Grant Thornton

# Model Risk Management Principles for Banks

Quantitative Risk

# Introduction

In May 2023, the PRA has issued a Supervisory Statement (SS1/23) as part of a Policy Statement (PS 6/23) which also incudes feedback on the consultation paper (CP) 6/22 - Model Risk Management Principles for Banks. The policy becomes effective on Friday, 17 May 2024.

## What does SS1/23 include?

- Guidance and sets standards for how the regulated UK-incorporated banks, building societies, and PRA-designated investment firms should manage model risk. Notably, the SS does not apply to credit unions, insurers, and reinsurers, but third-country firms operating in the UK through a branch can still benefit from the outlined principles.
- When the Supervisory Statement (SS) was published, the Prudential Regulation Authority (PRA) had not finalised its definition of 'Simpler-regime Firms' within the Strong & Simple Framework. As a result, at this stage the PRA has narrowed the scope of the expectations in SS1/23 to apply only to firms with internal models (IM).
- It presents five high-level principles that encompass the entire model lifecycle, enabling effective management of model risk across all model and risk types.

## What's the purpose of SS1/23?

To enhance and fortify the policies, procedures, and practices concerning the utilisation of various models within regulated institutions. This includes models developed both internally and externally, as well as those used for financial reporting purposes.

## What's PRA's view?

The PRA views the principles in the Supervisory Statement (SS) as essential core disciplines for achieving effective Model Risk Management (MRM) across all models and risks, promoting MRM as a distinct risk discipline for firms.

## What does it mean for European banks?

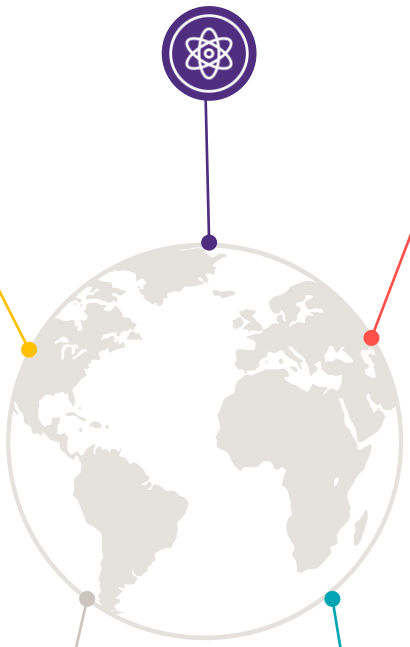
The 2023 guide to internal models published by the ECB offers high-level information on implementing the model risk management framework. Although the Model Risk Management Supervisory Statement is specifically aimed at UK banks, the detailed principles and practices it contains can be customised and utilised to support European banks as well.

# Background

The Supervisory Statement (SS1/23) on Model Risk Management (MRM) principles for banks addresses model usage challenges, emphasising robust governance and effective MRM practices.

### How can firms ensure the correct implementation and use of quantitative methods?

Firms use various quantitative methods, including models, to support their daily operations and business decisions, and **good risk management involves testing their correct implementation and use.**



### What is Model Risk?

Model risk is **the possibility of adverse consequences from model errors or improper use in business decisions,** with risk increasing as models become more complex, uncertain input data is used, and interconnected models and data sources are involved.

### Why Model Governance & Risk Management is important?

Firms' extensive use of models for **business decisions, risk management, reporting,** and increasing reliance on sophisticated modeling techniques, emphasises the need for robust model governance and effective Model Risk Management (MRM) practices to **avoid adverse consequences arising from inadequate design, implementation, and usage of models.**

### Does MRM eliminate all risks?

An effective Model Risk Management (MRM) framework, including comprehensive governance and oversight, coupled with model lifecycle management covering core modelling, model validation, and model risk controls, **helps reduce model risk but cannot eliminate it.**

