included, but was not limited to, financial market volatility and erosion, deteriorating credit, liquidity concerns, further increases in government intervention, increasing unemployment/layoffs, broad declines in consumer discretionary spending, increasing inventory levels, reductions in production because of decreased demand, supply chain derangements, and other restructuring activities.

Since the first lockdowns, economies have become more resilient to COVID-19 disruptions while an improvement in the global growth outlook continued to benefit export sectors. Governments' support to their economies to lift activity and employment, as well as global vaccine roll-outs have limited the extent to which the economy could have been affected. That said, new variants and seasonal waves of COVID-19 infections have weighed on, but are not expected to derail economic activity. Some industries and regions should continue to outperform others based on their resilience.

The severity of impacts has not been uniform across all industry sectors and, by extension, certain jurisdictions have been affected to a lesser degree.

One of the main reasons IFRS 9 Financial Instruments (IFRS 9) was published, was to allow for the timely recognition of loan losses by requiring a forward-looking loss estimate while also reflecting the non-linear nature of credit losses. This required users to recognise expected credit losses (ECL) that were based on how their forward-looking view would be affected by the pandemic over and above the non-pandemic related exogenous effects that persist.



The accounting for ECL by banks is particularly challenging given that it is designed to incorporate estimations of credit events and their consequential cash shortfalls, based on a probabilityweighted approach. Having been comparatively stable since the implementation of IFRS 9 in January 2018, many economic outlooks have changed fundamentally since the end of 2019 and banks have been re-working their scenarios and probability weightings accordingly. Historical relationships may not reflect the current and future economic environment, where movements in certain factors resulted in counter-intuitive adjustments to credit parameters, e.g. single-factor models based on the Prime lending rate.

The inclusion of multiple economic scenarios is particularly important at times of heightened uncertainty given the potentially increased non-linearity of credit losses. Forward-looking information (FLI) should be designed to be as specific to a borrower's economic circumstances as is practicable.



are not evenly distributed, e.g. Corporate borrowers in different industries will be impacted in different ways, as will Retail and Retail SME borrowers depending on geography, employment status and other credit commitments. This may require evaluating portfolios on a more segmented basis and where quantitative and qualitative modelling falls short, the need for out-of-model overlay adjustments is increased. Globally, banks' internal group economics units are expanding their forecasts with additional relevant factors and incorporating additional scenarios. Factors key to their strategies, including those beyond the pandemic such as climate risk (transition and physical), are being incorporated.

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Hybrid approach

Hybrid approach

A robust manner to incorporate FLI, especially during times of economic stress, is a future-proof hybrid approach that consists of in-model, macro-economic forward-looking linked adjustments to credit risk parameters (PD, EAD, LGD, SICR), supplemented by credit overlay adjustments that reflect event risk, model error and volatility amongst other forward-looking information not catered for by the model.

IFRS 9 requires that historical, current and forward-looking information be used in estimating ECL. Macro-economic linkage models (quantitative or expertly judged), aim to include all of this information, however, these models are reliant on historical relationships holding and are limited with regard to the level of granularity (e.g. industry, subindustry, jurisdiction, etc.) they can cater for. The level of granularity and segmentation of the overlay calculation should depend on the materiality thereof. Based on recent experience, forwardlooking overlays have been material and, as a result, included industry and jurisdiction segmentation within CIB, and industry, unemployment and income-level and/or income-change segmentation within Retail (including business banking). Regardless the approach chosen, it must meet the technical requirements of IFRS 9, supported by regulatory guidance and industry practice.

Material overlay adjustments should be allocated to the respective segment or portfolio to which they apply to ensure comparability.

The approach aims to be future proof to cater for emerging risks (e.g. climate risk and divergences between sectors not before seen in data).

The hybrid approach is based on 4 building blocks which are explained in the slides that follow. The four building blocks proposed, while generalised, provide a robust framework to incorporate FLI into ECL estimation and can meet the goals of increasing model accuracy, capturing and catering for uncertainty and not breaching model risk appetite thresholds. The hybrid approach provides a solution that does not unduly constrain the natural evolution of models and overlays.





For a macro-economic linkage model, the approach includes:

- Testing whether to include (quantitatively or qualitatively), a macro-economic relationship for one or more of the parameters e.g. PD, EAD, LGD, SICR, or more granular components of such assumptions.
- Deciding on the level of sophistication (i.e. high to low) of the modelling approach based on a number of criteria, including whether to adopt a "top-down" or "bottom-up" approach.
- Including COVID-19 affected performance data in the (re)calibration of FLI models if the necessary transformations (to macro- economic and/or performance data) to extract relationships have not been affected. Alternatively, excluding this data, provided sufficient evidence and arguments are provided.
- Assessing the impact of the quality (volatility, variable breadth, etc.) and appropriateness of the number of macro-economic scenarios (and their associated weights) on the linkage model.
- Consuming the appropriate number of macro-economic scenarios (and their associated weights) with the aim to capture non-linear credit losses.
- Producing a range of ECL estimates (based on the range of macro-economic scenarios), combined into an ECL estimate at every relevant future period.
- Calculating 12-month and lifetime ECL using a discounted expected loss approach.
- Ensuring that accurate stage allocation is performed.

