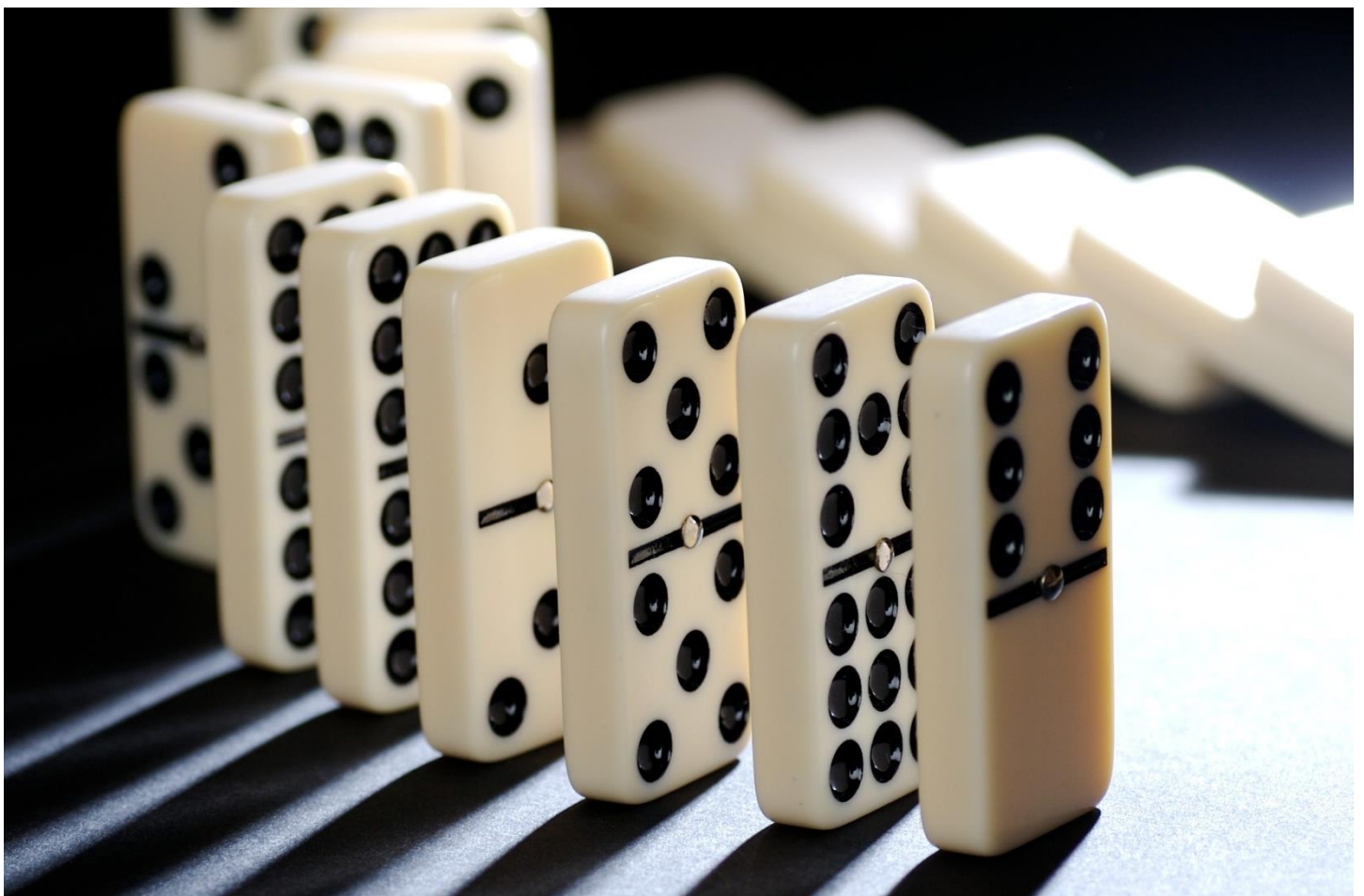Non-model risk management
Expanding the scope of quantitative risk management

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The distinct risks from 'non-models'

Regulators now expect financial institutions (FIs) to identify and manage risks not only from traditional models but also from quantitative methods that fall beyond the conventional definition of models.

