

Supervisory Statement | LSS3/13

Counterparty credit risk advanced model approaches: process for post approval changes

April 2013



BANK OF ENGLAND
PRUDENTIAL REGULATION
AUTHORITY





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From its commencement on 1 April 2013, the Prudential Regulation Authority (PRA) has adopted a number of legacy FSA policy publications relevant to the advancement of its objectives. This document, initially issued by the FSA, has been adopted by the PRA as a Supervisory Statement as part of this process. The PRA may choose to review this legacy publication at a later stage.

Introduction

1. This paper describes the PRA's approach for post-approval changes to Counterparty Credit Risk Internal Model Method (IMM) (BIPRU 13.6.2) and Master netting agreements internal model approaches (Repo VaR) (BIPRU 5.6.13) extensions of the scope of approval, and roll out of portfolios according to the roll-out plan; it suggests the documentation we would seek to support the proposed change and provides an overview of our response to these advised changes.

2. The framework for post-approval model changes outlined here forms one integral element of the wider regime for calculating counterparty credit risk using advanced methods but does not encompass the entirety of our regime. To run this regime effectively, we will deal with firm-driven actions (such as model changes) and also undertake other work (such as reviews and thematic work).

3. We regard the post-approval regime as critical to maintaining confidence in the high standards we have set firms during their initial waiver applications. An effective post-approval framework, which is the objective of the proposals in this paper, will provide this assurance whilst firms' models are adjusted over time, without imposing a disproportionate burden on firms and on the PRA.

4. We will ask for prior information only for the most material changes (defined in paragraph 10) to their IMM or Repo VaR model, as described in paragraph 13. We envisage that this will typically result in only a few pre-notifications on average per year per firm, even from the largest firms. For details about the changes we will rely to the extent we can on information generated internally by the firms. This should foster a pragmatic, 'no surprises', proportionate regime.

5. Other changes need be reported in summary form only and after implementation. The arrangements allow for firms to agree *de minimis* thresholds below which no report needs to be made at all.

6. We will review in due course, with input from the industry, how the process is operating.

Defining materiality

7. Firms must notify us of significant changes to IMM or Repo VaR models prior to these changes being implemented for capital purposes. The Waiver Direction offers some broad guidelines around factors which constitute significant change: Schedule 4 from the IMM waiver is attached as Appendix C for ease of reference. The starting point is the assumption that firms will proactively advise supervisors of significant events or issues affecting the operation of the advanced model with the onus on the firm to judge what is significant.

8. Our approach to assessing the significance of issues will be based on the materiality of changes, which in turn will be governed by the substance of the change as relevant to the firm rather than measurement against a predefined set of parameters. Once notified, the firm supervisor will evaluate the proposed change on a case by case basis. It is expected that both the firm and its respective supervisor will in the course of time reach a common understanding of the type of change that warrants consultation and approval.

9. Changes to a firm's model can be categorised as low or high impact depending on the level of materiality. This spectrum at one end denotes simple, minor changes which do not warrant prior consultation with the PRA. The other end is characterised by significant, high impact changes which will need to be

reported in advance and require PRA approval. These boundaries will encompass a middle range of changes that will be reported but which may or may not warrant PRA review. For this middle range, it is anticipated that as the process becomes embedded within the firm's post Basel 2 framework and as our joint understanding grows in this area, the process of referral will be fine tuned.

Examples of change

10. Changes may involve several aspects of the advanced model framework. The following are examples of changes we deem to be significant and therefore requiring prior approval by the PRA (please note that this is **not** an exhaustive list):