For a credit overlay adjustment, a credit overlay framework will be incorporated to cater for:

- a. Adjusting events after the reporting period (late risk).
- b. Events manifesting between the approval of macro-economic forecasts and reporting date (late risk).
- c. Cases where calibration data does not include recent data (late risk).
- d. Events where macro-economic forecasts 'breach the bounds' of the modelling methodology:
 - i. Rare events: low frequency high quantum risk, COVID-19 pandemic, climate risk, political unrest, hyperinflation, Brexit, etc.
 - ii. Less-rare events: Political instability, elections, load shedding, drought, sovereign downgrade, etc.
- e. Shortcomings in data that cannot (yet) cater for specific events (Debicheck, Debt-relief bill).
- f. Policy effects (including internal policies e.g. change in W/O point) that cannot or haven't been captured by the model (masked arrears, emerging risk, forced restructures).
- g. Response modelling error: Undue uncertainty relating to the accuracy of the quantitative model ("model break").
- h. Macro-economic forecasting model error: Undue uncertainty relating to the accuracy of the macro-economic forecasts and associated weights.
- i. Shortcomings in data, implementation platform, technology and/or ECL calculation process, and (specialist) experience/skillset.

Building blocks

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Building block 1 | Calibration criteria

Considering how the data, assumptions, limitations and benchmarks may impact the model design by comparing each portfolio (or customer/account if more relevant) to a set of calibration criteria (or gates) that can be measured to the extent to which a FLI framework with higher or lower levels of sophistication is appropriate and available. The level of sophistication required is driven by the demands on (i) accuracy (or read differently, acceptable uncertainty), (ii) robustness ("future-proof"), (iii) performance or pace, and (iv) cost.

Criterion 1 – Materiality (Low to High)

Not all portfolios (or customers/accounts) are equally material. Also, while a specific portfolio may be material at a local entity level (i.e. possibly demanding a more sophisticated treatment), it may be less material or even immaterial at a group consolidated level resulting in a less sophisticated treatment. Model materiality would likely be measured in accordance with the bank's model risk management framework.

Criterion 2 – Data quality (Impaired to High)

Performance data – completeness, accuracy, depth and breadth

Data fields may be well populated or not, depending on the maturity of the bank. Moving back in time, missing information often becomes more prominent. Data quality varies from field to field and across time, and benchmarks (i.e. "true source") may not exist for many fields. For the majority of banks, data management standards have changed over time, which is exacerbated over longer periods. This long-period data is often required for robust macro-economic response modelling (whether quantitative or expertly-judged). Data definitions also change over time, further complicating the effort of establishing homogenous data pools (i.e. representativeness).

Model sophistication and accuracy will be constrained by the availability of drivers (e.g., maturity, vintage, industry, product, jurisdiction, loan/counterparty size, bank/product strategy, risk appetite, payment holidays/relief, client past behaviour, internal scorecards, external scorecards (bureaus), collateral valuations, expert input, alternative data sources (e.g. transactional data), etc.) and uniformity of data across multiple source systems and/ or jurisdictions.

Macro-economic data – completeness, accuracy, depth and breadth

Macro-economic data fields may not be well populated and missing information often becomes more common back in time. Developing and emerging markets are most severely impacted by this. Data quality varies from field to field and data management (recording, aggregation and maintenance) have changed over time. This is exacerbated over long periods of time and is impacted by local and global shocks such as pandemics, war, elections, political unrest, etc. Data definitions have and will continue. to change over time and new types of data is collected as economies' data management practices advance (say, climate risk related information, property revaluation, auto emissions, changes to transport, etc.). Global data may hold little relevance to certain portfolios or customers, while regional and provincial data may not be captured or be of adequate guality. The scope of available economic variables may be too narrow to support the identification of key and robust macro-economic relationships. Mining indicators, say, may indicate improvement but local or global GDP and inflation the opposite.

Criterion 3 – Platform/Resources/Process (Basic to Advanced)

Where resources such as systems, software or skills are scarce and an understanding of the modelling methodologies are limited, model sophistication may be constrained. Processes, subject matter experts, and platform/software are generally not equally distributed across jurisdictions and portfolios.

