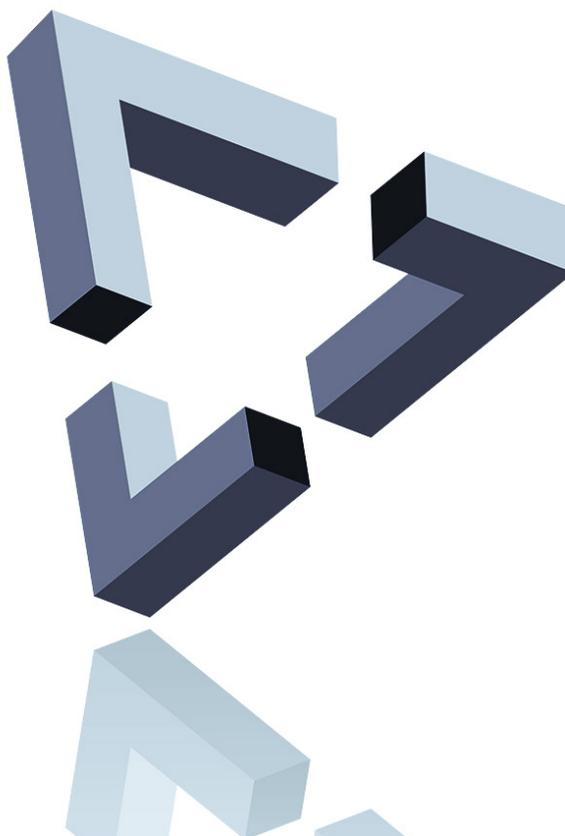


Risk Practice

Banking models after COVID-19: Taking model-risk management to the next level

The COVID-19 pandemic has revealed unexpected flaws in the business models that banks rely upon. How can they best address this challenge?

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The COVID-19 pandemic is taking a terrible toll in human life and in the livelihoods of millions the world over. As people and institutions struggle to contain the spread of the virus, the measures necessarily imposed have caused major economic disruptions. Every industry has been affected, and banking is no exception. Capital, profit-and-loss, and liquidity positions have been hit very hard. One consequence has been that banks' models have broken down across their business. The flaws have put the reliability of these models in doubt and suggest that they cannot be trusted to help banks navigate through the crisis.

Few business leaders could have foreseen a global economic shutdown of this magnitude. The models that financial institutions depend on to run their businesses simply did not account for such a crisis. Most models are almost by necessity designed to predict a stable future. In truth, the real failure is not that banks used models which failed in this crisis but rather that they did not have fallback plans to manage when the crisis did come.

There are a number of reasons for the failures. First, model assumptions and boundaries defined at the design stage were developed in a pre-COVID-19 world. Second, most models draw on historical data, without the access to high-frequency data that would enable recalibration. Finally, while access to the needed alternative data is theoretically possible, models would not be able to integrate the new information in an agile manner, because the systems and infrastructure on which they are built lack the necessary flexibility.

Banks are experiencing ever more model failures, and further issues can be expected with time. Financial institutions must now urgently review their model strategies. They need to develop and apply both efficient short-term actions and a long-term plan to improve model resilience. Over two prioritized time horizons, banks can carry out coordinated model adjustments to enable business continuity in the short term while reviewing their

model development and redevelopment needs and upgrading their model-risk-management (MRM) frameworks over the longer term.

COVID-19 has affected model reliability across all bank functions and operations

Model issues are not confined to one business or function but instead have emerged in every aspect of a bank's operations. The effect on standard operations is widespread:

- Rating models are inaccurate because they are unable to update scores rapidly, rendering them irrelevant in assessing creditworthiness across sectors or customer segments.
- Early-warning-system (EWS) indicators are showing a misleading number of signals, causing a loss of predictive power.
- Liquidity models are failing to predict large outflows and portfolio rebalancing, thereby putting liquidity positions at risk.
- Model-based market-risk approaches are overreacting to stressed price and credit, as well as to liquidity shortages, leading to inflated profit-and-loss impact and costly extra funding of cleared and over-the-counter (OTC) transactions
- Regulatory models are mechanically increasing capital and liquidity requirements and provisioning because of their procyclicality.

The short-term effects on regulatory models, including those for the IRB approach, IFRS 9, and stress testing, are expected to be partially neutralized by regulatory and supervisory flexibility.¹ We do anticipate further guidance in the future. Inevitably, banks will have to adjust their data and methodologies to reflect the new normal.

¹ The IRB approach refers to the internal ratings-based approach to calculating capital requirements, as defined by the Basel Committee on Banking Supervision in 2001; IFRS 9 refers to the International Financial Reporting Standard 9, which changed the way banks classified and measured financial liabilities as of January 2018.

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By contrast to the effects on regulatory models, the impact of the COVID-19 crisis on business models was immediate. Their failure has rendered them useless for supporting decision making in the crisis. Banks must urgently address the model failures and make needed adjustments to avoid having to rely only on the analysis and judgment of experts.