- (a) Development of new models to cover products currently not in the scope of the Waiver. Eg equity derivatives, interest rate derivatives.
- (b) A model change resulting in a change in Counterparty Credit Risk (CCR) capital requirements for the UK consolidation group greater than 5% in both directions (that is, either increase or decrease of capital) or a change in gross EAD (for clarity the EAD should be calculated gross of netting, margin and collateral) of 5% in both directions. While we would be open to suggestions from firms as to their preferred level for this threshold, or the basis on which it is calculated, the final parameter would need to be agreed between the firm and the PRA. As a benchmark we intend that a change in CCR capital requirements of 5% should be considered significant or a change in gross EAD of 5% should be considered significant.
- (c) A model previously deemed immaterial becomes material if it will calculate EAD greater than 5% of gross EAD or contribute more than 5% of CCR related capital requirement.
- (d) Changes to the calculation system. This could include:
 - (i) Structural changes to the system used to generate exposure profiles.
 - (ii) Re-development/optimization of existing routines which could lead to significant changes in the output of the model.
- (e) Extension of current models to new product types (product types currently not in the scope of the waiver). Eg swaps, caps, swaptions.
- (f) Changes to currently approved models. This may be related to:
 - (i) Introduction of new risk factors (eg introduction of a new market risk factor in the simulation engine such as new currencies, new interest rate curves. It is not expected that this will cover increases in the granularity of particular risk factor curves).
 - (ii) Changes to the evolution process of existing risk factors.
 - (iii) Calibration methodology.

- (iv) Changes to the pricing functions used.
- (g) Changes to the models due to changes in the composition of the portfolios and products traded (eg changes due to merger and/or acquisitions).
- (h) A significant change to the outputs of the model resulting from a series of changes that in isolation may not be significant but cumulatively have a significant effect.

Firms may agree more detailed materiality thresholds with the PRA, if they wish.

Parallel running and the experience requirement

11. Depending on the materiality of changes the requirements with regards to parallel running (BIPRU 13.6.52) may change. We do not intend to apply any formal requirement for parallel running to changes of IMM and Repo VaR systems. We would, however, expect firms themselves to include parallel running to the extent they deem necessary as part of their normal general project management disciplines when introducing new or enhanced risk management tools.

12. It is expected that firms will demonstrate that the model is appropriate through backtesting. Firms are expected to backtest the advanced model and the relevant components that input into the calculation of EAD using historical data movements in market risk factors considering a number of distinct time horizons out to at least one year. The backtesting should cover a range of observation periods representing a wide range of market conditions.

Change of governance process

13. This section describes the process firms will be required to follow when pre-notifying or post-notifying a model change.

14. Pre-notifying a change

- Step 1. The firm should advise the PRA about future proposed changes as far in advance as possible. In addition to this, during IMM reviews the firm will be expected to advise the PRA of its current thinking on future changes, across the group. The firm should expect that a decision by the PRA regarding pre-approval of a change can take up to six months.
- Step 2. The firm should submit a short description of the change.
- Step 3. The firm should conduct a self-assessment of the change against the relevant BIPRU rules, noting any areas of non-compliance with details of how and when these gaps will be closed and set out which BIPRU rules are not considered relevant.

- Step 4. If the change is recognized to be significant as per paragraph 10 prepare and submit the material set out in Appendix B.
- Step 5. Send the material from Steps 2, 3 and 4 to the PRA. The material needs to be sent sufficiently far in advance of the proposed change to allow time to review it prior to implementation. If we choose to review the change, we may ask for additional information and if necessary meetings or on-site visits. We are content for firms to provide internal documentation for this purpose, provided this addresses clearly and sufficiently the process requirements set out above.

15. Post-notifying a change

- Where the change belongs to category (e), (f), (g), (h) in paragraph 10 the firm can notify the PRA after it has occurred. The firm will need to provide the following:
 - (a) a short description of the change, including the date on which the change was implemented;
 - (b) confirmation that the change has been reviewed through the firm's internal governance processes; and
 - (c) confirmation that a self-assessment of the change against the BIPRU rules has been completed and has not identified any areas of non-compliance.
- After the post-notification, the PRA might request additional information, including internal documentation consistent with the relevant parts of Appendix C.
- The PRA is also prepared to respond constructively to proposals from firms on a cumulative *de minimis* figure for immaterial models, changes to which will not require post-notification. We envisage this total figure being in the region of a 5% increase or decrease in the CCR related capital requirement or EAD of the model for the UK consolidation group. Accordingly, a firm may nominate a number of models, each of which account for no more than a 5% change in the CCR related capital requirement or EAD and which in total account for no more than a 5% change in CCR related capital or EAD, for which neither pre-notification nor post-notification is ordinarily necessary.