These 'non-models' pose distinct risk management challenges.

Historically, FIs have tiered models and applied risk management frameworks commensurate with the risk. However, this approach overlooks potential risks from quantitative tools and techniques not meeting traditional model criteria.

A robust framework to manage risks from non-model methods is required, particularly with the adoption of artificial intelligence (AI) and machine learning (ML) techniques, which may not be classified as models.

What are non-models?

Non-models encompass a broad range of deterministic quantitative methods, aggregation tools and techniques that yield qualitative and/or quantitative outputs.

The tools are often used to support decision-making or streamline processes, but are not formally recognised or governed under conventional model risk management (MRM) frameworks.

Examples include data aggregation tools that consolidate inputs from multiple sources, spreadsheet-based deterministic calculators, and qualitative risk assessment tools that involve quantitative elements but do not produce a direct quantitative outcome.

While these tools may not fit within the regulatory definition of a model, their influence on decision-making and integration into larger systems pose significant operational, data integrity and reputational risks.

Key challenges in managing non-model risk

When FIs adapt their risk management frameworks to include non-models, they face challenges in identifying, monitoring and mitigating the associated risks.

1. Inadequate governance framework

Many FIs operate with governance frameworks that are tailored to traditional models, overlooking the necessary oversight and controls to manage non-model risks.

The lack of a framework for non-models means they often evade standard governance processes, including formal risk assessment, approval procedures and continuous monitoring.

This inadequacy stems from the lack of a clearly defined scope of what constitutes a non-model, leading to inconsistent treatment across the organisation.

Without a comprehensive risk framework, non-models can introduce risks at various decision-making stages without undergoing the same level of scrutiny as traditional models.

To address this, FIs must evolve their risk frameworks to incorporate non-models, ensuring consistent oversight across all quantitative methods.

2. Ambiguity in non-model identification

A fundamental challenge in managing non-model risk is the lack of a clear definition and classification of what constitutes a non-model.

The ambiguity leads to inconsistencies in identifying and inventorying these tools. By nature, non-models often fall outside the established parameters of MRM frameworks. As a result, they are frequently overlooked.

Furthermore, many FIs lack the necessary tools and processes to systematically identify non-models within their operations. Without clear criteria for identification, these FIs struggle to apply effective risk management techniques.

Specialised tools and technologies are needed to scan their environments for non-model tools and methodologies that may introduce risk.

3. Lack of a structured approach and resources for validation

Unlike traditional models, which typically undergo a well-defined validation process, non-models often lack a structured validation approach. This is exacerbated by insufficient resources for validation of non-models.

In many cases, non-models are deemed non-critical and receive only ad hoc or superficial validation, if any.

The absence of standardised validation procedures for non-models leaves FIs exposed to unforeseen risks.

To mitigate this, FIs should develop tailored validation frameworks for non-models that reflect their complexity and risk profile, ensuring they are reviewed with the same diligence as models and as appropriate to their risk tiering.

4. Inadequate or non-existent documentation

Proper documentation is a cornerstone of effective management of quantitative methods. That said, documentation is inadequate or non-existent for non-models.

This creates challenges in understanding tool functionality, assumptions, limitations, and reliability for decision-making.

Without robust documentation, assessing risks or making improvements becomes difficult.

In addition, inadequate documentation complicates identifying interdependencies between non-models and models within an FI, clouding the risk landscape.

FIs must prioritise documentation for non-models, ensuring these tools are clearly described, monitored, and understood by relevant stakeholders.

5. Lack of awareness

A significant barrier to effective non-model risk management is the widespread lack of awareness about the risks posed by non-models.

Many non-model users are unaware of the potential risks these tools can introduce, leading to their underestimation and inadequate scrutiny.

The decentralised and informal development of non-models often result in their integration into decision-making processes without proper risk assessments.