### What are the key elements of Effective MRM?

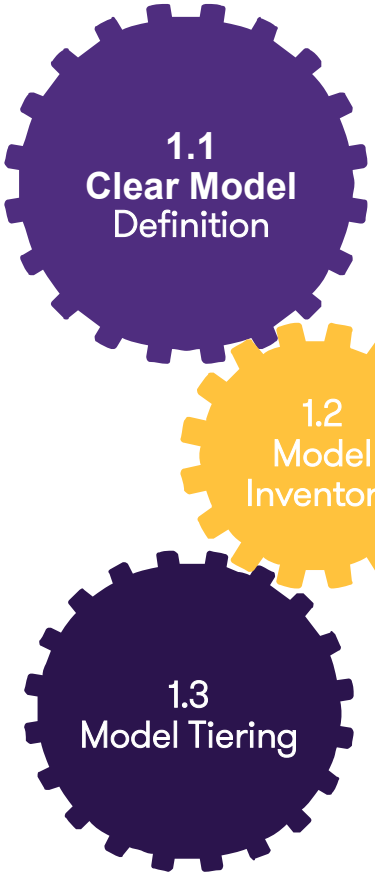
Effective Model Risk Management (MRM) relies on defining **clear roles for model owners, users, and developers,** establishing a **designated MRM function or committees for risk controls and validation,** ensuring validators' impartiality, and implementing robust governance and model lifecycle management processes.

# Overview of the principles

The MRM principles included in the Supervisory Statement (SS1/23) are crucial for establishing a robust framework to support key business decisions and align with the board's model risk appetite, ensuring effective MRM practices.

## Principle 1: Model identification and model risk classification

**Firms should have a clear definition of models, maintain a complete model inventory, and employ a risk-based tiering approach to prioritise validation and identify high-risk models.**




1.1. Firms should have **a formal definition** of a model for their Model Risk Management (MRM) framework, including quantitative methods for processing data and implementing management controls for impactful deterministic methods (e.g., decision-based rules or algorithms not classified as models).

1.2. Firms should maintain a **complete and accurate model inventory** to identify model risk sources, facilitate reporting, and reveal direct and indirect model inter-dependencies, including details such as model purpose, use, assumptions, limitations, validation findings, and governance information.

1.3. Firms should **implement a consistent risk-based model tiering approach** that assesses materiality and complexity, prioritises validation activities, and identifies models with the highest risk to the firm's business activities and safety, with periodic validation and reassessment of model tier assignments.

# Overview of the principles

## Principle 2: Governance

**Firms require robust governance oversight, with a board that encourages an MRM culture from the top, establishes a well-defined model risk appetite, approves the MRM policy, and designates an accountable individual to implement an effective MRM framework.**


2.1. The board of directors is responsible for establishing a **comprehensive Model Risk Management framework, setting a model risk appetite, receiving regular reports on model risk, and challenging the outcomes** of the most significant models.


2.2. A relevant Senior Management Function (SMF) **oversees the Model Risk Management framework, including implementation,** maintenance, compliance, independent validation, and resource allocation. It should promptly address and **rectify any framework issues, clarify roles and responsibilities** of model owners, developers, and users within the firm.


2.3. Firms should develop and **maintain comprehensive policies and procedures that establish the framework,** align with broader risk management policies, and **cover all aspects of the model lifecycle** to ensure effective implementation, risk identification, and timely addressing of model risks.


2.4. To ensure effective Model Risk Management (MRM), firms need to **define roles and responsibilities,** document the essential skills, experience, and expertise required for each stage of the model lifecycle, and establish responsibilities for monitoring and validation processes of the models.


2.5. Internal Audit (IA) **evaluates MRM framework efficiency, adherence to policies, and conducts independent assessments** of risk controls, validation activities, compliance with internal policies, and processes by model owners and model risk control functions.


2.6. **Boards and senior management are responsible for model risk management,** even in third-party arrangements. Firms should validate vendor models to internal standards, verify data and assumptions, and monitor vendor model performance. Subsidiaries can use parent-group validation models based on certain conditions.

# Overview of the principles

## Principle 3: Model Development, Implementation and Use

**Firms should establish a robust model development process, including standards for design, implementation, selection, and performance measurement, with regular testing to identify, monitor, record, and address model limitations and weaknesses.**


3.1. Models should be purpose-driven, with **well-designed objectives, conceptually sound variables, accurate calculations,** and **valid assumptions**, and should be **compared to alternative approaches**, with clear communication of merits, limitations, and sensitivities to stakeholders.