Criterion 4 – Portfolio characteristics (Favourable to Unfavourable)

Data volume (Scarce to Abundant): To produce and validate statistically robust estimates of relationships between performance data and macro-economic data, sufficient data is required (i.e. relevant and of acceptable quality). In industry it is common for Retail and Retail SME portfolios to be data rich, allowing for varieties of pooled data modelling techniques, and CIB portfolios to be data poor, lending itself more to expert-judgement approaches at granular (even counterparty) level. In general, a bank may deviate from these norms but industry-prevalent data-related concerns or themes should be investigated.

Number of accounts/customers

CIB: High-value, low volume deals. Typically low-risk. Low default under stress, but risk migration (i.e. SICR) is substantial.

Banks: Low or even no default business. Very low volumes. Domestic Systemically Important Banks (D-SIBs) are procyclical.

Large single exposures and Sovereigns: Low or no default business. Very low volume. Sovereigns have no clear dependency on macro-economics (procyclical). Large single exposures' relationships to the macro-economy may be complex and distinctive.

Consolidation: As companies combine within or across industries, data volumes become more scarce and relationships with macro-economics more complex.

New business

Expansion into new customer segments, industries or jurisdictions means access to little or no relevant data (unless external data can be purchased, alternative data sources become available or proxy business can be identified).

Data period/length

Acquisitions: Acquisition of exposures without supporting history or with supporting history, but not relevant to a bank's operations and policies.

New business: Little to no periods of economic change to measure for potential relationships.

Data frequency (performance and macroeconomic): Information may not be updated frequently (e.g. only yearly) resulting in lagged risk identification and risk muting (especially seasonal effects).

Nature of portfolio

Secured vs. Unsecured, loan size, maximum loan term, method of payment (EFT vs. salary deduction vs. debit order).

Special cases

Some portfolios tend to not yield any macroeconomic relationships/correlations even with favourable portfolio characteristics.

Criterion 5 – Industry best practice (Diverging to Converging)

Both locally and globally, the banking industry has not converged on FLI modelling methodologies and the treatment of FLI-related overlays. However, the above themes are present at nearly all banks. Hybrid approaches (use of models plus overlays) have become more prominent since the origination of COVID-19 and in many cases prompting lower sophistication modelling approaches with the balance of effort going into developing overlays.

Consensus has also not been reached with regard to when these potentially large overlays will be released (or move in-model), but there is general agreement that they should not persist indefinitely. Generally, Retail portfolios continue to attract sophisticated modelling, primarily due to data abundance, while CIB attracts less sophisticated modelling due to data scarcity.





Building block 2 | Calibration and structural design

As each portfolio is measured against the five calibration criteria ("gates"), they are effectively scored to assess if they are eligible for different modelling approaches, ranging from sophisticated to less sophisticated. We first start with an example and then generalise the approach.

Example

Consider two fictitious portfolios at the opposite ends of a scale of sophistication. Suppose portfolio 1 falls in the best possible scenario and scores high on all criteria. This portfolio is eligible for a highly sophisticated modelling methodology. Retail and Retail SME portfolios in SA typically have such a profile. Suppose portfolio 2 falls in the worst possible scenario, scoring low on all criteria. The modelling methodologies available will be limited to a low level of sophistication.

Many CIB, developing market and emerging market portfolios match the second profile. While the criteria provide a guide, there are idiosyncrasies, specific to different banks (e.g. processes, culture, strategy) to consider and exceptions to the guidance. For example, a portfolio eligible for a sophisticated modelling methodology can be modelled using less sophisticated approaches, but may lead to a loss of accuracy, performance, information or agility.

While a sophisticated approach may yield better accuracy, it also requires in-depth knowledge of underlying theory and may be costly and time consuming to maintain and refine. On the other hand, a less sophisticated approach that requires less theoretical underpinning can typically be easily updated or refined and requires less time. However, while a less sophisticated approach may make less of these demands, it still requires accurate model parameters typically obtained from credit risk experts with in-depth knowledge of the portfolio considered.

Regardless of the level of sophistication of the modelling methodology, there are various options to incorporate FLI into an ECL model with the general formula $ECL = \sum_{t=1}^{T} PD_t EAD_t LGD_t df_t$. Since banks can often leverage off existing counterparty-risk rating models (e.g. regulatory capital feeder models), it is important to highlight the cross-dependencies which some modelling options create for the FLI linkage model and the feeder models. Whichever option is taken, secondary effects like the impact on staging should be considered.