This awareness gap can extend to senior management, which may not recognise the importance of instituting a formal framework for non-models.

Raising awareness at all levels of the FI is critical for recognising and managing non-model risks. This can be achieved through targeted training programmes and integrating non-model risk management into the FI's broader risk culture.

6. Data quality management

Unlike traditional models, which have established data governance protocols, non-models often lack rigorous data quality checks.

Inconsistent, incomplete or outdated data used in non-models can lead to incorrect outputs and misguided decisions.

Data quality management is crucial for FIs looking to mitigate non-model risk.

Establishing robust data governance frameworks that apply to both models and non-models is essential. This includes applying the same validation, cleansing and monitoring processes to non-model data as to model data.

Roadmap for effective non-model risk management

As FIs increasingly adopt quantitative tools that fall outside the traditional definition of models, establishing a comprehensive roadmap for non-model risk management is critical.

This roadmap should ensure that non-models are governed, validated and monitored with the same rigour as traditional models. Below is a structured approach that FIs can follow to effectively manage non-model risks.

1. Establishing a framework

The first step for effective non-model risk management is the establishment of a comprehensive framework that clearly defines a non-model, differentiates between models and non-models, and articulates the governance structure required to manage the risks posed by these tools.

The framework should outline the roles and responsibilities of stakeholders across the organisation, including risk, compliance, IT and business units.

It should also specify the processes for risk identification, monitoring and mitigation, ensuring non-models are subject to periodic reviews and aligned with broader risk management practices.

The framework must be adaptable to incorporate emerging technologies, such as AI and ML, which may blur the lines between models and non-models.

2. Robust inventory and workflow solution

A crucial element of the roadmap is creating a robust inventory of all non-models within the FI.

This inventory should capture detailed information about each non-model, including its ownership, purpose, scope, data inputs, outputs, limitation, assumptions, and dependencies on other models or systems.

Additionally, FIs should implement a workflow solution that tracks the lifecycle of non-models, from creation to retirement.

The solution should facilitate risk assessment, validation and governance processes, providing transparency into how non-models are used and maintained.

By developing a centralised repository and automated workflow, non-models can be properly documented and tracked, reducing the risk of unauthorised or outdated tools influencing critical decisions.

3. Defining risk drivers and risk tiering

Not all non-models carry the same level of risk. Hence, it is important to define risk drivers and implement a tiering system that reflects the complexity and potential impact of each non-model.

Once these risk drivers are identified, FIs should categorise non-models into risk tiers, with higher-risk non-models subject to more rigorous governance and validation procedures.

This tiering process enables FIs to allocate resources more effectively, prioritising high-risk non-models while maintaining adequate oversight of lower-risk tools.

4. Validation and implementation testing

FIs should develop a structured approach to validating non-models, including implementation testing, to ensure they function as intended and produce accurate results.

The validation process should assess assumptions, methodologies, data sources and outputs of each non-model, identifying any weaknesses or potential areas of risk.

Additionally, periodic re-validation should be conducted to confirm that non-models remain fit for purpose over time, especially as market conditions, data inputs or regulatory requirements change.

For AI/ML non-models, specialised testing, such as bias detection and interpretability analysis, should be incorporated into the validation process to ensure responsible AI usage.

5. Streamlining governance of EUCs, expert judgements, AI/ML algorithms and alignment with MRM framework

One of the key challenges in non-model risk management is the fragmented governance of various tools, such as end-user computing (EUC) applications, expert judgement-based approaches and AI/ML algorithms.

These tools often operate in silos, without consistent oversight or alignment with the FI's broader MRM framework.

To address this, FIs should streamline governance of non-models by integrating them into the existing MRM framework. This involves ensuring that non-models, regardless of their classification, are subject to the same governance standards as traditional models.

The alignment should include standardised risk assessment processes, documentation requirements and validation procedures.

For AI/ML non-models, FIs should establish governance protocols specific to their unique risks, such as ethical considerations, explainability and performance monitoring.

By aligning the governance of non-models with the MRM framework, FIs can create a cohesive approach to managing quantitative risks, ensuring that all tools — whether traditional models or non-models — are governed effectively.