Fees

16. There will be some circumstances where a fee will be applied — for example, when a firm is extensively changing the scope of its model approval or following a merger or acquisition that impacts the materiality of business in scope of an advanced approach waiver.

Self assessment

17. The self assessment process described in paragraph 13, step 3 needs only be an assessment against BIPRU rules that

are relevant to the change in question. While it is the firm's responsibility to decide on the method of conducting the self-assessment, the PRA expects the self-assessment to be sufficiently rigorous to allow the firm to identify areas of non-compliance. In the case where areas of non-compliance have been identified the PRA expects firms to provide a detailed process for becoming compliant in the areas identified.

18. It is important to highlight that a high-level 'gap analysis' or a process that places reliance on the firm's governance process or on the firm's developmental process to deliver a compliant approach is unlikely to form an adequate self-assessment.

PRA response

19. **To pre-notified changes:** Following pre-notification, the PRA will make a prompt initial assessment of the material and determine whether a full review is needed or not. If a full review is not judged necessary, then the firm may make the change as planned. If a full review is judged necessary, then the firm will be informed, any on-site review work executed and a decision reached. In very limited circumstances, to be agreed on a case-by-case basis, the PRA may be prepared to allow firms to implement the proposed change in the interim, subject to an additional element of conservatism being applied.

20. **Decision options for pre-notified changes** are: 'approve', 'approve with hard ongoing conditions' and 'reject'. Firms will be given the opportunity to address issues prior to a formal decision being issued.

21. **To post-notified changes:** The PRA may take no action, or may select a change or portfolio for subsequent review as part of the review process.

22. **Our relationship with other EEA regulators** will be governed by Article 131 and, if necessary, by Article 129 of the CRD as well as by CEBS guidelines. We will maintain a reciprocal agreement between EEA regulators to keep each other informed of significant changes as advised by the respective local sites. Involvement with other non-EEA regulators will be achieved via continued collaboration.

23. **Updating the Direction:** In the spirit of accuracy and transparency, any revisions to the waiver decision should be reflected in the permission document and published as a subsequent version of the original. Generally, changes to the scope will warrant a change to the waiver and require formal action. However, not every model change will warrant an update, even if it is a significant change. Following review of a significant change, there may follow a recommendation to add conditions.

24. **Pillar 2:** Depending on the magnitude of the effect on the firm's capital position, the change may also trigger a review of the firm's capital position under Pillar 2, possibly requiring submission of a fresh ICAAP.

