

Model Validation

A Regulator's Perspective

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Agenda

- **A few words about me.**
- **Who are the FSA Risk Review Department and what do they do?**
- **The Regulatory View on Model Validation**
 - Validation in the Basel Framework.
 - The six validation principles as set out by the AIG and CEBS
 - Some thoughts of my own.
- **Questions**

A few words about me...



24 years with Barclays

- 12 years with the Economics Service**
- The rest with Group Risk**
- Six years involvement with Basel 2**

One year with FSA in Credit Risk Review

- But not a direct participant in the AIG or CEBS.**

Who are the FSA Risk Review Department and what do they do?



- Specialised function comprising staff with wide commercial experience
- Covers credit risk, operational risk, market risk, insurance risk, and models review
- Credit risk includes corporate, retail, sovereign, specialised and credit in a trading environment
- Provides both desk based and on-site reviews for relationship supervisors
- On-site reviews are risk focused and primarily interview based underpinned by prior review of documentation
- Detailed internal report for relationship supervisor; more summarised letter to firm supported by specific recommendations

Credit Risk Review Basel Visits

Object is to support FSA decision making

- Over 50 IRB Visits planned from Easter to year end.
- FSA visit team will usually number 3 or 4 persons.
- Two thirds of visits are Retail at present.
- Emphasis moved on from last year's thematic approach
- Pre and Post-Waiver applications
- Follow up meetings to monitor progress.

RRD Basel Visits



- Before we visit the firm:
 - Agree scope of review with supervision
 - Request information and undertake a desk based review of firm's documentation
- Typically spend 1 - 3 days on site, covering topics such as:
 - Model control, development and validation
 - Governance, Senior Management Understanding and Use Test
 - Role of Internal Audit
 - Data Governance
- After visit, provide a detailed report to the supervision team, giving an opinion on overall compliance; key findings communicated to the firm.



And so to Validation....

Validation in the Basel Framework



Validation crops up everywhere:

A definition:-

“Validation encompasses a range of processes and activities that contribute to an assessment of whether ratings adequately differentiate risk and whether estimates of risk components (such as PD, LGD or CF) appropriately characterise the relevant aspects of risk.”

- Role of Senior Management
- Governance Process
- Use test
- Model MI
- Disclosure requirements
- Specific rules and guidance.

Why is validation so important?

- Basel II is a sea-change in the way regulatory capital requirements are determined.
- “An unvalidated model is just a hypothesis.”
- Regulators don’t want methods to go stale. Validation is a way of helping to ensure this.

FSA approach

- Implementation of the Capital Requirements Directive (CRD)
- Adoption of CEBS material which builds on Basel I/II principles



Six Principles of Validation AIG/CEBS

The Six Principles of Validation

1. Validation is fundamentally about assessing the predictive ability of an institution's risk estimates and the use of ratings in credit processes
2. The credit institution has primary responsibility for validation
3. Validation is an iterative process
4. There is no single validation method
5. Validation should encompass both quantitative and qualitative elements
6. Validation processes and outcomes should be subject to independent review

The Six Principles of Validation - #1

Validation is fundamentally about assessing the predictive ability of an institution's risk estimates & the use of ratings in credit processes

- Consistency, accuracy and effective risk discrimination.
- Stability and conservatism.
- Expectation of documented policies and standards around these.
- And that the firm will act when actual performance falls short.
- The firm should fully understand (& document) the philosophy underlying its rating models. This includes how the dynamic behaviour of the ratings will impact on capital (CEBS).
- Reference to understanding behaviour across the economic cycle (CEBS).
- Forward-looking, long run, well-founded estimates required.

The Six Principles of Validation #1 – my take



Validation is fundamentally about assessing the predictive ability of an institution's risk estimates & the use of ratings in credit processes

- This may well require breaking the process down into its component parts (e.g. predictive power, calibration and central tendency).
- There may be a need to look outside the firm to validate ratings effectively.
- There's a challenge (at least in the UK) of understanding ratings behaviour when the economy has been so benign in recent years.
- We see varying progress with some firms still on the starting blocks.
- The story is similar with progress on the development of models policies and standards.

The Six Principles of Validation #2

The credit institution has primary responsibility for validation

The institution must be able to demonstrate:

- How it came by the estimates.
- That its systems for rating exposure are working as expected and are likely to continue to do so.