Regulatory oversight

Regulatory expectations around non-model risk management are evolving, but FIs must not allow narrow, institution-specific model definitions to constrain oversight of complex tools or deterministic quantitative methods, such as decision-based rules or algorithms.

The Office of the Comptroller of the Currency in the US, through its Comptroller's Handbook for MRM, and the Prudential Regulation Authority in the UK, through Supervisory Statement 1/23, have emphasised the importance of managing the risks posed by such tools.

These regulators have guided FIs to include deterministic quantitative methods, algorithms and other non-models under their MRM frameworks, with governance that is proportional to the risks these tools present.

This shift ensures that all quantitative methods — whether classified as models or not — are subject to appropriate risk management and oversight to mitigate potential risks effectively.

How CRISIL can help in non-model risk management

CRISIL, with its expertise in risk management and model governance, is well positioned to partner with FIs to address the evolving challenges around non-model risk management.

CRISIL's comprehensive playbook on non-model risk management, which includes identified metrics and processes for the identification and tiering of non-models, allows FIs to leverage a structured approach to assessing non-model risks across the enterprise, ensuring comprehensive risk coverage.

Non-model identification within an FI's inventory is a crucial step in effective non-model risk governance. CRISIL helps FIs identify non-models through a six-step process:

1. Enhance model risk framework

Review and identify gaps in policies, standards and risk appetite to cater to increased regulatory oversight and the evolving non-model landscape.

Establish a clear definition of what constitutes a non-model within the FI's risk management framework.

2. Conduct an inventory review

Review the FI's inventory of tools, processes and methodologies to identify potential non-models. Non-models may include a manual process, expert judgement-driven decision approach, simple rule-based calculators, and tools.

This review should consider key factors such as complexity, reliance on expert judgement and the potential for operational failures.

3. Develop risk tiering criteria

Develop the non-model procedure document outlining the set of criteria to classify and risk-tier the identified non-model tools and processes.

These criteria should consider factors such as the level of automation, degree of human intervention and potential impact on decision-making.

4. Engage stakeholders

Involve key stakeholders, such as business units, risk management functions and IT, in the identification and classification process. The collaboration helps ensure a comprehensive understanding of the FI's non-model landscape and promotes buy-in from across the organisation.

Set up cross-functional steering and working groups to address gaps against regulatory requirements. Enable enhanced oversight through risk appetite and management information.

Provide training to the Board and senior management and develop broader communication for associates impacted by the new requirements.

5. Establish controls

Design and establish non-model development and validation templates to develop standardised documentation for all inventoried non-models.

Review the operating model for the MRM function, designate relevant stakeholders, and design governance approach for effective oversight across various teams that develop non-models.

Ensure seamless integration of the framework with the existing data process and non-model development workflows. Establish a robust data management framework with a strong focus on data quality, sourcing, storage and validation.

Develop standardised validation and monitoring, along with a documentation template, for consistent and comprehensive assessment of the non-model.

Implement a process for ongoing monitoring of the FI's inventory to identify new non-models or changes to existing ones. This process should be integrated into the organisation's overall risk management framework and be subject to regular review and update.

6. Risk reporting

Establish a reporting framework for senior management, governance forums and Board members.

Conclusion

As the financial landscape continues to evolve, non-model risks are expected to increase in frequency and complexity. To address this, enhanced governance frameworks are crucial.

CRISIL understands the unique challenges that non-model risks pose, requiring tailored governance and review approaches. Its MRM expertise naturally extends to non-model governance as well.

CRISIL's customised governance and oversight framework enables FIs to effectively mitigate non-model risks, bolstering operational resilience.

By partnering with CRISIL, FIs can enhance risk management practices, foster a robust risk culture, and navigate the evolving regulatory landscape with confidence.

In doing so, FIs will protect their assets and reputation, as well as position themselves for sustainable growth.

The more complex and judgement-heavy non-models should undergo thorough validations, while the simpler non-models can be managed with appropriate oversight.

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