

## OCC Comptroller's Handbook: Model Risk Management

*Deloitte's Perspective*

August 26, 2021

# OCC Comptroller's Handbook: MRM – at a glance

## Overview

- The OCC released its “Comptroller’s Handbook: MRM<sup>1</sup>” in August 2021, long-awaited since prior guidance, signaling a renewed focus on Model Risk Management (MRM) and learnings over the last decade with specific points of emphasis. However, of particular note, this was not issued on an interagency basis (with Federal Reserve or FDIC). Nevertheless, these elements can be applied on an enterprise level.
- At more than 100 pages, the Comptrollers Handbook reaffirms the foundational principles of OCC 2011-12, introduces its expectations with respect to emerging MRM topics and their connectivity to artificial intelligence (AI) and third-party related risk, and provides a detailed view into its approach for examiners and the institutions they supervise in assessing MRM frameworks.
- This presentation highlights key incremental areas of focus highlighted in the OCC guidance since OCC 2011-12 and our Deloitte perspective.

Focus area	Summary areas of regulatory focus	Page #
Artificial intelligence & MRM	<ul style="list-style-type: none"> <li>• Handbook defines AI, but stops short of indicating if AI should be categorized as a model</li> <li>• Sets clear expectations around AI risk management, regardless if categorized as model or non-model</li> </ul>	#3
Third-party models & data	<ul style="list-style-type: none"> <li>• Handbook reaffirms a bank’s ownership of, and responsibilities for, third-party models and data</li> <li>• A detailed list of information that banks should obtain from third party model providers is included in the Handbook</li> </ul>	#4
Risks associated with the use of models	<ul style="list-style-type: none"> <li>• Handbook introduces eight risk categories potentially impacted by model use / model risk</li> <li>• Multi-dimensional view of model risk will help banks and the OCC assess model risk individually and “in the aggregate”</li> </ul>	#5
OCC examination procedures for MRM assessment	<ul style="list-style-type: none"> <li>• Handbook introduces procedures to assist with the OCC’s examination of a bank’s MRM framework</li> <li>• The examination procedures provide a level of transparency into OCC expectations</li> </ul>	#6
Internal controls	<ul style="list-style-type: none"> <li>• The Internal Control questionnaire is a newly added section within the MRM guidance</li> <li>• The questionnaire, comprising 10 focus areas, is a checklist that can help identify opportunities for control improvements</li> </ul>	#7
The three lines of defense	<ul style="list-style-type: none"> <li>• Handbook introduces the three lines of defense and highlights the importance of the approach for each line</li> <li>• “Independent Risk Management” (IRM) is the name provided to 2<sup>nd</sup> line functions that perform model validation</li> </ul>	#8

<sup>1</sup> Model Risk Management: New Comptroller's Handbook Booklet: <http://www.occ.gov/news-issuances/bulletins/2021/bulletin-2021-39.html>