Generalisation: The diagram displays (from right to left) (a) the Macro-economic factors (including lags and leads), (b) the Drivers (e.g. collateral, time to recovery, credit scores, expert input, etc.) of an existing parameter (e.g. regulatory PD, EAD, LGD), (c) supplementary drivers, (d) the **Existing parameter** and (e) the **IFRS 9 parameter**. The approaches may range from sophisticated (e.g. regression, Vasicek extension, Markov chains, GARCH, severity-threshold modelling, machine learning) to less sophisticated (e.g. country risk framework, expert driven simulation).

Option 1: Model the **IFRS 9 parameter** in terms of the **Macro-economic factors** ("depicted via path A"). A clear benefit of this approach is no inheritance of feeder-driver or feeder-parameter concerns.

Option 2: Model the Drivers of the existing parameter in terms of the **Macro-economic factors** ("B"). This, in turn, adjusts the **Existing parameter** ("C") for use as an **IFRS 9 parameter** with or without further adjustment ("E"). Hence, the **IFRS 9 parameter** is indirectly a function of the **Macro- economic factors**. Understanding of existing relationships can be relied on (i.e. reduced effort), but there may be limitations to the degree of adjustments that can be made before invalidating said relationships.

Option 3: Model the **Existing parameter** in terms of the **Macro-economic factors** ("D"). Use the adjusted Existing parameter as an **IFRS 9 parameter** with or without further adjustment ("E"). Again, the **IFRS 9 parameter** is indirectly a function of the macro-economic factors. The risks and benefits are similar to that of Option 2 but effort is reduced due to less granular modelling. However, this also reduces agility due to it not affecting at a Drivers level.

Option 4: Model the Drivers of the existing parameter and supplementary drivers in terms of the Macro-economic factors ("B"). Then model the IFRS 9 parameter in terms of the Drivers ("F"). Again, the IFRS 9 parameter is indirectly a function of the Macro-economic factors. This approach provides for great agility by affecting at a Drivers level and making use of supplementary drivers beyond those used in modelling the Existing parameter. However, the effort associated with this option is likely to be very high.

Option 5: Infer a relationship between the IFRS 9 parameter and the **Macro-economic factors** ("A"). This relationship will be based on input from credit risk and subject matter experts, and effort will depend on the complexity of the product, industry and counterparty. For example, if a macro-economic factor (e.g. oil price) changes by X%, the **IFRS 9 parameter** will change by Y%. This approach yields a set of conditions that must be solved which may be pool-level or counterparty-specific. The option provides a suitable FLI model in the absence of sufficient relevant data (or data of sufficient quality), but appropriate justification (likely via credit committees) is required to support the set of resultant conditions. The approach can be varied by inferring the relationship between the Drivers and the **Macro-economic factors** ("B") which, in turn, adjusts the **Existing parameter** ("C") for use as an **IFRS 9 parameter** ("E"). This approach risks not being sufficiently reactive to macro-economic outlook changes given its judgemental nature.







Building block 3 | Overlay framework

Once a calibration approach has been followed, residual uncertainty is likely to remain (refer to credit overlay framework). Options on how to approach mitigating these risks by way of overlay adjustments is set out in the table below. One or many may apply at a given time and its application may be at group, industry, product or counterparty level (or other cross-sections if applicable).

Approach	Description	Pros	Cons	Late Risk Slide 6: A, B and C	Rare Events Slide 6: D (i)	Less-rare Events Slide 6: D (ii)	Data short- coming Slide 6: E	Policy effects Slide 6: F	Response- model error Slide 6: G	Macro- model error Slide 6: H	Resource gap Slide 6: I
Parameters	Stress parameters (PD, EAD, LGD) by 'X' percent	SICR reacts immediatelyAllows for parameterspecific adjustment	Complex and time consuming								
	Add number of (stress) scenarios	 Leaves existing scenarios intact SICR reacts immediately 	Brings into question existing scenariosRisks increasing scenario overlap								
Scenarios	Stress severity of scenarios	 Limited to no adjustment to ECL calculator SICR reacts immediately 	 Leaves none (or only some) of the existing scenarios intact Brings into question existing scenarios Risks increasing scenario overlap 								
Weights	Stress scenario weights	 Leaves existing scenarios intact SICR reacts immediately 	Brings into question existing weightsRisks increasing scenario "overlap"								
Judgmental general adjustment	Out-of-model calculation	 Leaves existing scenarios and weights intact 	 Risk of double-counting Interaction with other overlays difficult to establish Backtesting effort and efficacy dependent on calculation structure SICR does not react immediately 								

Notes to the above table:

01. In many cases the quantification of the overlays occur outside of the (base) model and as a result SICR is not automatically included or part of the overlay.