3.2. The model development process should ensure **suitable and unbiased data usage, compliance with data regulations, and appropriate documentation of adjustments and limitations**, with consideration of interconnected and alternative data sources for tier classification and validation.

3.3. Model development testing should assess a **model's functionality and quality** through backward and forward-looking performance tests, **comparisons with challenger models, and testing for material model changes**, including dynamic models.

3.4. Firms must effectively **manage model limitations and uncertainties**, employing **expert judgment for justified adjustments, proper documentation**, and considering **potential impacts on related models** and the need for remedial actions.

3.5. Firms must maintain **comprehensive and up-to-date model documentation**, including data sources, methodology, performance testing, and model limitations with expert judgment used for adjustments, ensuring it allows for independent understanding and validation.

3.6. Models should be **implemented in thoroughly tested and suitable information systems**, subject to rigorous quality control and change control processes, and **periodically reassessed** for continued suitability.

# Overview of the principles

## Principle 4: Independent Model Validation

**Firms should establish an ongoing, independent, and effective validation process that addresses model development and usage, ensuring prompt action on remediation or redevelopment recommendations to ensure models suit their intended purpose.**


4.1. Firms must have an independent validation function that **objectively assesses model suitability, system design, data accuracy**, and **output relevance**, providing **periodic re-validation** and **timely recommendations** for model approvals.

4.2. All models must be subject to an independent review to **assess suitability**, covering all components, **data quality**, and **evidence**, and **considering materiality** based on the model's tier and any changes made.

4.3. Firms must conduct process verification to confirm the **effective and accurate functioning of model components**, including inputs, calculations, and reporting outputs.

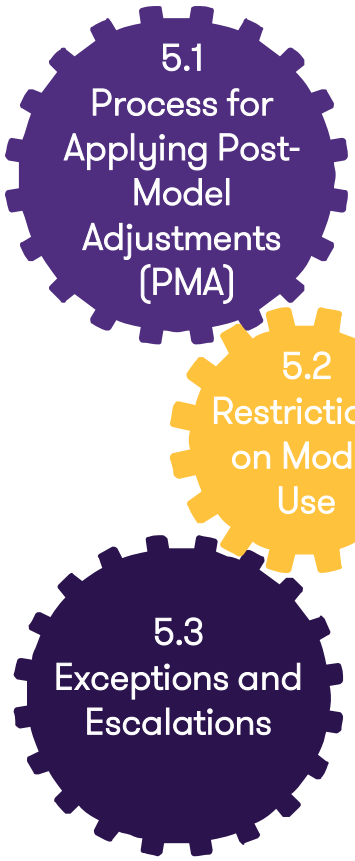
4.4. Firms should **continuously monitor model performance**, using a variety of tests to **assess validity, assumptions, and potential adjustments**, with **timely and accurate reports** that are subject to independent review.

4.5. Firms should periodically conduct **less detailed independent revalidation** of models to ensure they have **operated as intended** and to determine the **validity of previous findings.**

# Overview of the principles

## Principle 5: Model Risk Mitigants

Firms should have policies for using model risk mitigants during under-performance and procedures for independently reviewing post-model adjustments.



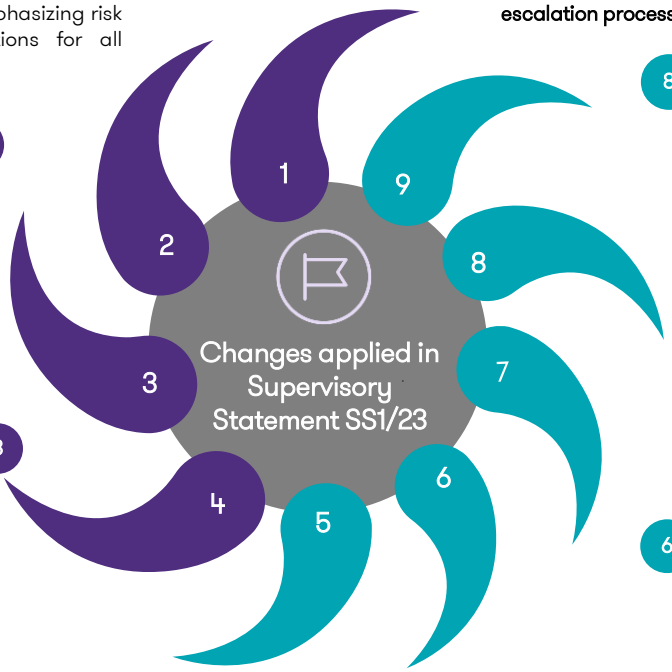

5.1. Firms should establish a **documented and consistent process for applying post-model adjustments (PMAs)** to address model limitations and ensure their appropriate use, supported by senior management and subject to independent review.