# Emerging risks: Artificial intelligence & MRM

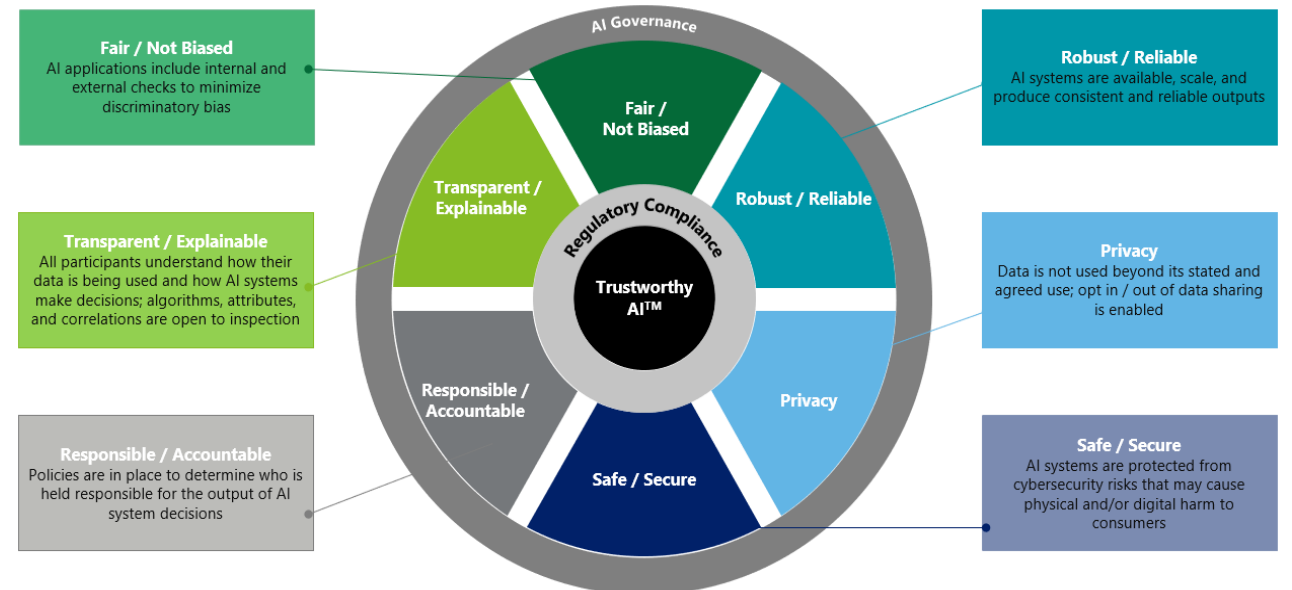
## OCC guidance: at a glance

AI and the role of MRM are introduced / contemplated in the Comptroller's Handbook:

- AI has been defined:
  - "AI is broadly defined as the application of computational tools to address tasks traditionally requiring human analysis."
- Handbook stops short of indicating if AI should be categorized as a model, but sets clear expectations around risk mgmt.:
  - "Regardless of how AI is classified (i.e., as a model or not a model), the associated risk mgmt. should be commensurate with the level of risk of the function that the AI supports."
- Sound AI risk mgmt. is described in detail, which mirror many foundational elements of MRM. Example activities:
  - "An inventory of AI uses"
  - "Identification of the level of risk associated with each AI"
  - "Effective process to validate that AI use provides sound, fair, and unbiased results"
- Examples of potential enhancements to the MRM framework are provided: "Assess if model ratings take explainability into account"

## Deloitte's perspective

- Many organizations have already begun to assess their current MRM framework to determine the nature and scale of required enhancements for an increasingly AI-driven model environment.
- Key components of the MRM life-cycle, such as the periodic nature of model validation, ongoing monitoring, and the change-control process, are being assessed for the dynamic / ever-changing nature of AI models.
- Deloitte has identified six critical components of a sound AI risk management program, which may be incorporated in the existing MRM framework:





# Emerging risks: Third-party models & data

## OCC guidance: at a glance

The Comptroller's Handbook reaffirms a bank's ownership of, and responsibilities for, third-party models and data and connectivity to broader third-party risk management approaches:

- "A bank's use of third-parties does not diminish the responsibility of the bank's board and senior management..."
- "Management should conduct appropriate due diligence on the third-party relationship and on the model itself"

A detailed list of information that banks should obtain from third party model providers is included in the Comptroller's Handbook:

- "Developmental evidence explaining the model's components, design, and intended use"
- "Information regarding the data used to develop the model"
- "Sufficiently detailed testing results that show the third-party's model works as intended"
- "Documentation on the model's limitations and assumptions"; "Clear instructions for model implementation"

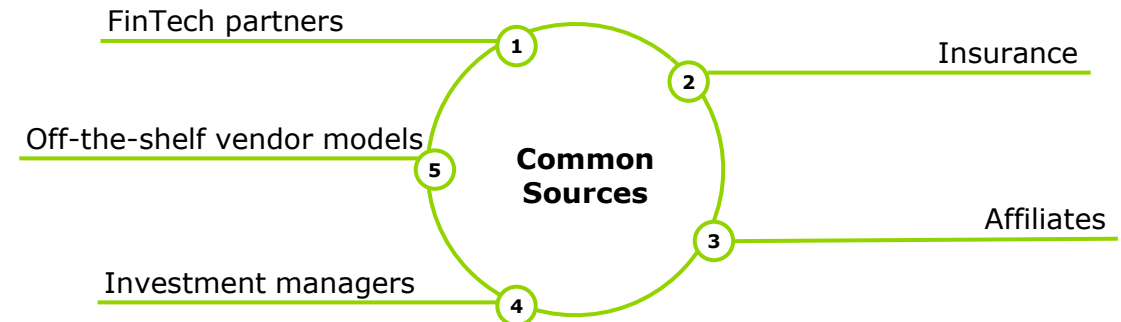
Instruction is given to "understand and evaluate the results of validation by third-parties"

This offers an opportunity to highlight model risk arising from use of third parties and implications for third party risk management and operational considerations.

## Deloitte's perspective

- Managing third-party model risk has traditionally been challenging since the underlying model and data are proprietary to the third-party.

- Common sources of third-party model and data risk:



- There's been a recent uptick in banks requesting evidence of model validation and MRM from third-parties.
  - For example, many FinTechs are currently implementing MRM programs, and conducting validations, at the request of their banking partners, or for promotional purposes (to solicit a banking partner)
- Many banks rely on challenger models and enhanced back-testing / outcomes analysis (where possible), to supplement information provided by third-parties.
- As a final resort, banks often rely on enhanced internal controls, contingency plans, and additional reserves, if sufficient effective challenge cannot be performed on third-party models.