- 02. The granularity of the overlays, like the granularity of the calibration, is influenced by a multitude of factors. E.g. overlays may be quantified at a portfolio level or for a particular segment; in some cases the quantification occurs at a client level or exposure level (especially for large exposures).
- 03. Different clients use different methods for quantifying the overlays. This presentation provides an overlay framework and considerations/factors which influence the choice for a suitable methodology (for quantifying a specific overlay) will be covered elsewhere.

Common industry practice





Building block 3 | Overlay framework

Regardless of the overlay approach followed, the following needs to be considered in concluding on the overlay adjustment:

Double-counting

The risk of double counting (i.e. having two portions of the ECL model and overlays catering for the same forward-looking risk/event) cannot be eliminated e.g. the risk of SA being downgraded is linked to the country's ability to produce electricity, which in turn influences macro-economic factors.

The level of double counting can be minimised by using uncorrelated factors but this approach is often not pragmatic. A measure of the extent of overlap between risk mitigations is required and a balance should be maintained between the level of double-counting and use of (highly) correlated factors.

Governance

Whilst overlays cannot be subjected to the same depth of validation as models, validation is playing a larger role than before (as is expected) when overlays comprise a material percentage of total ECL. A key requirement is that any solution be subject to check and challenge to ensure key risks are identified and relevant controls are put in place. Responsibility and accountability needs to be assigned to ensure stakeholders (representatives from group, relevant business units, credit risk specialists, economists, internal independent validation unit, internal audit) play the appropriate roles.

Reporting level

Overlays are generally reported at a product or a group level. The application level will define what level can be reported at. Overlays are typically of a short- to medium-term nature, although longer term overlays can exist. A suitable monitoring plan should be created to reassess the size of the overlay and provide guidance on whether and when to release, whether in whole or in part.

Resilience (2020 vs 2021 and beyond)

The financial and broader industry have become more resilient to COVID-19 related risks due to (1) government intervention by way of vaccines and financial support, (2) banks derisking with more stringent lending criteria and quicker response (e.g., payment relief), (3) more information availing itself as time passes, and (4) efficacy of prior management responses having been tested, have together led to the financial, and broader industry becoming more resilient to COVID-19 related risks. This is expected to result in a reduction of the frequency and quantum of overlays whether because of unwinding of overlays or moving the effects in-model. Triggers like these, need to be monitored and more will likely be identified over time.

Monitoring

Management should quantitatively monitor the emergence of the overlay risks and the development in the risk factors, and gradually unwind the overlays as the risks crystallise and risks factors subside. Wherever and whenever feasible, the risks catered for through overlays should be adopted into the model through model recalibration or methodology adjustments.





Building block 4 | Validation

Model risk management ("MRM") best-practice demands for an independent model validation process. The **validation of an FLI approach** consists of **five broad categories of tests**. For data rich environments (such as Retail and Retail SME portfolios) validation is biased towards quantitative testing whereas for data scarce environments (such as CIB) it is biased towards qualitative tests. However, if quantitative testing can add value in a data scarce environment, it should be considered. Similarly for the case of qualitative testing within data rich environments. Benchmarking, sensitivity analyses, the validation of data and governance, are standard practice regardless of the volume of data. The frequency and depth of validation is dictated by materiality and to a lesser degree, the complexity of the model. Continual monitoring is put in place to support early model risk detection (creating the need for monitoring thresholds to be set).

Data quality

- Accuracy: Comparison to source
- Completeness: Comparison to source/general ledger
- Relevance: Testing calibration and validation data period against use scope, breadth and depth of macro-economic variables, inclusion/exclusion of data (subpopulations, variables, etc.)
- Volume: Adequacy overall and per segment
- Expert input: Quality thereof and consistency
- External sources: Reliance on 3rd-party data reviews

Performance (qualitative)

- Methodology review
- Expert correlation and rank:
- Correlation between different subject matter experts
- Correlation between experts and the model
- Granularity of accuracy: portfolio vs segment vs customer
- Stale ratings:
- Frequency of ratings (Annual ratings process common in CIB)
- Events prompting rerating.

Governance

- MRM: Documentation quality, approval (owner, data, implementation)
- Independence/incentives: Of owners, users and independent/external experts
 IFRS 9 compliance
- **Use tests:** Evidence that macro-economic scenarios and weights are used in (i) strategy and planning processes, (ii) credit exposure management and (iii) reporting
- Model scope matching model use
- Judgement controls: Document risk identified, rationale, quantification approach, allocation approach, conditions for unwind, three layers of defence

Performance (quantitative)