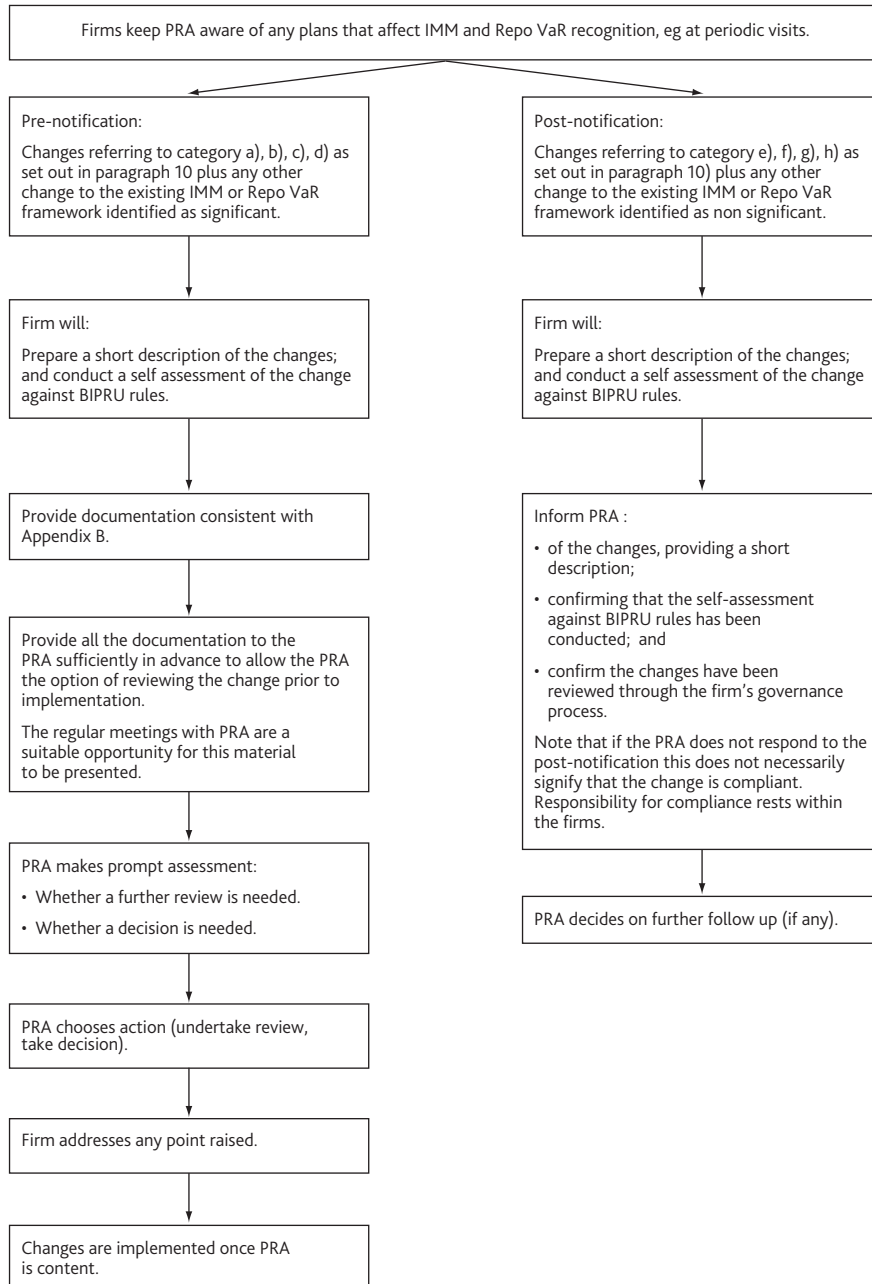
25. The firm should not rely on the PRA to ensure that a notified change is compliant and should not assume that the lack of an immediate response to a submission positively indicates that the change is compliant: responsibility for compliance rests with the firm.

Summary

26. We observe that the assessment of significant changes cannot be a mechanistic approach given the individual characteristics of each firm. We recognise that there will be a process of learning and refinement on both sides in terms of reaching an understanding of what is considered to be significant.

27. A diagram covering the key steps is attached as Appendix A.

Appendix A IMM and Repo VaR Post Approval Model Changes Process



Appendix B

Documentation required for material changes

As detailed under paragraph 14 (step 4) if the changes to the IMM or Repo VaR model are recognized to be material, further documentation will be required for review from the PRA. The following list represents a minimum requirement which needs to be met when applying for material changes. The PRA may ask for further information and/or documentation on a case by case basis. This section is divided in two main categories:

- Changes to models
- Changes to the counterparty risk system

Changes to models (new model being introduced or changes to existing models)

The following is the minimum information that should be provided for changes to models.

- BIPRU self-assessment. This should include an assessment against any requirement relevant to the changes made and sign-off from a Significant Influence Function attesting that the model is fit for purpose and meets regulatory requirements.
- Distribution of risk for an appropriate parallel run period for the transactions covered by the model changes according to the following categories (each table should include number of trades, Positive MtM, EAD, PFE, regulatory capital using the old model, regulatory capital using the new model):
 - Product (if more than one) for number of trades; positive MtM; and exposure and capital measures calculated gross of netting;
 - Counterparty Credit Rating (ie Probability of Default rating);
 - Industry;
 - Country/Geographic region.
- Independent validation report relevant to the changes to models.
- Backtesting results for an appropriate parallel run period.
- Sign off minutes for model approval from the relevant committees.

The following information should be provided if documentation previously submitted has changed as a result of the changes to models.