The speed of banks' reaction to the crisis has triggered new risks

Like companies in other sectors, financial institutions were unprepared for a locked-down economy and have scrambled to adjust. Rapidly, they are taking model-mitigation actions, often in an uncoordinated way. The rushed actions include the following:

- replacing models with expert views only
- recalibrating models using recent data
- adjusting model outcomes according to expert analysis
- building alternative models to fit banks' current needs

These mitigation actions have been hampered by short implementation timelines, a lack of access to alternative data sources (such as high-frequency

data), and the absence of an underlying agile operating model. This last obstacle prevents banks from addressing arising changes with timely adjustments on an ongoing basis. The result is that the mitigation actions themselves are generating a host of new risks:

- **Model failure.** The speed at which solutions and adjustments are being deployed increases the risk of model underperformance and failure. Poor and biased model outcomes could lead to legal and reputational risks because of the inappropriate solutions.
- **Contradictory messages and decisions.** Adjustments and underlying assumptions applied inconsistently across the different types of models may prevent informed and aligned decisions.
- **Inability to launch effective redevelopment.** The redevelopment of models can be impeded because of a lack of perspective on the new normal and its impact on business.

Banks need to do more than act efficiently in the short term to manage the crisis. They must also prevent short-term solutions from becoming long-term problems by taking a step back and developing a coherent and resilient model strategy.

What strategies should financial institutions now be putting in place?

To address the challenges thrown up by COVID-19 and the risks of quick-fix solutions, banks should develop their two-phase strategy. The first phase is a short-term crisis-operating mode for MRM, and the second is longer-term comprehensive enhancement of the MRM strategy to increase resilience and enable proactive adjustments to arising changes.

Phase one: Moving to a crisis-operating mode for model-risk management

In the first phase, banks focus on effectively adjusting models to make them fit for purpose and mitigate the risks of poor business decisions. The adjustments should be made quickly but also efficiently and consistently to avoid undue redevelopment or readjustment costs.

We recommend that a dedicated taskforce be created to lead banks in crisis-operating mode. To run the MRM crisis response effectively in a highly disruptive situation, the team should have clear governance, a disciplined operating model, and useful MRM tools. It will lead a rebalancing effort away from business-as-usual activities to crisis activities. Taking an agile approach, the team should perform a quick and effective MRM review. Using clear methodologies and its MRM tools, including model inventory and an MRM crisis-response dashboard, it can then develop and implement a well-organized crisis-response plan. We recommend that this consist of four parts:

1. **Inventory of model adjustments and models at risk.** The inventory will identify models that have failed or are likely to fail in the near future. It should then identify all model adjustments that have been applied and map them against the identified models at risk.
2. **Consistent model-mitigation actions.** Model adjustments should be applied consistently across functions and operations. The MRM team should ensure cross-checking of model adjustments and underlying assumptions for

the different types of models to ensure consistency and to prevent contradictory messages and decisions.

3. **Timely review of model adjustments.** The team should quickly perform an effective challenge of all model adjustments and underlying assumptions planned, taking an agile approach and applying a focused review methodology.
4. **Short- and long-term redevelopment plans.** Model adjustments and model-redevelopment needs must be prioritized according to the criticality of the model for the business and probability of failure. Once this is complete, banks must review the applied model adjustments and the recommended model-redevelopment or model-adjustment needs.

Phase two: Moving to the next level of the model-risk-management journey

Banks need to use MRM in a more strategic and fundamental role, as banks move proactively to manage their portfolios of models. The purpose of MRM will be to enhance business efficiency and management decision making while increasing the resilience of the model landscape.

To enhance their MRM, banks should develop solid framework elements to inform business and strategic decisions. While MRM will add value in a number of ways in the current situation and the overall model strategy, the following core elements can be considered essential:

- **Overview of models at risk and model contagion.** Banks should be able to identify models at risk by evaluating whether and how each model is essential to business and banking operations. It should enhance tiering and model-risk-assessment methodologies to gauge exposure to failure—model limitations and boundaries. The overview should also enable the evaluation of model interdependencies. This capability will allow banks to assess and anticipate the risk and impact of model contagion.

- **Model contingency plan.** The bank should review model-risk-appetite statements and enhance model boundaries and limitations with clear tolerance levels for specific scenarios. A fallback solution should be developed for models at risk with zero or low tolerance for failure (high criticality). A plan is needed for the continuity of model-related activities in case of disruption. The plan might include a remote operating model, remote access to data systems, and adequate infrastructure to continue activities.
- **Flexible and versatile talent pool.** Banks need people with the necessary expertise and capabilities to identify the models at risk across different functions and businesses and to perform focused model-risk assessments. The team should work under clear program governance, ensuring visibility and accountability of business-critical activities, such as model development, adjustments, review, and monitoring.
- **Dynamic MRM dashboard.** The dashboard is an MRM tool that can be configured to alert the bank of emerging models at risk. Plans for business-wide model redevelopment and MRM enhancement can be integrated into the tool, which can also enable the tracking of progress against milestones based on key performance indicators.

While the extent of the COVID-19 crisis was not anticipated by financial institutions, many of the issues that banks are now facing could have been avoided with more proactive MRM. It is not too late to create this capability, which links models to a bank's risk appetite and management. Rather than acting purely as a control function, MRM can now be a strategic partner, bringing value to the entire organization. By planning ahead while operating from within the COVID-19 crisis, banks can take their MRM to the next level in its journey.

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