Supervisors' role is to confirm compliance.

- Supervisor may rely on their own processes to achieve this.
- Or third parties.

The Six Principles of Validation #2 – my take



The credit institution has primary responsibility for validation

- This is the **Internal Ratings Based** approach.
- Supervisors' expectations of the firm will not be influenced by the model's origins.
- Circumstances may permit a number of firms to rely on one vendor for the validation of a rating tool.
- But a vendor or firm may develop a sound model which is then implemented in a faulty way.
- The firm needs to address the question of whether its ratings solutions remain fit for purpose.

The Six Principles of Validation #3

Validation is an iterative process

- Expectation is that regulatory standards will rise over time.
- And so will firms' capability
- Markets, operating conditions, data, techniques and tools and understanding will also increase with time.
- Need for continuing dialogue between firms and supervisors on the strengths and weaknesses of particular rating solutions.

The Six Principles of Validation #3 – my take



Validation is an iterative process

- Ongoing affirmation that the model is performing and remains fit for purpose is required.
- Tools will (& need) to evolve but we are committed to risk-based supervision. It's appropriate that the regulatory view takes account of materiality.
- Requirements and standards will rise over time. Compliance with minimum requirements is not necessarily “best practice” and may have commercial consequences.

The Six Principles of Validation #4

There is no single validation method

- No universal tool for all portfolios in all institutions.
- Differences likely across portfolios and markets.
- But some convergence expected over time.
- Ratings philosophy has a bearing on the validation methods apt to the situation and the stress tests to be applied.
- A validation process needs to contain a mix of developmental evidence, benchmarking, process verification and outcomes analysis (CEBS).
- The balance of the validation tools used will vary between situations.

The Six Principles of Validation #4 - my take



There is no single validation method

- Low default portfolios are eligible for IRB!
- Re ratings philosophy, It's important that the validation method matches the build method. (For example, models built with external data may need to be validated with external data).
- Supervisors expect to see verification and validation at the time of model build as well as thereafter.
- Imagination and energy will serve firms well.

The Six Principles of Validation #5

Validation should encompass quantitative and qualitative elements

- Comparing outcomes with estimates can play a critical role in validation but is likely to be insufficient.
- Assessing the overall performance of the rating system means assessing data, models, processes and systems.
- Plus controls, independence, documentation, internal use and “other” factors.
- Institutions required to bring sufficient experience and judgement to the development, adjustment interpretation and validation of their ratings (CEBS).
- The qualitative phase of the firm’s assessment should focus on how the various parts are interpreted into final capital assignments (CEBS).

The Six Principles of Validation #5 – my take



Validation should encompass both quantitative and qualitative elements

- Data and technique are both important.
- But power curves drawn from sparse data don't tell you much!
- Two firms might use the same model but draw different conclusions about its performance when they seek to validate it.
- Firms should expect caution from regulators in accepting capital results. (After all, many firms have only just got to the stage of calculating their capital requirements.)

The Six Principles of Validation #6

Validation Processes and Outcomes should be subject to independent review

- Validation processes should be reviewed by parties within the institution that are independent of those responsible for the design and implementation of the validation process.
- A variety of structural forms may achieve this.
- For example, review activity could be housed in one or many units, depending on the firm.
- Internal Audit could fulfil this role using their own or third party technical experts.
- Internal Audit has an oversight responsibility to ensure that validation processes are implemented as designed and are effective.

The Six Principles of Validation #6 - my take



Validation Processes and Outcomes should be subject to independent review

- Their commercial significance makes this a given
- The challenge is to find personnel with the right skills - it's appropriate to have flexibility as to the organisational structure.

Some things I haven't mentioned yet....



- **Every time I've said "model", I could have said "rating" or "rating solution" or "rating method".**
- **LGD and EAD need to be validated just as much as PD.**
- **Back-testing and Benchmarking are significant tools.**
- **Supervisors can see things that firms cannot.**

In Conclusion....

- **Validation is central to regulators' thinking – in policy and in practice.**
- **It is the responsibility of the institution, not the supervisor.**
- **There is no universal solution; the tools used should be appropriate to the ratings and their use.**
- **This may include information or expertise external to the firm.**
- **Standards are likely to rise with time.**
- **Ongoing dialogue is essential.**

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