DRAFT CIRCULAR FOR COMMENTS

RBI/2024-25/
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All Commercial Banks (including Regional Rural Banks and Local Area Banks)
All Primary (Urban) Co-operative Banks
All State Cooperative Banks & Central Cooperative Banks
All Non-Banking Financial Companies (including Housing Finance Companies)
All All-India Financial Institutions

Madam/Dear Sir,

Regulatory Principles for Management of Model Risks in Credit

Regulated Entities (REs) use various models as part of credit management life cycle for borrower selection, credit scoring/ rating, pricing, risk management, credit loss provisions etc. Inherently, model outputs are exposed to uncertainties as they are based on assumptions which may not manifest in the envisaged ways and may take different forms in a real-world scenario. This potentially exposes the REs to model risk, which has implications on prudential aspects of credit risk management, compliance and reputational risk. While the application of technology in models has facilitated faster decision-making under complex scenarios, it also adds complexity to the model risk management framework implying the need for a comprehensive understanding, a robust validation mechanism as well as appropriate governance and oversight.

2. With a view to ensuring prudence and robustness, in the use of such models, it has been decided to lay down certain broad regulatory principles as provided in the Annex which shall be adopted by the REs.

3. The circular shall come into force within three months from the date of issuance. New credit models to be adopted by REs shall follow these guidelines with effect from the above date and the existing models shall be validated in terms of these guidelines within six months from the date of issuance of this circular.

4. The above instructions are issued under Sections 21, 35A and 56 of the Banking Regulation Act, 1949, Sections 45JA, 45L and 45M of the Reserve Bank of India Act, 1934, and Sections 30A, 32 and 33 of the National Housing Bank Act, 1987.

Yours faithfully,

(Vaibhav Chaturvedi)
Chief General Manager

Regulatory Principles for Management of Models Risks in Credit

A. Definition:

1. '*Credit risk model'* refers to any quantitative method that applies statistical, economic, financial, or mathematical principles and assumptions to process data into an output to be used for credit decisions.

Credit decisions, for the above purpose, shall cover all decisions involved in management of a credit exposure and may *inter alia* include credit scoring and borrower selection; pricing of loans; risk analysis of various loan categories; estimating loan loss provisions and economic capital.

B. Governance and oversight

2. Regulated Entities (REs) shall put in place a detailed Board approved policy (hereinafter referred to as 'policy') with regard to model risk management framework for all models deployed, covering the entire model life cycle. The policy shall cover, *inter alia*, details of governance and oversight aspects commensurate with model materiality; processes around model development or selection; documentation for models deployed; independent vetting / ongoing validation or review processes; change control; and the monitoring and reporting framework including role of internal audit function. The policy shall also cover the approach with regard to adoption and usage of third-party models. The REs shall maintain a Model Inventory of approved models, insourced or outsourced, with critical information on it.

3. The deployment of individual credit models adopted under the policy, and any subsequent changes in their inputs or assumptions, shall be with the approval of the Risk Management Committee of the Board (RMCB) or any other Sub-Committee, as designated by the Board.

C. Model development and deployment

4. The models used by the REs may either be developed internally or sourced from external third-party suppliers, including under collaborative lending arrangements, or can be a mix of both as per the provisions of the policy, subject to the following broad principles:

a. The objectives of the model, problem statements and solution sought from the model should be clearly defined and shall be essential pillars of model development.
b. The inputs and assumptions considered for the model development shall ensure adequate robustness, with a view to effectively address the intended objectives of the model on a consistent basis.
c. There shall be a detailed documentation for each of the models which should include the details of the sensitivity of the outputs to the assumptions and inputs, to facilitate clear understanding by RE’s users, its top management and supervisors.
d. The model should have the necessary scalability and flexibility to meet the needs of dynamic business conditions.
e. The model shall have the necessary interface with core banking/financial system, liquidity management, asset liability management (ALM) or any other risk management system of the RE.
f. Outcomes of the model shall be consistent, unbiased, explainable and verifiable. The same shall form part of the model validation framework.
g. In case subjective factors are used to override model outcomes, then the same shall be as per the provisions of the policy and such deviations shall be suitably documented in an auditable format.

5. In cases where outsourced/ third party models are used, the models shall *mutatis mutandis* be subject to above broad principles. The contractual agreements with the third parties shall provide for access by the RE to minimum technical documentation on the models being used or acquired that should give reasonable understanding on design, configuration and operation of the model. REs shall be ultimately responsible and accountable for the integrity and outcomes of outsourced models.

D. Model validation framework

6. REs shall put in place a model vetting / validation process, independent of model development / selection, for assessing the robustness of models developed inhouse or otherwise. Each model shall be validated before deployment as well as after any subsequent amendments owing to material events or as part of periodic reviews,

which shall be at least on a yearly basis. The REs may also consider engaging external experts for validation of the models deployed by them, as provided under their policies.

7. The validation exercise shall *inter alia* include review of assumptions underlying the model for their validity / substantiation; verification of the accuracy of data used in the model and reliability of data sources; confirming compliance with extant regulatory / statutory instructions; evaluation of model documentation for completeness and accuracy, and assessment of the efficacy of the model outcomes through back-testing. Besides, the validation exercise shall comprehensively review all the limitations and weaknesses in the models, including instances of bias or discrimination, if any, to ascertain the need for suitable corrective measures.

8. Validation outcomes shall*, inter alia*, be in terms of suitable and easily understood *ex ante* parameters. The results should be compared against benchmarks prescribed in the policy framework and should be placed before the Risk Management Committee of the Board (RMCB) or the designated Sub-Committee of the Board as mentioned at clause B above.

9. The models deployed by the REs shall be subjected to supervisory review. The Reserve Bank may also engage external experts to validate the models deployed by REs, including the external models deployed for their credit management, based on supervisory risk perception. Accordingly, wherever REs have engaged external models in terms of clause C above, such arrangements shall include appropriate contractual provisions enabling supervisory evaluation of such models either directly by the Reserve Bank officials or by other external experts as engaged by the Reserve Bank.

List of Instructions repealed

Sl No	**Circular Number**	**Date of Issue**	**Subject**
1	Guidance Note on Credit Risk Management (Chapter 3 - Credit Risk Models alone repealed)	October 12, 2002	Credit Risk Management