- Stability:
- Population and characteristic stability indices (PSI and CSI)
- Seasonality assessment and cyclicality of base ("Pre-FLI") models
- Driver selection:
- Correlation analyses, multi-collinearity test and co- integration
- Leads/lags assessment
- Significance tests
- Segmentation and bucketing optimisation
- Accuracy and rank quality:
- Performance measures: Mean Squared Error, Sum of Squared Error, R-squared, adjusted R-squared
- Parameter backtesting out of time and out of sample at portfolio and segment level
- Understanding granularity of accuracy: portfolio vs segment vs customer
- Feeder model: Prediction error inheritance (macro-economic scenario model misestimation)
- External sources: Reliance on 3rd-party performance
- Reperformance: For calculation error identification

Sensitivities

- Carried out to understand the impact each factors and/or parameters have on the ECL/ FLI output. Analysis can be used to focus validation and model remediation efforts
- Parsimonious approach: One factor should not dominate a model but unnecessary factors should be excluded
- The effect of parameter caps and floors should be well understood and not negate the accuracy/performance of the FLI model

Benchmarking

- **Model results:** ECL coverage (and delta), SICR distribution (and delta) against peers by jurisdiction and product/sub-portfolio
- Modelling approach:
 - Against industry methodologies (benchmark sophistication)
 - Use of challenger models based on different modelling approaches.
 - Avoiding pitfalls associated with over-generalisation (e.g., using GDP to forecast risk for commodity-driven counterparties)
- Forward-looking macro-economic data:
- Macro-economic outlooks against peers or alternate sources
- Inclusive/exclusive of other emerging risk (climate)
- Levels and horizons
- Macro-economic weights against peers
- Assessing weight against portfolio loss distribution
- **Data:** Alternate external performance data sources (consortium, proxies). Relevance to be tested

Hybrid approach

Building blocks

Credit overlay adjustments

1. Appropriateness



Considerations when evaluating the appropriateness of credit FLI overlays adjustments

- IFRS 9 paragraph 5.5.17 requires the estimate of expected credit losses to reflect an unbiased and probabilityweighted amount that is determined by evaluating a range of possible outcomes and reasonable and supportable information at the reporting date about past events, current conditions and forecasts of future economic conditions.
- The Transition Resource Group for Impairment of Financial Instruments (ITG) states in paragraph 49 of the 15 December 2015 meeting summary, that when there is a non-linear relationship between the different forwardlooking scenarios and their associated credit losses, more than one forward-looking scenario would need to be incorporated into the measurement of expected credit losses to meet the above objective of reflecting an unbiased outcome.
- IFRS 9 paragraph B5.5.2 states that historical information is an important anchor or base from which to measure expected credit losses. However, an entity shall adjust historical data, such as credit loss experience, on the basis of current observable data to reflect the effects of the current conditions and its forecasts of future conditions that did not affect the period on which the historical data is based, and to remove the effects of the conditions in the historical period that are not relevant to the future contractual cash flows. Estimates of changes in expected credit losses should reflect, and be directionally consistent with, changes in related observable data from period to period (such as changes in unemployment rates, property prices, commodity prices, payment status or other factors that are indicative of credit losses on the financial instrument or in the group of financial instruments and in the magnitude of those changes). An entity shall regularly review the methodology and assumptions used for estimating expected credit losses to reduce any differences between estimates and actual credit loss experience.

Conclusion/Recommendation

- The appropriateness and valuation of the credit overlay adjustment is dependent on whether the correlations in the macro-economic forward-looking linkage model still held as at the date under consideration as well as the extent to which the three scenarios, their severity and their probability weightings already captured the impact of COVID-19. The credit overlay adjustment needs to cater for events or scenarios not already taken into account by the base ECL model and the macro-economic forward-looking linkage model.
- Due to the nature of the pandemic, the base ECL model or the macro-economic forwardlooking linkage model is not expected to be able to cater for all of the possible outcomes, especially given the unpredictability of COVID-19 at the reporting date. It is also unlikely that three scenarios can fully capture the more extreme or idiosyncratic events. COVID-19 presents an unprecedented challenge in that there is limited historical data which can be applied in projecting losses under the current environment. The macroeconomic forecasts generated during COVID-19, come with a high level of uncertainty and have structurally changed the sensitivity of portfolios to macro-economic factors. Furthermore, the COVID-19 impact varied across industries with some being affected more than others, e.g. travel, restaurants, hotels etc. The macro-economic forecasts may not capture the impact at this level of granularity.

2. Quantification

Option 1 – Using the current macro-economic forward-looking linkage model

Scenario 1

One of the assumptions of using the macro-economic forward-looking linkage model is that the correlation structure between the parameters and the macro-economic factors will remain unchanged. In this case, adjusting the weightings, the scenario severity, or adding additional scenarios are all approaches that can be followed where an additional overlay is justified. The correlation structure is an area that will be assessed as part of FLI audit procedures and the scenario severities and probability weights will be benchmarked against peer banks and economic research organisations.

