Basel Model Validation:

With the introduction of Basel II the emphasis on documentation and robustness of model developments has significantly increased as has the level of interest from internal oversight functions and external regulators. As part of this process the need for independent review of models by expert teams has grown. 4most consultants are experienced in all aspects of Basel model validation and work through a consistent process and consider as a minimum the following key factors (which are compliant with Basel II provisions but are aimed primarily at ensuring the business is managed in a prudent fashion):

- Scorecard model build:
    - Ensure the model is appropriate to the business problem, based on relevant data predicting the most useful outcome, not simply the regulatory one (emergence curves and roll rates)
    - Review the model sample for appropriateness for use as a basis for understanding future periods – consider the stability of the model build sample against the latest through the door sample (Score stability index, Characteristic Stabilities)
    - Ensure there is independent in-time random validation (or cross validation) and where possible out of time validation.
    - Review the process by which characteristics are included or excluded from a model are reasoned and captured in the documentation with the aim of ensuring all relevant available data is used providing it is robust (Characteristic analysis, marginal information values of characteristics not used)
    - Consider the meaning of each predictor and whether this accords with our understanding of the business problem (point reversals). If the statistical relationship is not inline with understanding of the business problem then investigate and potentially constrain the model
    - Consider the typical predictors used in similar models of this type/product – have any been omitted, if so is this justified.
    - Is the model reasonably predictive (Gini, K-S measure) compared to similar models on other portfolios?
    - Is the model demonstrably conservative in general and specifically where reject inference has been conducted – how much worse are the rejects predicted to perform at the margin than accepts based on the known good/bad model.
    - What is the profile of the swap-sets from the old model to the new model – is the business comfortable with this change in mix. Are the swap sets suitably conservative? Is the inferred performance of the swap-ins sufficient to justify the new model?

- PD Calibration
    - Is the definition of default Basel compliant and suitably conservative?
    - What is the methodology of the calibration (Point in Time versus Through the Cycle)? Why has the choice been made for the chosen methodology?

- Is there sufficient history of defaults available to support the conclusions being drawn (particularly for TTC measures)?
- In the case where the portfolio has low rates of default is sufficient conservatism being placed on PD estimates?
- How are in-actives, withdrawn and closed in the outcome period cases treated? Can we ensure this is consistent with Basel rules and other aspects of the ratings system.
- Is a pooling or segmentation mechanism being used? Is there evidence that the pools or segments are homogenous and represent a consistent level of risk.
- If a PiT rating system, how often/quickly will ratings be updated, what are the potential risks of the PD rates drifting over this time and how is this accounted for conservatively in the ratings approach?

- EAD/LGD Models
  - Emphasis here is often more on stability and less on discrimination at the individual level – need to assess how well the EAD/LGD models stay in alignment through the economic cycle.
  - Frequently these models are strongly affected by system/policy changes – how has the model accounted for these issues and what additional processes can be put in place?
  - How are incomplete workout cases treated conservatively?
  - Have appropriate discount rates and economic losses been calculated (fees, charges, interest, time to default, time to write off)
  - How do you identify and model the downturn situation appropriately
  - Has external data been used to validate the downturn methodology
  - Have appropriate collateral haircuts been incorporated in a meaningful way – is the property/collateral valuation used in the model and in live consistent and unbiased?
  - Have outliers been considered and treated appropriately in CCF and LGD models?

- General
  - Is the documentation adequate, clear and comprehensive
  - Are principles and assumptions applied equally across models
  - Is there appropriate governance to ensure the models are implemented, tested and monitored accurately and regularly with appropriate evidence
  - Is their an appropriate and consistent classification of model materiality
  - Does senior management understand the ratings system and how material defects would be identified and corrected
  - Are there suitable functions and reporting lines in place to maintain objectivity over model review and challenge without creating an obstacle to innovation