# Foundational risks associated with the use of models

## OCC guidance: at a glance

The Comptroller's Handbook reinforces its eight categories of risk for bank supervision purposes that factor into a CAMELS rating assigned to the bank entity:

- Strategic risk: *Poor business decisions/implementation*
- Operational risk: *Failed internal processes or human errors*
- Reputation risk: *Negative public opinion*
- Compliance risk: *Violations of laws or regulations*
- Credit risk: *Failure to meet the terms of contract*
- Liquidity risk: *Inability to meet obligations*
- Interest rate risk: *Interest rate impacts to earnings/capital*
- Price risk: *Changes in the value of trading portfolios*

The use of models invariably presents model risk that can affect all risk categories. These risks should be examined individually and in the aggregate:

- "These risks are not mutually exclusive"
- "Any product or service may expose a bank to multiple risks, and they may also be interdependent and positively or negatively correlated";
- "Concentrations may accumulate within and across products, business lines, geographic areas, countries, and legal entities"

## Deloitte's perspective

- An effective MRM framework is multi-dimensional and contemplates a range of tactical considerations, management strategies, and organizational culture.
- The different types of risks that can be addressed with a structured approach for measurement, management, and monitoring of risks include:





# OCC examination procedures for MRM assessment

## OCC guidance: at a glance

The Comptroller’s Handbook introduces procedures to assist with the OCC’s assessment of a bank’s MRM framework, including:

- **Scope:** Procedures to help determine the scope of the MRM examination
- **Quantity of risk:** Procedures to determine the quantity of each risk associated with the bank’s model use (Note: the Comptroller’s Handbook lists detailed considerations for measuring “quantity of risk”).
- **Quality of MRM:** Procedures to determine the quality of MRM in key areas (e.g., policies, processes, personnel, and control systems).
- **Conclusions:** Summary of findings and conclusions across individual risk categories, aggregate level of risk and direction of risk (refer to the table on the right).
- **Internal control questionnaire (ICQ):** A checklist to help evaluate a bank’s internal controls and model risk management (refer to page 7 for more details).

These procedures are considered as “*expanded guidance for examining specialized activities or specific products or services that warrant extra attention beyond the core assessment*” contained in other supervision booklets, but it is at the examiner’s discretion to determine which procedures to use, if any.

## Deloitte’s perspective

- The OCC’s MRM examination procedures are an invaluable tool for banks to conduct a self-health check, regardless of where it believes it is in the MRM maturity spectrum
  - The transparency offered by the OCC provides banks with a better understanding of regulatory focus areas and expectations.
- Using quantitative and qualitative measures across individual risk categories and at aggregate level allows examiners to have a more comprehensive assessment of a bank’s model risk.
  - Banks may need to re-configure it’s reporting and analytics practices to more closely align with this view.
  - The OCC examination scorecard is presented below:

Summary of risks associated with a bank’s model use				
Risk category	Quantity of risk (Low, moderate, high)	Quality of risk management (Weak, insufficient, satisfactory, strong)	Aggregate level of risk (Low, moderate, high)	Direction of risk (Increasing, stable, decreasing)
Credit				
Interest rate				
Liquidity				
Price				
Operational				
Compliance				
Strategic				
Reputational				













## OCC guidance: at a glance

- The Internal Control Questionnaire (ICQ) is a newly added section within the MRM guidance.
  - It aims to *"help an examiner assess a bank's internal controls for an area."*
  - *"ICQs typically address standard controls that provide day-to-day protection of bank assets and financial records"*
- *"The examiner decides the extent to which it is necessary to complete or update ICQs during examination planning or after reviewing the findings and conclusions of the core assessment."*
- The ICQ is essentially a checklist that can help evaluate MRM. The concepts apply to all model types and can be used to evaluate risk management practices.
- The questionnaire is composed of ten areas of focus (as listed on the right-hand side) and each area has detailed checklist/questions.
- *Negative responses to the questionnaire may indicate higher level of risk* resulting in a need for stronger risk management applications. Therefore, it is crucial for banks to perform a detailed analysis on their internal controls and adhere to the guidance.
- Use of ICQs are utilized to tailor examinations according to risk profile, complexity of business, and use of models by a banking institution. These are prescriptive questions compared to prior guidance.

## Deloitte's perspective

- The ICQ is a very useful tool that should be contemplated by an institution's internal control function and review activities
  - Banks may benefit from performing a gap assessment to identify potential control deficiencies
  - Key stakeholders *throughout* the model life-cycle should be engaged to ensure that the control framework is designed and implemented in accordance with the OCC's expectations (ICQ)

### ICQ – Areas of focus

 Board and senior management oversight	 Model inventory
 Personnel	 Documentation
 Policies and procedures	 Model development and implementation
 Planning	 Third-party risk management
 Assessing risk	 Internal audit



# The three lines of defense

## OCC guidance: at a glance

The new guidance reinforces expectations for application of the three lines of defense accountabilities across model risk and highlights the importance of the approach for each line.