- The benefit of using the macro-economic forward- looking linkage model is that it automatically allows for significant increase in credit risk (SICR) to be triggered if a stress in PD is observed, i.e. higher FLI adjusted reporting date PDs.
- Where overlays are calculated out-of-model (whether at an account level or a portfolio level), SICR needs to be assessed using expert judgement by comparing the credit risk at origination with the credit risk at reporting date. The incorporation of forward-looking information in the SICR assessment is a key step in the credit audit process.
- The decision on adjusting the scenario weightings, severity or adding additional scenarios, needs to be based on whether the adjustment captures the non-linearity and results in an unbiased outcome. *****(*see note 1 below*)
- For more extreme or idiosyncratic events (like COVID-19), it is likely that adding additional scenarios (e.g. a severe scenario) will more accurately capture the non-linearity compared to just changing the weightings. With the introduction of one or more new scenarios, the probability weighting will inherently require adjustments. From an audit perspective, the procedures will include a challenge to the bank on whether the number of scenarios capture the non-linearity of probable outcomes. Globally, banks have, or are in the process of moving towards more than three scenarios.

Scenario 2

Where the correlation structure did break and/or became counterintuitive, less dependence should be placed on using the macro-economic forward-looking linkage model to calculate the overlay adjustment.

- Example: Between June 2020 and December 2020, it was common practice by banks to modify the macro- economic forward-looking linkage models by either "switching them off" completely or removing the macro-economic factors that resulted in counterintuitive results, e.g. neutralising the effects of Prime. ****(see note 2 below)**
- It is common for the Prime lending rate to be one of the key macro-economic drivers of default, especially within the Retail space. Prime has shown a strong correlation with default rates historically and in some instances was the only macro- economic factor used in some Retail portfolios (i.e. single factor linkage models).
- The link between Prime and default rates broke when the South African Reserve Bank (SARB) decreased the repurchase (repo) rate by 300 basis points in an attempt to ease financial conditions and improve the resilience of households and firms to the economic complications of COVID-19.
- Where these modifications were made, it reduced the contribution of the macro-economic forwardlooking linkage models to the overall forward- looking ECL estimate and necessitated credit overlay adjustments that were calculated outside of the linkage models.
- Where no modifications were made, it required even greater credit overlay adjustments to be calculated outside of the linkage models. This is so that the dependency on Prime does not result in predicted releases in ECL which could be deemed inappropriate.
- Based on the above, purely adjusting the probability weightings would not be appropriate by itself as it would not address the structural breaks in the linkage model. From an audit perspective, evidence would be required from the bank that any adjustment corrects for both the structural breaks and the non-linearity of outcomes.

Notes:

- 01. What often happens is that the weightings of the scenarios are deliberately set in a such a manner that the weighted ECL is not very different from the base scenario ECL. This implies the mode and mean of the distribution of potential outcomes are equal i.e. the distribution is symmetric; this is unlikely to be the case. Although weightings are subjective they should be set based on the likelihood of occurrence of the various scenarios given prevalent conditions this will be a function of the scenarios.
- 02. This typically happen to some extent with inflation and just recently we observed the recovery in GDP from a low base resulting in higher than 'normal' YoY GDP growth rates. This resulted in unduly low predicted PDs. Where possible management should build FLI models which have limited reliance on these variables which break down during unfavourable conditions.

Option 2 – Calculating overlay adjustments outside of the macro-economic forward-looking linkage model

Technical guidance supporting the response on overlay adjustments outside of the linkage model:

- The ITG stated in paragraph 49 of the 16 September 2015 meeting summary, that the impact of scenarios for uncertain future events for which there is reasonable and supportable information, may need to be incorporated into the assessment of significant increases in credit risk and measurement of expected credit losses through the use of overlays to the base model, on a collective basis. However, in doing so, care needs to be taken to avoid double-counting the impact of events (in both the base model and the overlay) and to take into account the implications of significant correlations, e.g. if the impact of a specific uncertain future event had already been captured through the macro-economic forecasts included in the base model.
- The paper issued by the Global Public Policy Committee (GPPC) on the implementation of IFRS 9 impairment requirements by banks (GPPC paper), stated in paragraph 2.8.2.3 that the calculation of a separate modelled adjustment to reflect the impact of less likely scenarios and the resulting non-linear impacts, should be performed at an appropriately low level of granularity which takes account of qualitatively different risk characteristics and sensitivities. Additionally, this separately modelled adjustment is calculated using specific portfoliolevel sensitivities and minimises the use of qualitative expert credit judgement that is not supported by quantitative analysis.
- The GPPC paper states in paragraph 2.8.2.3 that a list of significant scenarios or events not
 explicitly incorporated within the modelling of ECL, but which are nevertheless considered
 possible future outcomes and could have a significant effect on ECLs, should be compiled
 and evaluated. The bank must assess whether any adjustment to recognised ECLs should
 be made in respect of these 'additional' factors at the reporting date. The bank must make
 an adjustment to recognised ECLs to reflect an additional factor if the bank can do so on the
 basis of reasonable and supportable information that is available without undue cost and
 effort, even if the adjustment reflects a relatively high level of measurement uncertainty.