5.2. Firms should **apply restrictions on model use** if significant deficiencies or errors are identified during validation, **documenting the issues and tracking the remediation status**.

5.3. Firms should establish and implement **procedures for managing temporary exceptions in model use**, subject to post-model adjustments, and promptly **communicate model exceptions to key stakeholders** through escalation processes.

# Feedback & Changes

The PRA's five principles are considered as key for an effective Model Risk Management Framework. The main changes applied to the scope and principles by PRA, based on the feedbacks received on the previous consultation paper (CP6/22) are presented below:




### Scope 1

The PRA's SS1/23 **narrowed its scope** to apply only to Internal Model (IM) firms, with a future update planned for other firms, including 'Simpler-regime Firms,' while emphasizing risk management expectations for all firms.

### Senior Management Function 2

Amendment of Principle 2.2 to **eliminate ambiguity in the responsibilities of Senior Management Functions (SMFs)** and explicitly state that multiple SMFs may be appointed

### Financial Reporting 3

**Replacement of accounting reference with financial reporting** to clarify that the aim is to provide accessible Model Risk Management (MRM) reporting to the audit committee.

### Model Tiering 4

The PRA has clarified that firms can choose **relevant factors to determine model complexity in model tiering**, as indicated in Principle 1.3 (c).

### 5 Subsidiaries

Subsidiaries can **utilise the validation outcome of models developed by their parent-group** if certain conditions specified in Principle 2.6 (c) are fulfilled.

### 6 Dynamic Recalibration

Combination of the expectations for models that recalibrate dynamically, **previously stated in Principle 3.3 (d), with the clause on model changes in Principle 3.3 (e).**

### 7 Post-Model Adjustments (PMAs)

The PRA has recognised model adjustments as a crucial risk management tool in Principle 3.4 and emphasised **the need for proportionality in dealing with post model adjustments** in Principle 5.1.

### 8 Model documentation on vendor models

**Clearer guidance** on the expected model documentation for vendor models in Principle 3.5.

### 9 Escalation Processes

Changes to Principle 5.3 in order to make it less prescriptive and more principles-based in accordance with the intentions of CP6/22, with a **focus on escalation processes.**

# What can firms do to prepare?

Companies ought to prioritise a swift diagnostic process aimed at pinpointing significant gaps and immediate actions for improvement. This should precede a thorough self-evaluation and the formulation of a program to enhance capabilities.

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NEXT 6 MONTHS

WITHIN 12 MONTHS OF SS PUBLICATION

ONGOING

## Vision, Technology & Operating Model

- ✓ A vision to formulate a model risk management framework which will cover significant shifts in certain MRM aspects.
- ✓ Explore and improve technologically-driven solutions for managing inventories, measuring MRM, and reporting.
- ✓ Create a specialized team to achieve and uphold your envisioned MRM future, involving collaboration across functions.
- ✓ Guarantee ample resources for meeting upcoming demands and implementing improvements effectively.

## Gaps Identification & Educational Sessions

- ✓ Place an emphasis on conducting a targeted diagnostic process, to identify any existing gaps between the established requirements and the PRA's five principles as well as 2023 ECB guide to internal models.
- ✓ Take immediate actions to make fast improvements by implementing enhancements to the MRM.
- ✓ Engage in comprehensive educational sessions with both the Board and Senior Management to promote a high-priority agenda for model risk management from the top-down.
- ✓ Make sure the broader organisation is informed about the requirements and how they will affect their respective responsibilities.