- Technical documentation outlining the methodology used to model and calibrate risk factors. This documentation should also include the methodology used to estimate the relationship between risk factors, eg correlation.
- Technical documentation for the methodology used to price the product(s) modelled.

- Technical documentation for the modelling of collateral if modelled jointly with exposures.
- Technical documentation outlining the implementation of netting/margining rules for the new model.
- Updated policy for:
 - Backtesting
 - Stress Testing
 - Wrong Way Risk
 - Collateral management
 - Validation policy

Changes to the counterparty risk system

If changes to the system occur in conjunction with material changes to models the latter would require a separate submission of documents as outlined in the section 'Changes to models (new model being introduced or changes to existing models)'. The following is the minimum information that should be provided for changes to the counterparty risk system.

- BIPRU self-assessment. This should include an assessment against any requirement relevant to the changes made and sign-off from a Significant Influence Function attesting that the model is fit for purpose and meets regulatory requirements.
- Distribution of risk: distribution of risk, over an appropriate parallel run period, for the transactions covered by changes according to the following categories (each table should include number of trades, positive MtM, EAD, PFE, regulatory capital prior to and after changes being applied):
 - Product (if more than one) for number of trades; positive MtM; and exposure and capital measures calculated gross of netting;
 - Counterparty Credit Rating (ie Probability of Default rating);
 - Industry;
 - Country/Geographic Region.
- Operational requirements (in the form of internal documentation or policies as relevant):
 - Description of the Control Unit in charge of design of model (including organizational chart);
 - Description of the Control Unit in charge of implementation into production system (including organizational chart);
 - Description of the Control Unit in charge of initial and ongoing validation of Counterparty Risk Exposure Model (including organizational chart);
 - Data integrity assessment and policy around data quality;
 - Sample reports of the output of the model (as used and seen by model users);
 - Impact on trading limits (ie change in credit policy with regards to allocation/management of credit limits).
- Backtesting analysis and results for an appropriate parallel running period.

The following information should be provided if documentation previously submitted has changed as a result of the changes to the counterparty risk system.

- Updated policy for:
 - Stress Testing
 - Wrong Way Risk
 - Backtesting
 - Collateral
 - Validation (covering both initial and ongoing validation)

Appendix C

Extract of Schedule 4 from Direction template

Schedule 4: Notification and reporting requirements

1. The firm must inform the PRA in advance of significant events affecting the use of its *CCR internal model method*, such as:

- introduction of new products or counterparty groups (such as introduction of new, or significant changes within the, product or counterparty groups categories listed in Schedule 1);
- significant changes to its approved *CCR internal model method*, including using a different model for exposure calculations;
- significant changes to governance or senior management arrangements; and
- significant changes in the volumes or trends of trading for existing products or counterparty groups.

2. Any material changes to one or more of the above must be notified to the PRA as soon as practicable. Detailed information should be provided on quantitative and qualitative aspects of the change.

3. Where significant changes to its approved *CCR internal model method* are involved the firm must report these changes in advance of their occurring in order to allow

the PRA to review the *CCR internal model method* prior to implementation.

4. In addition the firm must provide the PRA with details of any other changes relating to its approved *CCR internal model method*. This information may be provided after the event occurs.

5. The firm must collect and record the following information on a quarterly basis in each calendar year and must report the information to the PRA as it may require from time to time:

- (1) its *exposures* divided by product type at a granular level, showing both level and trend;
- (2) the composition of collateral for *OTC derivatives*, showing both average level of collateral types and trend by collateral type;
- (3) backtesting results on representative counterparty portfolios, including the results on the following:
 - ten-day backtesting for collateralised trades of *OTC derivatives*; and
 - backtesting over at least a year for uncollateralised trades of *OTC derivatives*;
- (4) where the model relies on mapping to proxy trades, or on proxy market data, a list of the affected products showing both the level and trend of these products; and
- (5) results of the respective calculations to measure the *exposure* value at the *netting set* level and the counterparty level, including the current multiplier required under Schedule 2 and trends, and level of counterparties affected.