- IFRS 9 together with the ITG allows the use of overlays outside of the base ECL or linkage models.
- Where overlay adjustments are calculated outside of the macro-economic forward-looking linkage model, the overlay should be based on reasonable and supportable information and be calculated at the appropriate level of granularity. Example: Given the nature of the pandemic and its impact on industries and households as at 31 December 2020, incorporating this information into the overlay adjustment was important at that time to get to a granular enough adjustment. In the Business Banking and CIB spaces, industries at risk needed to be identified and classified into different risk categories (e.g. low, medium, high) which in turn determined the downgrading of individual customer ratings and the increasing of PDs. SICR was then either automatically triggered based on a relative PD threshold, or based on expert judgement. Collateral valuation haircuts were adjusted depending on the nature of the collateral at the time, e.g. commercial property. In the Retail space, the key drivers that needed to be considered were unemployment forecasts and movements in customer income levels. This information is readily available by banks, especially for banked customers. In some instances, unemployment forecasts per industry were used to get an even more granular outcome. Customer income levels at reporting date were tracked against pre-COVID-19 levels to identify the individuals at risk.
- When calculating out-of-model adjustments, the overlay framework discussed in slide 6 and 7 together with the considerations mentioned (e.g. double-counting), need to be considered.
- From an audit perspective, the assumptions would be tested and judgement applied in determining the overlay adjustment. Additionally, focus will be placed on the effect that any overlay has on stage migration to ensure that an appropriate SICR level is triggered. The governance around the overlay adjustment should be tested to determine its robustness and if there are controls around the process of identification, evaluation, inclusion and approval of additional factors.

3. Allocation and use test

Allocation of the credit overlay adjustment

- The following technical guidance is available:
- IFRS 9 paragraph 5.5.1 states that an entity shall recognise a loss allowance for expected credit losses on a financial asset that is measured in accordance with paragraphs 4.1.2 or 4.1.2A, a lease receivable, a contract asset or a loan commitment and a financial guarantee contract to which the impairment requirements apply in accordance with paragraphs 2.1(g), 4.2.1(c) or 4.2.1(d).
- IFRS 9 Appendix C highlights amendments to other Standards. As part of the amendment to IFRS 7 Financial Instruments: Disclosures (IFRS 7), paragraph 35H requires that in order to explain the changes in the loss allowance and the reasons for those changes, an entity shall provide, by class of financial instrument, a reconciliation from the opening balance to the closing balance of the loss allowance. This granular level of disclosure hold true for other paragraphs in the Standard.
- Based on the above requirements, credit overlay adjustments should be allocated at a minimum to the class of financial instrument to which it belongs. Many banks aimed to allocate credit overlay adjustments to an account level where possible to support credit risk management. Where this is not possible, credit overlay adjustments are typically allocated at a portfolio level. A further consideration is the staging impact and allocation of the overlay depending on its nature. The size of the adjustment in comparison to audit materiality would be considered. If not automated, the determination of SICR needs to be based on expert judgment. The point at which the disclosure deficiency will impact the economic decisions of users relying on the financial statements will be considered. This becomes more important where specific portfolios (i.e. classes of financial instruments) are affected differently across the bank. If it is material, then a central overlay without the required level of disclosures would not be appropriate in terms of IFRS 9.

Use test principle

- The use test pertains to the internal employment by a bank of the borrower and/ or facility ratings, retail segmentation and estimates of PD, EAD and LGD that the South African Banking Regulations requires banks to use for the calculation of regulatory capital. Regulators require assurance that internal risk estimates are truly employed for internal risk management purposes.
- The same applies to IFRS 9 in that information that feeds the ECL estimate, needs to be consistent with that used elsewhere in the bank. Where credit overlay adjustments are made (e.g. by adjusting scenarios or weightings), it is important to consider the materiality thereof and its impact on the use test. The assumptions and inputs that feed the ECL estimate needs to be consistent with those that are used in budgets, pricing, strategic and capital plans or other management reporting. Where these are inconsistent across the bank, the use test principle will not be met.



Building blocks

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Contacts



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