Model Risk Management Practices in ever-evolving environments*

Presenter

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*The views expressed in this report here are those of the authors alone and not meant to represent the views of Fidelity International

PRA Supervisory Statement SS1/23

Objective

Provide guidance to a sound Model Risk Management (MRM) in five principles intended to support firms to strengthen their policies, procedures, and practices to identify, manage, and control the risks associated with the use of models.

1 Model identification and model risk classification

1. Model Definition: quantitative method with modelling assumption as well as **complex, deterministic quantitative approaches**
2. Model inventory: information relevant to manage model
3. Model tiering: consider materiality and **complexity***.

2 Governance

1. Board of directors' responsibilities: e.g. set a model risk appetite . MRM framework promote an understanding of **model risk**, on both an individual model basis as well as in **aggregate across the firm**
2. Senior Management Function ensuring effectiveness of MRM framework

3 Model development, implementation, and use

1. Model purpose and design, use of data, Model development testing, Model adjustments and expert judgement,
2. Model development documentation: enhanced (including **third party vendor**) and **third-party vendor models validated** at the same standards as internal models

4 Independent model validation

1. independent validation function
2. Independent review
3. Process/Implementation verification
4. Model performance monitoring
5. A range of tests for model monitoring (benchmarking, sensitivity testing, analysis of overrides, parallel outcomes analysis.

5 Model risk mitigants

1. **Post-model adjustments (PMAs**) strengthen governance around PMA, documenting, control framework, transparent, impact assessment and validated
2. Restrictions on model use
3. Exceptions and escalations

Interpretability (degree to which the cause of a decision can be understood), explainability (the degree to which the workings of a model can be understood in nontechnical terms), data bias (more heavily weighted and/or represented than others, producing results that could have ethical and/ or social implications)

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ESG and Model Risk

Observation

- Absence of market modelling standards
- Divergent ESG metrics/views across vendors
- Increasing availability of data and regular model changes
- Ongoing changes of regulatory requirements

Model Limitation

- Documentation of model specification, testing, assumption, data gaps and limitations

Model Usage

- Model User Guideline
- Understand the potential disagreement of data across vendors (assumption, data, methodologies)
- Identity the appropriate use case
- Post Model Adjustment and robust Models combination or integration
- Benchmarking

Model Governance

- Overarching views or thematic weaknesses identified→ aggregation of Model Risk
- Ongoing reviews require more collaboration between Compliance, ESG and Model Risk teams

Procurement Process

- Robust procurement process that highlight the business preference taking into consideration the objective but also limitation

Digital Assets and Model Risk

Observation

- Younger age groups (Millennials & Gen Z) form a strategically targeted client base by Investment Managers, who aim at building clients' loyalty in order to build and maintain sustainable long-term relationships.
- Digital Asset is growing very quickly and becoming an important asset class, attracting investment not only from relatively young individuals but investment firms as well
- Digital Asset as asset class present some features that would challenge suitability and conceptual soundness of existing modelling approaches.
- Weak global regulatory guidance

Model Specification and Calibration

- Portfolio Construction
- Risk Profiling and Loss Capacity
- Investment Selection/Mapping
- Stress testing
- Post Model Adjustment
- Benchmarking

Model Governance

- Data limitations: data quality and length
- Performance metrics and monitoring (thresholds, novel metrics)
- Post Model Adjustment

Skills

- Demonstrate adequate level of skills, knowledge and expertise.
- Training programmes to better understand Digital Assets Internal and help building up internal expertise
- More collaboration between Business, Compliance, Model Risk and Model Developer

AI and Model Risk

1	**Model tiering**	• Enhancement of Model Tiering including complexity and organisation risk appetite
2	**Model Design and calibration**	• Opacity/Complexity (hidden layer, challenging interpretation, explainability) • Performance metrics required enhancements • Testing limitation • Need deep subject matter expertise
3	**Implementation**	Open-Source package or third-party vendor
4	**Model Usage**	Post Model Adjustment process to ensure model remain fit for purpose and output are appropriately used.
5	**Performance /Monitoring**	• Novel performance and risk metrics (qualitative outputs, fairness/ ethic) • Constant monitoring and review to evaluate performance and testings taking into consideration the retrained–model/model changes • Benchmarking
6	**Data Usage**	Data policy and framework should be enhanced (data sourcing, filtration, biases, etc
7	**Skills**	Lack of skills with AI/ML and Model Risk experience.

Effective Model Risk Management practices require more collaboration and synergies across teams (Model Risk, Legal/Compliance, Developer, Data and User) than traditional models in an ever-evolving economic environment

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Thank you

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