DOSSIER TO MONITOR AND DOCUMENT IRB METHODS FOR CALCULATING THE MINIMUM CAPITAL REQUIREMENTS FOR CREDIT RISK

The IRB Model Dossier is not a manual, but rather is intended to gather relevant information on the internal credit risk model to enable review and reasonable monitoring by a third party. Therefore, it may contain links to other files, documents, manuals, etc. which is not necessary to include in the Dossier.

The minimum structure of the Model Dossier will be as follows:

0. **Institution, author(s) and person responsible for content.**

1. **Definition/description of the portfolio.**
   - 1.1. **Identification:** Identify the portfolio to which the model is applied.
   - 1.2. **Description.** Describe the portfolio to which the model is applied (types of products, regulatory segments, internal segments). Specify the number of transactions and the total exposure (amount) corresponding to unrated transactions, explaining why they are unrated and evidencing their non-materiality.
   - 1.3. **Historical data** (quarterly frequency). Percentage obtained by taking the exposures represented by the portfolio to which the model is applied as a proportion of the total segment[1] in the unit[2] .
2. **Scoring or rating system.**
   - 2.1. **Version**. Identifier of the version
   - 2.2. **Type of model and main features**. Describe the method used to distinguish between transactions according to their risk. For example, credit scoring systems based on expert assessment, replicas of external ratings based on neuronal networks, etc.
   - 2.3. **Methodology and dynamics of the model.** Rank-ordering or classification system, and detailed description of its methodology. Analysis of behaviour during changes in the business cycle: is it point in time (PIT) or through the cycle (TTC)? Supporting evidence.
   - 2.4. **Discriminatory measures**. Tests used to calculate the discriminatory power of the ratings or scores used by the institution. Historical results.
   - 2.5. **Rating system manual.** The manual explaining how the rating or scoring system functions must be included as an annex[3].
   - 2.6. **Warning systems.** Document the warning systems set up and how they are integrated with the rating system.
   - 2.7. **Period of application and operation of the rating system.**

[1] Segment to which the portfolio corresponds according to the new capital Framework.
[2] The term unit refers, in most cases, to the whole institution. If the institution considers the scope of comparison to be smaller (i.e. the unit is not the whole institution), then this unit will have to be suitably defined, for example, business in Spain.
[3] In general, annexes can be presented as links to other files.

2.7.1. **Period of application**. Time that the current rating/scoring system has been in operation.

2.7.2. **Modifications of the rating or scoring**. This section contains the past history of the method used to distinguish between transactions. Changes in the weights of ratings or scores. Dates of the main events should be kept.

2.7.3. **Other significant events.**

2.7.4. **Summary table of the historical activity of the rating/scoring system.** This section will include an annual summary of:

2.7.4.1. Scoring systems. Number of applications and transactions finally approved

2.7.4.2. Rating systems. Obligors rated.

3. **Risk parameters and exposures.**

3.1. **Risk parameters**

3.1.1. **Probability of default (PD).**

3.1.1.1. **Definition.** Definition of default used to estimate PDs.

3.1.1.2. **Exceptions.** The exceptions to the definition of default should be duly documented (technical defaults).

3.1.1.3. **Type.** Describe what kind of probability of default is being estimated.

3.1.1.4. **Calculation.** Method used to estimate the parameter**,** detailing the treatment of credit risk mitigation techniques (CRMT)[4].

3.1.1.5. **Estimates**. Presentation of the latest PD estimates as well as a historical table of estimated PDs.

3.1.1.6. **PD Databases**. Detailed description of the calibration databases used in estimating PDs.

3.1.1.7. **Backtesting**. Analysis of the differences between the PDs used in the model and the realised default frequencies.

3.1.2. **Severity (loss given default, LGD).**

3.1.2.1. **Definition**. Definitions of default and loss used in the estimation of LGDs.

3.1.2.2. **Type**. Description of the kind of LGD being estimated according to the definition of loss used.

3.1.2.3. **Calculation**. Analysis method used to estimate the parameter, clearly stating which procedure is used to put the LGD estimates on an equal footing with the PD estimates whenever the definitions of default used in calibrating these two parameters do not coincide. CRMT treatment must also be specified[5].

3.1.2.4. **Estimates**. Presentation of the latest estimates of LGDs as well as a historical table of estimated LGDs.

3.1.2.5. **LGD Databases**. Detailed description of the calibration databases used to estimate LGDs.

3.1.2.6. **Backtesting**. Analysis of the differences between the LGDs used in the model and the realised severities.

[4] In those cases where the PD value is modified by Credit Risk Mitigation Techniques (CRMT).
[5] In those cases where the LGD value is modified by CRMT.

3.1.3. **Credit conversion factors (CCFs).**

3.1.3.1. **Definition**. Definition of default used in the estimation of CCFs.

3.1.3.2. **EAD Databases**. Detailed description of the calibration databases used to estimate CCFs.

3.1.3.3. **Calculation**. Analysis method used to estimate the parameter,

3.1.3.4. **Significant parameters**. Current value of the parameters used to estimate the CCFs and their changes over time. Those cases in which parameters change sharply should be analysed. Historical table containing estimates of CCFs.