*"Effective communication among the lines of defense, while maintaining independence, promotes sound model risk management." These perspectives and definitions are linked to OCC Heightened Standards for large institutions.*

### 1st Line of defense:

*"Frontline units, business units, or functions that create risk" (e.g., Model Owners)*

### 2nd Line of defense:

*"Independent Risk Management (IRM), loan review, compliance officer, and chief credit officer to assess risk independent of the units that create risk"*

Model Risk Management function which often serves as a 2nd line of defense is called "Independent Risk Management" (IRM) within the new guidance.

### 3rd Line of defense:

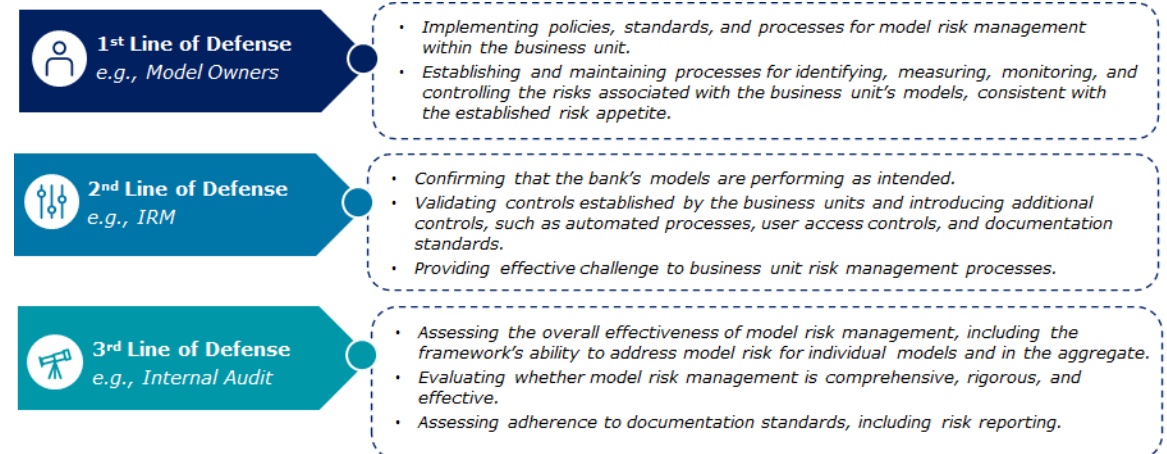
*"Internal audit provides independent assurance."*

The Handbook details responsibilities for each line of defense.

## Deloitte's perspective

- While the original guidance did not make reference to the 3 lines of defense, the industry largely aligned to this approach over the past 10 years
  - The Comptroller's Handbook's recognition of this approach signals that it may see this as a leading industry practice.
- The term "Independent Risk Management Staff" (IRM) is also new.
  - While the scope of activities presented in the Handbook include those traditionally performed by "Model Risk Management" functions / departments, it appears to include a set of activities through a broader lens (i.e., broader risk mgmt., vs. model-specific risk management)
    - Additional activities are also called out, such as validating and/or introducing controls.

### Selected roles and responsibilities for three lines of defense





# About Deloitte: a worldwide leader in MRM services

With 300+ professionals in our Model Risk Management (“MRM”) practice, we have helped organizations of all sizes design and implement their MRM programs

*Our reputation as a worldwide leader in MRM services is based on our **years of experience, our extensive capabilities and offerings, and our commitment to quality and efficiency***



## Experience

- Helped clients comply with the strictest regulatory rules
- Introduced and implemented leading industry practices at organizations with the most complex model-use environments
- In-depth experience with a broad range of models, including those which are at the forefront of the industry
- Developed and implemented technological solutions to help clients achieve scale and sustainability



## Services

- We offer a full suite of MRM services, including:
  - ✓ Model development
  - ✓ Model validation
  - ✓ Framework enhancement
  - ✓ AI risk management
  - ✓ Reporting & analytics
  - ✓ Technology solutions
  - ✓ Inventory assistance
  - ✓ Risk rating services
  - ✓ Documentation
  - ✓ Ongoing monitoring
  - ✓ MRM Training
- We can efficiently integrate hundreds of MRM professionals into your process for expedited progress.



## People

- Our MRM team includes 300+ professionals ranging from:
  - ✓ Financial engineers
  - ✓ AI / data scientists
  - ✓ Mathematicians
  - ✓ Ex-regulators
  - ✓ Ex-traders
  - ✓ Programmers
  - ✓ Actuaries
  - ✓ Academics
  - ✓ Risk & governance professionals
  - ✓ PMOs
- With our large US in India (offshore) practice, we can offer high-quality services with significant cost savings.

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