## Self-Assessment & Enhancement Roadmap

- ✓ Conduct a self-evaluation within a year of the publication of the SS, results for *UK banks will potentially be submitted to the PRA; likewise, European banks are advised to assess their alignment with the latest ECB guidelines. Given that PRA principles are more detailed, European banks can also utilise and customise them to implement their model risk management framework.
- ✓ Create a comprehensive plan to address gaps and improve alignment with the MRM requirements and goals.
- ✓ Establish a robust reporting framework for model risk, particularly emphasising effective reporting on MRM performance for financial models.
- ✓ Compare and measure against industry peers' leading approaches in managing model risk.

## Monitoring & Awareness

- ✓ Continuously monitor and adjust the MRM approach as needed.
- ✓ Foster a culture of awareness and continuous improvement in MRM practices.
- ✓ Adapt to changes in regulations and industry standards related to MRM.
- ✓ Stay informed about emerging technologies that could further enhance MRM capabilities.
- ✓ Enabling ongoing team proficiency through regular requirements and guideline updates in MRM.

*Note: The scope of the SS1/23 includes banks, building societies and designated investment firms.

# How Grant Thornton can support you

Elevate your Model Risk Management with our expertise in assessments, policies, governance, technology, and compliance.

### Assessment and Gap Analysis

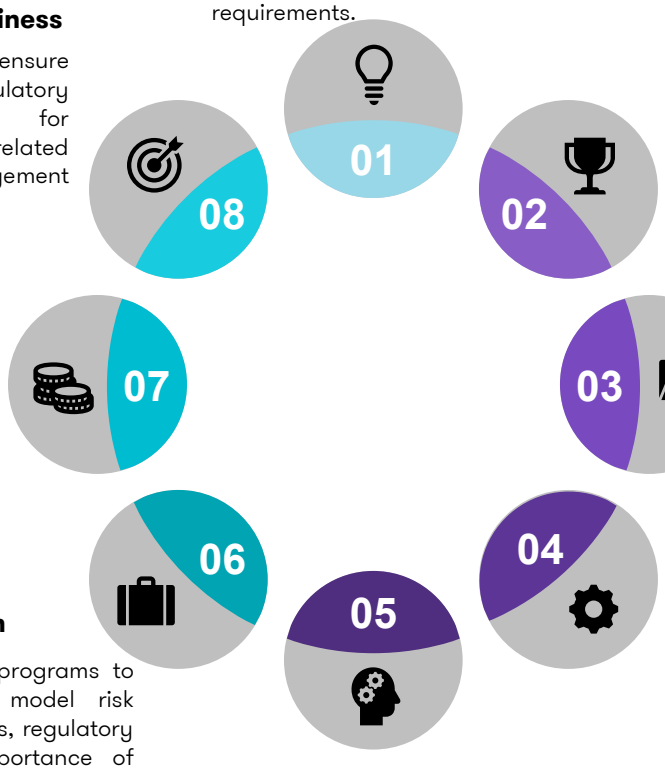
We can evaluate your current model risk management framework, identifying gaps and areas for improvement in alignment with industry best practices and regulatory requirements.

### Policy and Procedure Development

We can help you to design and enhance comprehensive model risk management policies and procedures tailored to your needs, covering model development, validation, monitoring, and governance.

### Regulatory Compliance and Examination Readiness

We can help you ensure compliance with regulatory guidelines, preparing for examinations and audits related to model risk management practices.




### Technology Solutions

We can offer guidance on implementing specialised model risk management platform to streamline processes, improve data management, and automate reporting.

### Model Validation

We can perform independent model validations, ensuring models are accurate and suitable for their intended purpose by reviewing assumptions, methodologies, data quality, and performance.

### Training and Education

We can provide training programs to educate your staff on model risk management best practices, regulatory compliance, and the importance of adhering to established procedures.

### Risk Identification and Assessment

We can assist you in identifying and quantifying model-related risks, aiding in prioritising models for validation and resource allocation.

### Governance and Framework Estsablishment

We can support the establishment of a robust model risk governance framework, defining roles, responsibilities, reporting lines, and oversight structures.

# Contact

Our team can support you in implementing effective model risk management practices to ensure accurate and reliable model performance, validation, and ongoing monitoring. Our services are flexible and efficient, designed to facilitate and support your business model. Contact us today to discuss.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