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Fifteen years after the financial crisis that led to its creation and six and a half years since the issuance of ASU 2016-13, the implementation date for current expected credit loss methodology (CECL) has **finally** come and gone. As with many areas of CECL, regulatory guidance explaining when model validations are warranted versus when an internal audit may be appropriate, has been infrequent and ambiguous. To make this determination more confusing, there are wide-ranging definitions of the word “validation” being used by vendors across the industry. In this article, we discuss the difference between an internal audit and a validation and provide some perspective on items to be considered when making the determination as to which is more appropriate for your institution.

Model Validation

While the specific procedures performed during a validation may vary depending on an institution’s selected methodology and model design, there are a core set of procedures that should be considered, based on guidance found in the Federal Reserve’s [SR Letter 11-7](#). When discussing model validation procedures with institutions, we have found it easiest to bucket the validation framework into three categories:

(1) Model Governance, (2) Conceptual Design, and (3) Technical Construct. Those buckets can be summarized as follows:

Model Governance - examination of the documentation, internal controls, and processes surrounding the model, including:

- Formal documentation (policies, procedures, model whitepapers, etc.)
- Internal control framework (design and operating effectiveness)
- Model oversight (by both management and the Board)
- Outcomes analysis / backtesting (design and operation)
- Sensitivity analysis / stress testing (design and operation)

Conceptual Design - Evaluation of the appropriateness and supportability of model elections and assumptions deployed, such as:

- Model methodology
- Loan segmentation
- Intentional exclusions (immaterial loan segments, securities, etc.)
- Use of peer data
- Reasonable and supportable forecast
- Simplifying assumptions / overrides
- Individually evaluated loans (methods for identification and evaluation)
- Qualitative factors (methods for selection, anchoring and ongoing adjustment)
- Unfunded commitments (methods for deriving funding expectations and expected losses)

Technical Construct - Testing and independent recalculation of model and upstream mathematics, including:

- Model inputs
- Accurate segmentation (both balances and losses/defaults)
- Peer derived data points
- Manual overrides
- Upstream inputs (attrition rates, prepayment rates, probability of default rates, loss given default rates, remaining lives, etc.)
- Individually evaluated loans
- Qualitative factors
- Model outputs

Collectively, the *Technical Construct* procedures should result in an end-to-end recalculation of the model logic at the segment and loan levels. Procedures should also verify that the segment-level information is being appropriately applied at the loan-level, and vice versa, when applicable.

Based on our continued review of model validation reports, we see significant disparity in the level of detail with which engagements are performed. Below, we have highlighted a couple items to be considered when developing a validation plan or reviewing proposals from external providers:

Use of Challenger Models

While running a challenger model can serve as a “gut check” for the reasonableness of model outputs, it does not comply with validation expectations as set forth in SR 11-7. Using this approach provides no assurance that the model is performing as expected, nor does it prove that the model is in alignment with its design objectives.

End-to-End Reperformance of Model Logic

Contrary to the approach above, the end-to-end reperformance of a model’s logic will provide the highest level of assurance that mathematical equations and application of assumptions within the model are working in the intended manner. These procedures will vary depending on model methodology but should include the recalculation of components like historical loss rates, prepayment rates, remaining maturity, and funding rates. It should also include reperformance of linear regressions or other mathematical methods of forecasting and qualitative factor processes. Lastly, these procedures should include the tracing of model outputs being applied at the loan level back to their segment-level derivation. An example of this would be tying probability of default and loss given default rates applied to a loan back to the corresponding segment-level calculation from which they were derived.

Mathematical Accuracy of Manual Inputs/Overrides

We often find institutions using manual overrides for key assumptions in their model. These overrides typically include components like peer derived loss rates, prepayment speeds borrowed from interest rate risk models, and subjective funding rate assumptions. These inputs are likely key drivers of model outputs and should be thoroughly evaluated as part of the validation. CECL model validation procedures should include a reconciliation of these data points back to their origins and, if not tested elsewhere, a recalculation of mathematical formulas used to derive the values. Furthermore, given the static nature of override values within a model, these values should be challenged and stressed regularly. Knowing the correlation between changes in these factors and the model output is crucial to demonstrating a thorough understanding of the model and knowing how to best manage it moving forward.

Internal Audit

Since institutions and service providers have their own unique methods for performing risk assessments and developing audit plans, there is wide variability in the depth of internal audits being performed over CECL. While this variability is reasonable and expected, we recommend that the following items be considered as a baseline when developing an audit plan:

- Review and approval of policies
- Adequacy of management and board oversight
- Administration of the model in accordance with applicable guidance and internal policies
- Review and approval of material changes to the model (segmentation, methodology, assumptions, etc.)
- Effectiveness of management review controls
- Proper application of qualitative factors
- Reporting and disclosures (compliance with GAAP and regulatory guidance)
- Existence of outcomes analysis / backtesting
- Existence of sensitivity analysis / stress testing
- Remediation of previously identified issues
- Adequacy and objectivity of model validation activities

To date, many internal audit procedures have revolved around model development, design effectiveness of internal controls, and planned model governance. As we move forward and the industry shifts its focus from implementation to administration, we expect the scope of audits to transition towards being more heavily focused on operational effectiveness. Furthermore, we expect to see a higher emphasis placed on monitoring activities such as outcomes analysis (back testing) and sensitivity analysis (stress testing).

Which Do I Need?

Supervisory guidance on model risk management (SR 11-7) states:

Validation activities should continue on an ongoing basis after a model goes into use, to track known model limitations and to identify any new ones. Validation is an important check on model use during periods of benign economic and financial conditions, when estimates of risk and potential loss can become overly optimistic, and when the data at hand may not fully reflect more stressed conditions. Ongoing validation activities help to ensure that changes in markets, products, exposures, activities, clients, or business practices do not create new model limitations. For example, if credit risk models do not incorporate underwriting changes in a timely manner, flawed and costly business decisions could be made before deterioration in model performance becomes apparent.

Banks should conduct a periodic review—at least annually but more frequently if warranted—of each model to determine whether it is working as intended and if the existing validation activities are sufficient. Such a determination could simply affirm previous validation work, suggest updates to previous validation activities, or call for additional validation activities. Material changes to models should also be subject to validation. It is generally good practice for banks to ensure that all models undergo the full validation process, as described in the following section, at some fixed interval, including updated documentation of all activities.

Our interpretation of this excerpt is that institutions should continue to monitor their models through validation-based activities. Generally, the industry supports institutions setting a cadence in which they receive a full validation every “#” year(s), with internal audits performed in the year(s) between. What exactly that cadence looks like will vary, depending on many factors including: the opinions of regulators and external auditors, the size and complexity of the institution, the nature and complexity of the model, changing economic conditions, and whether there have been adjustments to key model inputs, assumptions, or calculations. Situations in which there is a strong case for electing a validation include, but are not limited to:

- An internally developed model has been deployed but not yet validated
- An outsourced model, lacking a model certification, has been deployed but not yet validated
- The institution is subject to an internal controls over financial reporting audit (FDICIA or SOX)
- The model has been previously validated, and there were significant findings/exceptions identified
- The model has been previously validated, but there have been substantial changes made

In closing, guidance around when a validation is necessary is ambiguous and open to interpretation. Ultimately, the decision is left in the hands of management with input from the institution’s regulators, external auditors, and other advisors.