3.1.3.5. **Backtesting**. Analysis of the differences between CCFs estimated by the model and those ones actually realised.

3.2. **Classified exposures.**

3.2.1. **Description**. Description of the classification or assignment process by which the exposures subject to regulatory capital are arranged in homogeneous classes so as to apply CCFs and obtain EADs.

3.2.2. **Credit Risk Mitigation Techniques, CRMT.** Description of the procedures established to calculate the exposures before and after application of CRMT[6], providing both figures.

3.2.3. **Distribution.** Analysis of the current portfolio composition by internal risk grade, concentration and type of instruments.

3.2.4. **Changes**. Descriptive analysis of the changes in the composition of the portfolio by internal risk grade, concentration and type of instruments.

3.2.5. **Historical table** of exposures by risk grade and type of instrument, with a quarterly periodicity.

4. **Model outputs.**

4.1. **Expected losses (EL).** Calculation and changes.

4.2. **Regulatory capital.** Calculation of the regulatory capital requirements for the analysed portfolio and their changes over time.

4.3. **Economic capital.** Calculation of the capital assigned internally to the analysed portfolio, and its historical behaviour.

5. **Internal validation.**

5.1. **Homogeneity analysis. Evidence supporting** the homogeneity of the set of transactions constituting the portfolio, giving reasons for the application of the same model.

5.2. **Transition matrix.** Analysis of the rating transition matrix. (Not applicable in the case of credit scoring systems.).

5.3. **Transition study**. Values of the rating transition matrix in recent years (not applicable in the case of credit scoring systems).

5.4. **Stability analysis**. Description of the different studies carried out to test the stability of the results obtained (confidence intervals, bootstrapping, etc..)

[6] In those cases where CRMTs alter the value of the exposure.

5.5. **Comparisons with other similar portfolios and benchmarking.** Comparisons of the results given by the model with those from other similar external or internal portfolios, for both outputs and risk parameters.

5.6. **Stress-test** (type, description of data and results).

6. **Technological environment, information systems and maintenance.**

6.1. **Periods of time covered by the calibration databases of each risk parameter: PDs, LGDs and CCFs.**

6.2. **Identification and description of the external sources used by the model.**

6.3. **Consistency, integrity and reliability.** Results of the studies carried out in databases on the consistency, integrity and reliability of the information stored in them.

6.4. **Processes.** Analysis of the processes used to obtain calibration databases and regulatory capital figures from the institution's applications and databases.

6.5. **Stored information.** Description of the applications and databases used to store information on rating systems, estimated parameters and any other relevant aspect, indicating the persons responsible.

7. **Qualitative matters.**

7.1. **Policies.** Summary of institution's credit policies (credit approval and renewal policy and pricing policy) and the delegation of powers. It is necessary Description of those situations in which the institution is trying to penetrate a new market.

7.2. **Senior Management.** Involvement of senior management in implementation of the model. Organisational structure identifying the responsibilities and functions of the different areas involved in credit risk management and control, as well as the committees set up.

7.3. **Human resources.** Details of the human resources in the different areas relating to credit risk control and measurement, as well as their qualifications.

7.4. **Credit extension.** Description of the process of granting facilities and of the implications of the rating or score. Compliance with internal rules.

7.5. **Exceptions.** Treatment of exceptions, as well as a summary of those facilities granted without following the established procedures.

7.6. **Uses of the model.** Identification and description of the processes for which the model outputs are used, for example credit approval, pricing, setting limits, capital, etc.. Identification of and reasons for all the differences between the risk parameters used in management and those used to calculate regulatory figures

7.7. **Reporting.** Enumeration and short description of the reports produced using data from the model, for example those remitted to senior management, control reports, etc.

7.8. **Securitisation.** Securitisation policy. Identification of securitisations and their main features.

7.9. **Manuals**. List of all internal manuals relating to the information of this Dossier[7].

[7] Specifying their location or providing links to them.

8. **Internal controls.**

8.1. **Descriptions of the internal controls** used to ensure consistency in the credit approval process, the reliability of the data used to analyse the transaction, etc.. Indicate the persons responsible and their functions.

8.2. **Controls of risk parameters and explanatory factors**[8]**,** showing the dates of recalibrations and the analyses of the discriminatory power of such factors.

9. **Independent reviews**.

9.1. **In particular, analysis carried out by an independent department (**internal or external) so as to ensure the reliability of database information, the way facilities are approved, the computer processes used to obtain calibration databases, etc..

9.2. **Inventory of independent reviews** (Banco de España, Internal audit, External audit, consultants), aims of the reviews and the conclusions drawn.

10. **Weaknesses and future developments.**

10.1. **Knowledge of weaknesses**. Description of any known weakness of the model and the anticipated timetable for remedying or improving them.

10.2. **Future changes**. Details of expected changes or future plans relating to the models and systems used to measure and control the risks arising from this portfolio.

11. **Acronyms, terminology and definitions.** Description of the terminology and definitions used by the institution.

[8] Explanatory factors are those variables used in the rating system in order to assess the creditworthiness of the obligor /transaction.